Penn State Berks SRA 311
December 7th, 2023

Security Risk Assessment: Tully's Project Documentation

Research Documentation From:

Roger Asquith, Julian Albright, Robert Fleek,
Brandon Frantz, Janay Lewis, and Jayvian Pettit

Abstract

Our group has conducted a comprehensive risk assessment of Tully's. Contained within our group's risk assessment are multiple critical facets of Tully's operations including their point of sales (POS) systems, fire safety procedures, sanitation, physical security, as well as their budget and financials.

Our assessment of the point of sales system investigates data breaches, system failures, phishing, and skimming threats. Recommendations are detailed and provided to enhance the point-of-sale system's reliability and security. These recommendations will ensure customer information remains safe and secure and Tully's reputation intact.

Food safety protocols are addressed in order to maintain a clean eating and food preparation environment for Tully's workers and its patrons. Our analysis of food safety contains details regarding the storage, preparation, and distribution of food from Tully's to its customers. The aim of our solutions is to prevent foodborne illnesses that result from bad food sanitation and preparation protocols.

Tully's fire safety procedures are also analyzed. Potential hazards, oversights, and fire prevention measures will be discussed to reduce the risk of a fire within Tully's and to reduce the harm a fire will have if it were to occur. These changes will improve the safety of both Tullys' employees as well as its patrons.

The budget and financials section of the report aims to analyze Tully's financials and monetary health. Inside it contains an analysis of Tully's fiscal health as well as some risks that relate to it. It also contains suggestions to minimize these risks and mitigate their effects. Smart financial planning will ensure that Tully's remains profitable and sustainable in the long term.

Finally, our group also conducted a detailed analysis of Tully's physical security. Included in this section are analysis of Tully's lack of guards, entrances, cameras, and cash registers. Suggestions are made to secure the physical infrastructure and hardware of Tully's as well as its patrons from any potential physical threats.

Table of Contents:

Introduction

Almost everyone in our group has worked in the food industry. This makes it easy for us to put ourselves into the mindset of a Tully's worker along with Robert also working at Tully's as of this project. Having someone with actual hands-on experience with Tully's establishment completely changes the way we approach this.

A restaurant environment is also prone to risks and dangers for everyone involved, the employees and the customers. Customers can be exposed to many risks with the food alone and the same goes for the employees when cooking it. There is also risk within exterior forces like robbery and problematic customers. With this amount of risk, why wouldn't we do Tully's. The food industry is also profitable, always growing, and will always exist. Tully's allowed us to get experience in mitigating the risks seen in the food industry.

I have always considered the idea of franchising a business and some of the most profitable franchises are in fast food with the most profited Mcdonald's in 2022 earning 9 million in profit alone. If anyone within the group were to become a franchise owner, having the experience of risk mitigation, identification, and other knowledge could save them from lawsuits or other types of profit loss. For example, I could completely be shut down if I were to experience a kitchen fire or customer lawsuit for bad food or burns from hot products. My first job was in fast food and I saw many unsafe things and risks that could have caused major issues for the owner.

While doing this project I thought about that and related it to how I think they could have changed things or done it differently for better results and some of my group members shared similar thoughts when they also related Tully's to previous jobs. This is another reason behind me wanting to do Tully's due to the food industry being so hard on employees and also having so much risk.

The industry is known for having some low-quality employees in it as well like teenagers and overworked employees. The turnover rate is extremely high which can be seen when working in the industry co-workers can start and quit within weeks this was something I experienced. Having employees rotate in and out results in lots of under-trained people having to step up and take responsibility when they are not ready for it. I think this is why so many food places can seem really low quality.

Taking the steps to learn and mitigate the risks for these employees will only help them and better them in a safer work environment. This is why we decided to do Tully's. It is on campus and it is in the food industry.

Background

Tully's is Penn State Berks dining hall the main and only place to eat cooked meals on campus. Due to strict rules within the residence hall, you can not cook at all within the room. This makes the only place on campus to eat meals is Tully's making it a critical service for the campus residents. This provides heavily discounted food for meal

plans and LionCash. Without Tully's, the students would need to rely on the shopping center located off campus for food. So we see it as a crucial part of the campus. The risks seen within the Tully's are Fire Safety, Physical Security, Sanitation Regulations, Point of Sales Security, Food Safety, and Budget and financial. These are some of the many risks. Tully's has a variety of meal choices with vegan options and many more. These options show the variety of customers with the establishment. If we have customers who do not have other choices they could be impacted by a shutdown of Tully's.

Risk Assessment Design

Point of Sales: Risk Identification

Over the course of our group's risk analysis Tully's many risks were analyzed. But in order to analyze risks, we first needed to find them. In order to do this everyone in our group added risks they already knew and browsed the web to find more risks that commonly face businesses like Tully's. Our group also had Robert, who was especially helpful in identifying and confirming suspected risks, because he is currently employed at Tully's.

In order to find risks relating to the point of sales systems we browsed the web until we found some common risks. One of these risks involve the use of skimmers. Skimmers are a device that can be installed on a POS system to read card numbers and PINs as well (Crail). After learning that a large number of people have been affected by the use of this skimming technology, we decided it was a risk worth adding to our risk analysis of Tully's.

Another risk that was relevant to the POS system was that of phishing. Phishing is a crime where the bad actor finds a victim and uses email to get in contact with them (phishing.org). Upon getting in contact with them, they will typically request access to sensitive information while posing as a worthy source. As it related to POS systems, any lapses in judgment could compromise hundreds or potentially thousands of credit cards for a business the size of Tully's. Due to the fact that we know Tully's does not train their employees on the risks of phishing, we deemed it worthy enough to add to our group's risk analysis.

Point of Sales:

After identifying the risks that faced Tully's, we then had the difficult task of ranking them according to the risk matrix below. This risk matrix proved very valuable as a baseline to rank and compare the risks that faced Tully's. In order to rank our risks, we used knowledge obtained from the web to determine how common these risks were, and how detrimental they were when they occurred to other businesses.

Likelihood	Negligible	Minor	Moderate	Major	Disastrous
5	5	10	15	20	25
4	4	8	12	16	20
3	3	6	9	12	15
2	2	4	6	8	10
1	1	2	3	4	5
Severity	1	2	3	4	5

Skimming(12) is a well known threat that has happened to many businesses over the years, and is always particularly damaging when it occurs. Knowing that it saw a 368% increase from 2021 to 2022 (FICO) was not particularly comforting. Over 161,000 consumer credit cards were compromised in just under a year, and PA alone was responsible for 6% of these cases. It also happened to Costco, one of the largest retailers in the world and caused them to dish out free 12 month credit monitoring to all affected customers, as well as a free $1,000,000 identity theft insurance policy to affected customers. Knowing its occurrences were on the rise and how costly they were made it easy to rank skimming as a 12 on our risk matrix. We also factored in the lack of knowledge of it around Tully's and the lack of training in regards to bad actors. We determined that it had a moderate likelihood of occurring paired with major impacts if it were to occur.

Phishing(16) is another relatively well known threat that a lot of businesses face. Upon learning that phishing attacks saw a 173% rise in Q3 of 2023, we decided the chances of its occurrence were likely slightly higher than we initially thought to be the case. In Q3, an extra 310,000,000 attacks took place (Vade) and levels were up over 40%. We factored in the most well-known phishing attack, the one against Facebook and Google when making our calculations using our risk matrix. In the Facebook/Google phishing attack, the attackers mirrored trusted vendors. They were able to create fake email addresses and request payment for the fake invoices they sent to Facebook and Google employees. In the end, Facebook and Google had lost over $168,000,000 which was laundered through a multitude of countries before finally reaching the attackers' hands. Knowing that phishing was occurring more regularly and could even hurt the likes of tech giants like Facebook and Google made us seriously raise its already high score. In the end, we settled on a score of 16 for phishing attacks. This ranking gave phishing attacks a major likelihood of occurring combined with major damages if they were to happen

Point of Sales: Risk Management

Skimming

In order to better manage the threat of skimming within Tully's, our team developed measures to manage the damage it poses, and to decrease the likelihood of an incident taking place. One method used will be educating Tully's employees on skimming. In order to do this, pamphlets will be handed out, and a mandatory class will be held for all Tully's employees at least twice a year.

Another mitigation measure will be to have employees regularly check the POS system for a skimmer device. They will be trained on how to check for a skimmer, and remove one if it is found. Employees will be required to check the POS system for a skimmer every three hours during their shifts since it is a very quick process

There will also be a procedure in place to notify affected customers immediately, and the regular checks will help Tully's management pinpoint when the skimmer was placed on the POS system. Once a time is estimated, customers who used cards within that time period will be notified and suggested to freeze their used debit/credit card and obtain a new one.

Phishing

After our team came up with policies to mitigate the risk of skimming, we shifted our focus to minimizing the risks related to phishing.

The first method we will use to minimize the threat of phishing is to implement controls. The first control will be to only have authorized personnel handle product and service procurement. Having too many untrained employees involved in this area can lead to accidentally leaking confidential information to outside sources that will do the company harm.

The next control method will be to create a designated email list. On this list, all emails associated with Tully's vendors will be contained. Authorized personnel are only to communicate with emails on this list. Emails not on this list are not to be opened by any Tully's employee. This will prevent a similar situation like what happened to Google and Facebook from ever happening to Tully's.

We will also add regular audits to Tully's to ensure that all above policies are followed. If the audit finds anything amiss, a corrective action will be taken. These actions range from disciplinary action all the way to direct policy changes in order to ensure Tully's remains protected from phishing attacks.

Point of Sales: Implementation

The best part about the team's risk mitigation methods for point of sales is that they are exceptionally simple to implement. None of our suggested changes require outside help to be brought in, other than the potential hiring of staff in key positions. The training of employees can come directly from the superiors they work under. The audits suggested will be performed by company officials who have a deep-seated knowledge of both phishing and skimming attacks.

The team also performed a calculation on how the proper implementation of these suggested measures would change the risk matrix scores for both phishing and skimming.

We decided that due to vastly improved employee knowledge in combination with regular training and reminders, skimming's score on the risk matrix would drop down to a 3. We determined that after the proper implementation of the aforementioned processes, skimming would have a negligible likelihood of occurrence, and if it did it would have minor damage for Tully's. Checking the POS systems every 3 hours goes a long way in reducing the potential damage of a skimming attack.

We also performed the same analysis on phishing. After the implementation of audits, employee training, and a dedicated email list, phishing's new score on the risk matrix would be 6. We determined that phishing had a negligible likelihood, and would only do moderate damage if it were to occur.

Point of Sales: Conclusions

In conclusion, our proposed changes to Tully's POS systems have brought the estimated risks of both phishing and skimming attacks down by over 60%. With the implementation of new employee training as well as a top-down approach to dealing with vendors' Tully's should feel a lot better about the safety of its POS systems after the changes. We believe these changes will go a long way in ensuring Tully's remains a safe and reputable place where students can eat quality food and not have to worry about their identities or financials becoming compromised due to the businesses' negligence or ineptitude.

Physical Security: Robert Fleek

Physical Security Introduction: Physical security is more than just locked doors and surveillance cameras; it's about creating a robust defense system to protect

against potential threats. In this section, we'll dissect the elements of physical security, including security guards, entrances, and surveillance systems, to understand their current state at Tully's and propose strategies for enhancement.

Physical security involves measures and protocols designed to safeguard people, assets, and property from unauthorized access, theft, vandalism, and other potential risks. At Tully's, ensuring robust physical security is paramount, given its dynamic environment with a constant influx of students, staff, and visitors.

Our examination begins with a close look at the current status of Tully's security features, as seen by an insider with firsthand experience. We'll scrutinize the locking mechanisms of exterior doors, the deployment and efficiency of surveillance cameras, and the vulnerability of various entry points. Assessing these components will allow us to identify potential risks and weaknesses in Tully's current physical security setup.

Moreover, we'll analyze the acceptability of these risks, considering factors like the presence of security guards, the state of entrances, and the coverage of surveillance cameras. By evaluating the current risk levels, we aim to gauge the potential impact of these vulnerabilities and understand the urgency for mitigation.

Our exploration will extend to the assessment of specific areas within Tully's, such as the open walk-in spaces, the kitchen, backroom, and storage areas. Each group presents unique challenges and risks that demand tailored security measures. We'll categorize these risks based on their severity and likelihood, providing a comprehensive understanding of the threat landscape.

To bolster Tully's physical security, we'll propose mitigation strategies and necessary changes. These recommendations span from enhancing door security to optimizing camera placements and introducing security personnel at strategic points. The suggested solutions aim not only to reduce current risks but also to fortify Tully's defenses against potential threats in the future.

As we progress, this section will expand to encompass statistical insights into physical threats, examining the prevalence of violence, theft, vandalism, and the unconventional but relevant concern of human trafficking. Understanding the broader context of security challenges faced by establishments like Tully's is crucial for devising effective security solutions.

This analysis into Tully's physical security is a step towards fostering a safer and more secure environment for everyone involved. By understanding the intricacies of current security measures and proposing enhancements, we aim to contribute to the overall well-being and confidence of Tully's risk management.

Physical Security: Risk Analysis

By researching and looking for risks through Robert's outlook while working at Tullys, we can identify vulnerabilities, assess potential threats, and propose targeted mitigation strategies. This risk analysis encompasses a detailed examination of security guards, entrances, and surveillance systems.

1. Security Guards:

Current State: Tully's currently operates without security guards, leaving the premises vulnerable to potential threats, particularly during periods of low activity.
Risk Evaluation: The absence of security personnel poses a significant risk, especially in scenarios like armed robbery. With no resistance, the potential loss in such situations could be catastrophic.

2. Entrances:

Current State: Exterior doors, including the employee walk-in door and the kitchen backdoor, exhibit lax security measures. Unlocked doors and open entrances pose substantial risks to the security of valuable assets and stock.
Risk Evaluation: The kitchen backdoor, always open and easily accessible, represents an extreme high-risk entrance, creating a potential gateway for theft and unauthorized access.

3. Surveillance Systems:

Current State: Limited camera coverage within Tully's, especially in areas crucial for security, such as the backroom and delivery zones.
Risk Evaluation: The lack of comprehensive camera coverage increases the risk of undetected breaches, enabling potential attackers to exploit blind spots for theft or vandalism.

4. Specific Area Risks:

Open Walk-in and Kitchen: Frequent foot traffic and vulnerable entry points.

Backroom and Storage Room: Elevated risk, especially when doors are left open and unlocked, compromising the security of valuable assets.

This is the Risk Matrix for the entrances before mitigation.

Group	Likelihood	Severity	Impact
1 Open Area	5	2	10 (Medium Risk)
2 Kitchen	5	5	25 (High Risk)
3 Backroom	3	4	12 (Medium RIsk)
4 Storage Room	2	5	10 (High Risk)

In conclusion, this risk analysis underscores the urgency of implementing robust security measures at Tully's. By addressing vulnerabilities and tailoring mitigation strategies, we can pave the way for a safer environment, mitigating risks and fortifying Tully's against potential security threats.

Physical Security: Implementing Methods

In response to the identified risks within Tully's physical security, strategic mitigation measures are imperative to enhance overall safety and fortify the establishment against potential threats. The following proposed strategies aim to address vulnerabilities in security guards, entrances, and surveillance systems:

1. Security Guards:

Proposal: Introduce trained security personnel to monitor the premises, especially during periods of low activity.
Rationale: A visible security presence serves as a deterrent, reducing the likelihood of potential threats. Trained guards can respond effectively to security breaches, minimizing potential losses.

2. Entrances:

Proposal: Implement enhanced access control measures, including the installation of locks on critical entrances, such as the employee walk-in door and the kitchen backdoor.
Rationale: Restricting access to specific areas reduces the risk of unauthorized entry. Installing locks provides an additional layer of security, particularly during non-operational hours.

3. Surveillance Systems:

Proposal: Increase camera coverage by strategically placing additional cameras in vulnerable areas like the kitchen and backroom.
Rationale: Comprehensive camera coverage ensures visibility in critical zones, reducing blind spots that could be exploited by potential attackers. Surveillance acts as a proactive deterrent and aids in the swift identification of security breaches.

4. Specific Area Mitigation:

Open Walk-in and Kitchen: Consider relocating the main camera to cover vulnerable entry points effectively. Implementing access control measures, such as a locking mechanism, on the main entrance to the kitchen further strengthens security.

Backroom and Storage Room: Enforce strict protocols to ensure doors are consistently locked during non-operational hours. Conduct regular checks to address any instances of doors being left open.

5. Financial Allocation:

Proposal: Allocate funds from the overall budget to support the implementation of proposed security measures, including hiring security personnel, installing locks, and expanding camera coverage.This can be done easily because of Tullys 4 million dollar enhancement plan.
Rationale: Investing in security measures is an essential step toward safeguarding

Tully's against potential threats. The financial commitment reflects a commitment to prioritizing safety.

Incorporating these proposed risk mitigation strategies is crucial for creating a secure environment at Tully's. By addressing vulnerabilities and implementing targeted measures, the risk of security threats can be significantly reduced. The subsequent section will outline the anticipated impacts of these proposed strategies and their potential to enhance overall security at Tully's.

This is the new risk matrix after risk mitigation.

Group	Likelihood	Severity	Impact
1 Open Area	3	1	3 (Low Risk)
2 Kitchen	2	4	8 (Medium Risk)
3 Backroom	3	3	9 (Medium RIsk)
4 Storage Room	1	4	4 (Low Risk)

Physical Security: Threats Analysis

In contemplating the physical security landscape at Tully's, an examination of potential threats reveals a spectrum of challenges that necessitate thorough consideration and

proactive measures. Understanding these threats provides a foundation for implementing effective security strategies. The primary threats identified include:

1. Violence:

Statistics: In 2021, there were approximately 77,000 incidents of violence reported in various public establishments, with restaurants ranking as the 8th most common setting for violent crime.

Potential Impact: Tully's, with its regular influx of people during peak hours, becomes susceptible to incidents of violence. The lack of security measures amplifies the risk, leaving patrons and staff vulnerable.

2. Theft:

Scenario: Given the ease of access due to lax security measures, the potential for theft at Tully's is a notable concern.

Potential Impact: Unsecured entrances, such as the open kitchen backdoor, provide opportunities for theft, posing a significant risk to valuable assets and inventory.

3. Vandalism:

Risk Evaluation: Although less common than theft, vandalism is a plausible threat, especially when considering the potential lack of surveillance in critical areas.

Potential Impact: Deliberate destruction of property, if left unchecked, can lead to financial losses and operational disruptions.

4. Human Trafficking:

Relevance: Restaurants, including Tully's, serve as gathering places for young individuals, making them potential targets for human trafficking.

Potential Impact: Victims forced into labor may be exploited within the restaurant setting, raising ethical concerns and potentially tarnishing the establishment's reputation.

Group	Likelihood	Severity	Impact
1 Violence	5	5	25 (High Risk)
2 Theft	5	3	15 (High Risk)
3 Vandalism	3	4	12 (Medium RIsk)
4 Human Trafficking	2	5	10 (Medium Risk)

Risk Mitigation:

Violence: Implementing visible security measures and possibly adopting panic buttons can deter potential violent incidents. Additionally, staff training for de-escalation can enhance the overall safety of the establishment.

Theft: Strengthening access control through door locks and enhanced surveillance can significantly reduce the risk of theft. Regular security audits can identify vulnerabilities.

Vandalism: Increasing camera coverage and maintaining well-lit exteriors can act as deterrents, minimizing the likelihood of vandalism. Prompt repairs and heightened security awareness further mitigate risks.

Human Trafficking: Collaborating with local law enforcement, implementing staff training programs, and fostering a vigilant community within Tully's can contribute to preventing human trafficking incidents.

Group	Likelihood	Severity	Impact
1 Violence	2	4	8 (Medium Risk)
2 Theft	2	2	4 (Low Risk)
3 Vandalism	1	3	3 (Low RIsk)
4 Human Trafficking	1	4	4 Low Risk)

By comprehensively addressing these potential threats and implementing tailored risk mitigation strategies, Tully's can foster a secure environment for both patrons and staff, ensuring the longevity and reputation of the establishment. The subsequent section will delve into the financial considerations associated with these proposed security measures.

Physical Security: Financial Implementation

As we try to fortify Tully's physical security infrastructure, it is imperative to align proposed enhancements with the available budget. With a substantial $4 million allocation for further development, financial planning is crucial to strike a balance between operational safety and fiscal responsibility.

1. Security Personnel Costs:

Proposed Addition: Employing a single security officer at the entrance.
Cost Estimate: Depending on the region and specific requirements, an annual budget

allocation for a security officer may range from $40,000 to $60,000, inclusive of salary, benefits, and training.

2. Entrance Security Measures:

Proposed Additions: Installing locks on vulnerable entrances, such as the side door in the open walk-in area, and reinforcing access control for the kitchen backdoor.*Cost Estimate:* Factoring in the cost of high-quality locks, electronic access control systems, and installation, this may amount to a one-time expense ranging from $5,000 to $10,000.

3. Surveillance System Upgrades:

Proposed Additions: Adding multiple cameras to key areas like the kitchen and backroom.
Cost Estimate: A comprehensive CCTV system upgrade, including camera installation and networking, could range from $20,000 to $50,000, depending on the number and specifications of cameras.

4. Threat Prevention Programs:

Proposed Additions: Staff training programs and community awareness initiatives to prevent incidents like human trafficking.
Cost Estimate: Allocating funds for training sessions, informational materials, and collaborative programs with local law enforcement may require an annual budget ranging from $10,000 to $20,000.

Overall Budget Allocation:

Projected Total: Summing up the estimated costs for security personnel, entrance security measures, surveillance system upgrades, and threat prevention programs, the projected total falls within a range of $75,000 to $140,000.

Strategic Implementation:

Phased Approach: Given the budget constraints, a phased implementation of proposed security enhancements is advisable. Prioritize critical areas and allocate funds accordingly, ensuring a systematic and effective approach to fortifying Tully's security.
Return on Investment: While the initial investment may seem substantial, the long-term benefits in terms of risk mitigation, potential loss prevention, and enhanced patron and staff safety far outweigh the financial outlay.

Physical Security Conclusion:

Balancing the imperative for heightened security with fiscal prudence, the proposed security enhancements align with Tully's commitment to providing a secure environment. The allocation of the $4 million budget ensures the implementation of measures that not only fortify Tully's against potential threats but also contribute to the overall well-being and satisfaction of its patrons and staff.

Fire Safety: Julian Albright

Background:

When conducting a risk assessment for a restaurant supporting an entire college you have to consider who is working there the students. These students need to be safe while on campus at all times even though they are working under a PSU salary. Students can be less reliable when compared to trained chefs. This is why I find it important to keep them safe at all times. This should already be a standard in all companies for regular employees as it is, but we have seen some non-ideal situations for the safety of the company's employees. This is what I will be continuing within the next part of Fire Safety in the "Risk Identification" of fire at Tully's.

Risk Identification:

The risk identification of Tully's includes a lot of things besides fire, but when researching deeper into it you can see the price of high-severity risks. The cost of burns for employees or customers can be 100K-1M. Considering that a commercial kitchen costs 100K-300K, you can see how risk mitigation is needed to a certain level under law. Not only do you run the problem of a lawsuit for injuries we could see the entire half of the student center being burned down in a worst-case scenario, but this is extremely unlikely but a possibility. An actual fire risk seen in Tully's is the omelet station this as the name shows is used to make omelettes due to the only heat-resistant equipment given to them is a hot pad which can cause burns. This building is sitting in the center of the campus holds an assembly room and is at high risk for injury in case of fire emergencies. This clearly shows there is room to use tactics learning in SRA, due to the extremely high risk of a kitchen, we see certain regulations that standardize safety equipment and this can be seen within the next part "Current Safety".

Current Safety:

When looking at the current mitigation systems we can see a fire suppression system. This system is responsible for putting out deep fryers if they catch on fire from grease or any other possible ignition sources. Another safety is the fire extinguishers located our the kitchen and dining areas. This allows anyone who locates a fire to put it out. These two systems are critical to the safety of our employees and customers. Our higher level staff are also trained in fire safety which can reduce the chance of human error. We can not share this attribute with the student employees which needs to be known to ensure we do not require them to do anything out of their training. With all of these standards being placed we can see Tully's is relatively safe already. I still see room for improvement in the business. I will move into a way to better the current risk mitigation for safety equipment and training tactics to invest in Tully's.

Risk Mitigation:

Risk mitigation for Tully's is already seen with some legal requirements like FSS and fire extinguishers. I will propose some equipment and management ideas to improve Tully's establishment in fire safety.

The first thing I will be talking about is to protect the employees. As someone who worked with food, I experienced multiple hand burns due to a lack of proper equipment to assemble hot food items. Giving the employees heat-resistant gloves to wear under the plastic gloves would work for this because it will completely remove the risk of hand burns. This should be a standard within the company because it is needed to operate things like the omelet station.

Another tool for mitigating the risk is fire blankets. These can be kept near the Omlettle station in case anything catches on fire it is used to smother either a kitchen top fire or a person in case of emergency. These would be a possible option for deep fryers as well.

Moving into another tool heat alarms which could be used this is something I see as less important then the previous two options. The usage would be to alert the employees if the omelet station catches on fire and for other areas with ovens as well.

Now I will be moving into management ideas and training to mitigate more risk from the employees and customers. I want to have documented training and small tests for employees with an experienced employee or manager. This could be for ovens, fryers, and cooking stations they would get some experience with an employee and take a small test to show they can handle it. Another idea is keeping track of when the deep fryer is cleaned this can reduce the severity of a grease fire if one is ever to occur. The overall cleanliness of the oil is another risk in itself.

Implementing fire extinguisher training for our employees could be extremely beneficial due to us already having the fire extinguishers. This would be done through a company called Pyrosoft Inc. They sell, rent, and lease training simulators for fire extinguishers and we could obtain one and get training due to lack of it. It is essential to have an extinguisher but we do not train it so in the heat of the moment that could be a serious issue. Now I will show the rankings for the risk before and after the implementations for fire safety risk mitigation.

HAND BURNS:

Before: Serverity (3) * Likelihood (4) = Risk (12)

After Omelette: Serverity (1) * Likelihood (1) = Risk (1)

OPEN FLAMES:

Before: Serverity (4) * Likelihood (5) = Risk (20)

After Omelette: Serverity (2) * Likelihood (3) = Risk (6)

DEEP FRYER:

Before: Serverity (5) * Likelihood (3) = Risk (15)

After Omelette: Serverity (2) * Likelihood (4) = Risk (8)

Likelihood	Negligible	Minor	Moderate	Major	Disastrous
5	5	10	15	20	25
4	4	8	12	16	20
3	3	6	9	12	15
2	2	4	6	8	10
1	1	2	3	4	5
Severity	1	2	3	4	5

Now after observing the change in our risk numbers we can see the biggest change in hand burns being down to a 1. This is due to the only way to experience hand burns is if you do not wear the gloves. Open flames are sitting at 6 with proper training we should see little to no flames that are growing out of control. To back up the chance of someone catching their hair or clothes on fire they would have the fire blanket to put over them to extinguish the flame. The deep fryers can now sit in an 8 with extinguisher training and cleaning documents we should mitigate most of the human error in an emergency and no more hand burns due to the gloves being at the station. Now with most of the risk mitigation effect being shown, we can discuss the costs to implement what we think we need and where we might need to cut the budget at all.

Cost of Implementation:

Looking at prices we can see what our spending is going to look like. I left this apart from the risk mitigation to make it more clear and explained because it is important to note them.

- Heat Resistant Gloves - $300 ($10 per unit)
  - Uses: Mitigating hand burns
- Fire Blankets - $90 ($30 per unit)
  - Uses: Mitigating omelet stations, deep fryers, and people's clothing or hair catching on fire
- Heat Alarms - $90 ($30 per unit)
  - Uses: Mitigating omelet stations and ovens
- Pryosoft Inc. - $1,500
  - Uses: Training employees with fire extinguishers mitigating human error

The spending here can cost up to $1,980 if all options are implemented into the Tully's

Here is a decision tree showing all routes you could add to Tully's

- Final Presentation 311 - Google Slides (Slide 30)
  - The text is too small to see in the document

Conclusion/Thoughts on Fire Safety:

When concluding the section of this paper dedicated to a fire safety risk evaluation we can come away with a lot of information. Fire safety at Tully's sees some possible issues in the kitchen for our employees when it comes to the customers we see relatively safe conditions which are good to see without needing any real

implementations to mitigate more risk. The only risk seen with the customers is if the building were to catch on fire but that is an indirect risk not caused by anything the customer does. So by focusing on on where the risk is seen with the employees through the methods established in this section, we can mitigate what we need. First, the biggest risk I saw within Tully's is the omelet station where we see constant hand burns and large flames. The tactics used to mitigate this are heat-resistant gloves, Pyrosoft Inc., heat alarms, and fire blankets. This would maximize the mitigation for this risk dropping the risk tremendously from 20 to 6 this would cost $1,980. Another major risk was the deep fryers so by using the mitigation tactics of fire blankets, heat-resistant gloves, and Pyrosoft Inc. the risk goes from 15 to 8. This would be included in the initial cost seen with the omelet station the tactics could be deployed for either station so if one invests in any of these tools. There are two management tactics to mitigate risks those being the training and cleaning documents. There should be an implementation of training that ensures a complete understanding of how to operate a station and that you can handle it when it gets busy. This should allow for the employees who are not able to do the task away from the station and reduce the risk of human error. The cleaning document will keep the fryer grease trap clean as much as needed this will be signed off on by the management. By doing this we remove the level of severity of a grease fire happening within the fryer. The costs of an incident with fire could be 100K-1MIL which wouldn't be good for the company. Investing 2 thousand dollars to do some mitigation would be little to nothing for Tully's.

Food Safety: Roger Asquith

Background:
Tully's is the main center of Campus Dining on Penn State Berks. Tully's consists of two types of workers professional chefs/servers and students. This can cause issues with serving food because sometimes students are not properly trained when serving food. Since it's the main center of Campus Dining there is a whole process when it relates to serving food. The food arrives from a food distribution company and then gets loaded up by the workers. After that, it gets stored in its proper containers and is prepared by the chiefs. Afterward, the food is then cooked and served to students and faculty. It's very important to make sure that nothing wrong happens within this process because the risk of food poisoning can cause major issues for Tullys. It can lead to a food poisoning outbreak with differing results and at worst a shutdown.

Risk Identification:
The Risk of Food Safety is broken into six parts. Foodborne illnesses, Cross-contamination, Loss of Revenue, Risk of Shutdown, Allergen management, Temperature control issues. The reason why they are picked is because they all relate to each other in some way. Improper handling of food can cause cross-contamination which can lead to food poisoning/illness such as E. coli, Salmonella, Norovirus, and Clostridium perfringens. The inability to properly control the temperature of your food can cause bacteria to grow on the food which can lead to Foodborne illnesses. If an outbreak happens because of cross-contamination or improper temperature control then there's a chance of revenue loss and a shutdown happening. Poor Allergen management can cause illness or death depending on the severity of the allergy or food.

Here is the risk matrix I used to determine the level of risk for each topic. The likelihood of the risk I analyzed is based on Robby's experiences working at Tully's and the experiences of other students who dine at Tully's. The severity is based on real-life examples/effects of restaurants failing to properly mitigate their food safety risk.

Likelihood	Negligible	Minor	Moderate	Major	Disastrous
5	5	10	15	20	25
4	4	8	12	16	20
3	3	6	9	12	15
2	2	4	6	8	10
1	1	2	3	4	5
Severity	1	2	3	4	5

Foodborne illnesses (Likelihood (3) x Severity (3) = 9):

The likelihood of a foodborne illness is a three because of it has happened before at Tully's. One time they served duck and it caused food poisoning. So far we only know two students who were affected by it but it could be more that we don't know about. The severity is 3 because of the effects of food poisoning. The symptoms are fever, nausea/vomiting, dehydration, cramps, upset stomach, and diarrhea.

Cross-contamination (Likelihood (4) x Severity (2) = 8):

The Likelihood of Cross-contamination is a four because of the type of contamination that happens at Tully's. Based on Robby's experience cross-contamination only happens when workers use non-meat items with the meat fryer. So the vegetables, fries, beans, etc are fried with the meat fryer which can cause issues with people who have certain dietary restrictions such as vegetarianism, pescatarian, and veganism. The reason why the severity is a 2 and not a few numbers higher is because of the meat fryer. They do not result in death or illnesses so it's low.

Loss of Revenue and Risk of Shutdown (Likelihood (1) x Severity (5) = 5):

Normally this should be higher but based on how I rated the risk it's very low. The likelihood of both sections is one because there are no reports of Tullys losing money or shutting down because of a foodborne illness outbreak. The severity is a 5 because the average cost of a dining restaurant shutting down because of an outbreak ranges from $8030 to 2.2 million dollars per year. The loss of revenue is also the same but the money loss is based on alot of factors such as lawsuits, time shutdown, legal fees, fines, etc.

Allergen Management: (Likelihood (2) x Severity (4) = 8):

The reason why the likelihood is a 2 is because of the precautions Tullys has to prevent allergic reactions. There is an online menu and posters at Tully's that indicate if the food item can cause allergies or for people with certain restrictions. Such as meatless, vegan, pork, gluten-friendly, and halal-friendly. The Severity is a 4 because of the effects of an allergic reaction. A bad reaction can lead to hives, vomiting, wheezing, lightheadedness, low blood pressure, and even death.

Temperature control issues: (Likelihood (2) x Severity (1) = 2):

The reason why the likelihood is a 2 with temperature control is that Tullys does a good job of making sure that the food is kept at its right temperature when cooked and kept out. The only issue they have with food is the small kiosk they have with the fries and chicken tenders they serve. There is a tendency for them to be cold when they are left out for too long. It is not properly kept at a warm/hot temperature. The severity is a 1 based on the likelihood. It would be higher because poor temperature control can lead to bacteria growing on the food which can cause food poisoning.

Risk Mitigation:

The most critical part of risk mitigation when it relates to food safety is the process of storing, preparing, cooking, and serving food. Since we are talking about Tullys and their food preparation we are not going to include the delivery aspect of mitigation. I have decided to break mitigation into four sections. The first one is the steps to avoid food poisoning, the implantation of the safe quality food code, procedures, and the items used to mitigate the risk of foodborne illnesses.

When serving food to people the preparation of what you are cooking is very important. It will determine if the food you give out is up to code or not. So the first mitigation tactic I propose is the four-step method to preventing food poisoning. I brought this up mostly for students who are new to working in a restaurant or equivalent. A dining hall or restaurant needs to teach their new workers how to properly clean, separate, cook, and chill the food they serve to customers.

4 Steps to Prevent Food Poisoning

- Clean
    - Wash your hands.
    - Wash the utensils, cutting boards, and countertops you are using while cooking your food.
- Separate
    - Separate the food you are going to cook. Do not keep raw meat, poultry, seafood, and eggs near your ready-to-eat foods in the refrigerator.
    - Use different cutting boards for the food you are going to food.
- Cook
    - Cook food at the right temperature.
    - 145 degrees for Beef, pork, and lamb.
    - 160 for ground meet.
    - 165 for all poultry.
- Chill
    - Make sure you refrigerate your food a 40 degrees or lower. For a freezer make sure it's 0 degrees or lower.
    - Package food in the right containers for storage.

Items used for Mitigation:

Tullys has 5 sinks, 40 Food Thermostats, 6 Freezers, several containers of gloves and disinfectant spray. This fact played a part in my reevaluation of scores after implementing the mitigation techniques.

Safe Quality Food Code:

The third mitigation technique I brought up is the Safe Quality Food Code. The SQF is a food safety standard that is established by the GFSI(Global Food Safety Initiative). It is used to manage food safety systems and help companies demonstrate compliance with global standards. The reason why I picked this for a mitigation technique is because of how it helps create protocols for an outbreak and prevent food poisoning.

Follow the Safe Quality Food Code

- Identifying potential hazards
  - Identify potential hazards that can cause food poisoning.
  - Then create strategies to prevent it.
- Implementing preventative controls
  - Implement preventive controls such as food defense planning and allergen controls.
- Ensuring traceability
  - Create traceable systems (temperature book, logging system, etc) for the food you cook or distribute so it's easier to identify the source of the outbreak if it happens.
- Improving food safety culture and communication
  - Create an open environment of communication for all levels of the organization. Which includes the management, employees, suppliers, and customers.

Tullys Methods:

Tullys does have a few procedures in place when dealing with food in general and foods that can cause an allergic reaction. I learned about these after talking to Robby about Allergen management. I thought it was very important to put this down in my mitigation section because it highlights how important food safety is for Tullys. It also plays a part in my evaluations of the risk analysis after implementing the mitigation techniques.

1. Workers at Tully's have to wash their hands after dealing with any food that can cause an allergic reaction or gluten intolerance. (food in general)

2. Gloves must be changed when dealing with different food options when you're not serving.
3. If the food can cause an allergic reaction then the worker can only serve that item and nothing more unless they wash their hands and switch their gloves.

After Mitigation:

Here are my reasonings for the reevaluation of my risk matrix based on the mitigation techniques stated before.

Allergen Management goes down from 8 to 4 because of the mitigation techniques Tullys uses to make sure that someone doesn't have an allergic reaction. There are also signs at Tullys that indicate what food items can cause allergies and there are indicators on the online menu that can help you if you have any dietary or allergy restrictions.

Foodborne illnesses goes down from 9 to 6 because of the following mitigation techniques such as the four steps to prevent food poisoning stated before and contact tracing if an outbreak happens based on the safe quality food code.

Cross-contamination goes down from an 8 to 6 because of the mitigation techniques stated before such as using different utensils when handling different foods, washing those utensils thoroughly, and using gloves with different items.

Loss of Revenue and Risk of Shutdown does not change because there are no reports of it happening to Tullys. The likelihood cannot go any lower than a 1.

Temperature control Issues goes down to a 1 because of the use of food thermostats and freezers. If food is kept at the right temperature in storage then the risk of batriateria growing on the food decreases. If they continue to use their food thermostats appropriately than can make sure that the food they serve is at the right temperature which will reduce the risk of food poisoning.

Conclusion/Thoughts:

In conclusion, the implementation of our mitigations for food safety has brought down the risk of Allergen management and Temperature control by 50%, Cross contamination by 25%, and Foodborne Illnesses by 33%. Loss of Revenue and Risk of Shutdown sadly do not change based on the fact that Tullys hasn’t shut down because of a foodborne illness. With the new addition of the Safe Quality Food Code, there will be added protection for the establishment if there is ever an outbreak or contamination

of a food item. Tullys will avoid the risk of shutdown and continue to be the main place for students to enjoy campus dining.

Sanitation: Jayvian Pettit

Background:

Sanitation is imperative to the safety and wellbeing of all individuals. Sanitation is a means of reducing the number of harmful pathogens; bacteria, viruses and some fungi. This must be done on used surfaces and or objects. It is an essential segment of preventing the spread of infectious diseases and maintaining a healthy environment. Allowing for any establishment to provide a healthy environment in regulation to public health standards. There have been a substantial number of individuals affected from not sanitizing across the globe. Tully's must ensure state regulations are followed. This will enable Tully's to prevent foodborne illness through food safety, maintaining a clean environment, abiding to public health, providing student well-being and an impeccable reputation.

Through an exorbitant amount of research there has been common recurring risk associated with not following sanitation protocols and regulations. In this section the discussion of regular inspections, sanitation/hygiene protocols and waste management will be discussed.

To bolster Tully's sanitation protocols and regulations, we have proposed mitigation strategies and other changes to better regulate these occurrences from happening. Allowing Tully's to process the given information for acceptance of risk or mitigation of risk.

Sanitation: Risk Identification

When conducting our research there is a notice on the residual effect of sanitation throughout food establishments. Making it a perfect topic of discussion. The research conducted further iterated the inherited severity of not prioritizing sanitation. Which in turn can lead to sickness, lawsuits or even death. It is of utmost importance to mitigate and or eliminate any of these scenarios from occurring. Otherwise the idea of closing operations is not far-fetched. When sanitation protocols are not established or practiced tremendous drawbacks and backlash will arise. As for Tully's catering to a wide variety of students, this risk possesses a real-life indication of occurrence. This has allowed for certain regulations to be standardized across the board for the food industry. Due to the risk non-sanitization poses. This will be thoroughly discussed throughout sanitation's risk assessment.

Sanitation: Risk Analysis

Observing the current mitigation systems in place, protocols and regulations followed across the food industry. It is important to analyze the potential risk Tully's may face if not followed with their importance in Tully's.

Regular inspections of all areas and equipment are vital to identify potential hazards, assess compliance with hygiene protocols, and ensure the effectiveness of sanitation interventions. This can be done through standard operating procedures (SOP's) and scheduled inspections and audits. Failure to conduct regular inspection can leave Tully's vulnerable to foodborne illness outbreaks, cross-contamination incidents, pest infestations and other sanitation related problems.

Sanitation/Hygiene protocols, are to display a clear and comprehensive sanitation and hygiene protocols. These protocols ensure proper employee hand washing, cleaning procedures, food handling practices and personal hygiene. If inadequate or non-existant sanitation and hygiene protocols are not in place the spread of harmful pathogens will increase the risk of foodborne illness and cross-contamination.

Waste management, effective waste management represents proper storage, handling, and disposal; pf various waste, including food waste, packaging materials (plastics, paper and non-plastics) and hazardous chemicals. Improper waste management practices can attract pests, contribute to cross-contamination, and create unsanitary conditions, increasing the likelihood of foodborne illness and unnecessary environmental impacts.

Prior Risk Analysis Scores (These scores are based off negligence or non-compliance with regulations):

- Regular Inspections
  - 9 (Moderate)
- Sanitation/Hygiene Protocols
  - 6 (Moderate)
- Waste management
  - 5 (Disatrious)

Sanitation: Mitigation

Risk mitigation for Tully's will be forefront to prevent any risks from occurring. Tully's has a legal requirement to abide by organizations like Pennsylvania Department of Agriculture, National Restaurant Association, National Sanitation Foundation and OSHA to name a few. I have proposed some industry standard ideas to improve Tully's establishment in sanitation.

Regular Inspections:

Before: Severity (3) x Likelihood (3) = 9 (Moderate)

After: Severity (2) x Likelihood (1) = 2(Minor)

Sanitation/Hygiene Protocols:

Before: Severity (3) x Likelihood (2) = 6 (Moderate)

After: Severity (2) x Likelihood (2) = 4 (Minor)

Waste management:

Before: Severity (5) x Likelihood (1) = 5 (Disatrious)

After: Severity (2) x Likelihood (1) = 2 (Minor)

Displayed above is the risk mitigation before and after implementation. The scores before are in relation to negligence and or non-compliance. The scores after are in accordance with implementation and regular application.

Looking at the prior score of regular inspections had a drastic change. This is due to the fact that if no or rare inspections occur this will affect all operations and totally impact Tully's negatively. Regular inspections allow for visual, functional and safety inspections to all occur. Addressing many issues at once if this is rarely implemented or not at all serious violations can occur. For instance problems relating to foodborne illness, pest infestations, nonfunctional to subpar equipment resulting in fires and or critical mishaps. Negligence in this area of focus is intolerable and must occur. Ways this is solved through inspections quarterly that will be documented.Thus ensuring a safe environment for employees, students and customers.

Sanitation/Hygiene protocols digressed from a 6 to a 4 with given implementations occurring. Those being proper food safety, personal and professional hygiene such as washing of hands, hairnets and more. Contributing to the mitigation of foodborne illness and cross-contamination. These will be conducted through employee trainings to outline the importance and procedures to abide to while working at Tully's

Waste management with proper implementation reduced from 5 to 2. This would mean the reduction of food waste, recycling and waste separation. This would effectively contribute to day to day operations and reduce costs of spending due to improper mitigation measures. Overall contributing to the success of Tully's reputation

and waste management tactics.

Sanitation: Cost of Implementation

In consideration to pricing based upon our findings, regular inspections, sanitation/hygiene and waste management. This essentially outlines the importance of being in coordination with risk mitigation measures or accepting the consequence of the risk if not implemented.

Regular inspections every three months will ensure operations are in accordance with the National Restaurant Association and the Pennsylvania Department of Agriculture. This would include visual inspections, functional inspections and safety inspections. Visual inspections consisting of work surfaces, equipment, utensils and food containers, food storage areas and more that would take place throughout the entirety of the cafeteria. Functional inspections would incorporate testing the functionality of equipment and systems to ensure their proper operation and compliance with safety regulations. Finally, safety inspections which will ensure a comprehensive assessment aimed at identifying and mitigating potential hazards that could harm an employee or customer. These would include food preparation procedures, cleaning and sanitation methods, personal hygiene of food handlers, Allergen management and more. Overall the estimated annual cost would be around $2,000 annually.

Sanitation/Hygiene Protocols are to be standard for everyday operation. Consisting with Food Safety, Personal Hygiene, Environmental Hygiene, disinfectants, and PPE. Food safety, prevention of foodborne illness caused by contaminated food. With proper hygiene such as washing hands frequently, safekeeping of food and proper cooking. In relation Personal hygiene would incorporate washing hands, hair restraints, avoiding touching items that are not sanitized (cross-contamination), clean clothing and aprons, sick policies implementation, and personal items to be contained associated with employee health monitoring. Environmental hygiene, upholding the establishments cleanliness and sanitation protocols with the usage of commercial grade disinfectants and sanitizers preventing any onset of pathogens and bacteria. Investment in Personal Protective Equipment (PPE) to ensure employees are in compliance with established regulations and training. With items being gloves, hairnets, aprons, cut resistant gloves and heat resistant gloves and potholders. Thus ensuring the safety of employees and customers is guaranteed. The estimated overall cost of this implementation is estimated to be $3,000 annually.

Waste management is crucial for Tully’s to implement. If proper resources are not allocated to this risk, serious challenges will inevitably arise. Such as foodborne illness with waste attracting bacteria, pests and viruses. Safety with slips and falls, fires and

pest infestations. Increase in financial loss due to negligent and improper waste disposal, reduced efficiency and a damaged reputation. These challenges could result in potentially poor health, violated safety regulations and financial loss, for employees, students and customers. Proper waste management will ensure food waste reduction, recycling and waste separation, in compliance with the Environmental Protection Agency (EPA) and Pennsylvania Department of Agriculture (PDA). Annually the estimated cost will be around $6,000 however the benefits of a proper waste management system significantly outweighs the drawbacks of not being implemented.

Overall, the implementation of proper regular inspections, sanitation/hygiene protocols and waste management has an estimated net cost of $11,000. However, the return on investment is higher than the potential loss in revenue. Those benefits being, improved food safety, reduced disposable waste, improved productivity, enhanced reputation, customer satisfaction leading to increased revenue. If violations are found resulting in fines and fees of the Tully's .If standard industry practices and protocols are not met with compliance it will lead to stacked fees and fines dependent upon the amount of violations observed and reported. Which are estimated to be $5,000 - $50,000, if multiple violations are found.

Sanitation: Conclusion

In conclusion, if Tully's follows in accordance with the given mitigation methods of sanitation. Tully's will see a rise in foot traffic, improved food safety, enhanced reputation, customer satisfaction and trust tying to a boost in revenue. However improper sanitation poses a significant threat to any establishment including Tully's. Being foodborne illness, pest infestations and closure of Tully's. The tactics displayed to this section are meant to provide insight and possible avenues to consider. With the cost being an estimated $11,000. Failure to not implement can be attributed to fines and fees due to violations, with a payout of $5,000 to $50,000, with the possibility of additional penalties for repeated offenses. It can be strongly recommended that implementation will allow Tully's to reap the benefits if chosen to do so. Especially with Tully's 4 million dollar plan for further development. This can be used to impose ramped regular inspections, sanitation, and hygiene protocols through proper training and a better means of waste management. The overall impact will not only indirectly bolster Tully's reputation, revenue, and customer satisfaction. It will contribute to the safety and well-being of staff, students, and individuals.

Budget and FInancial: Janay Lewis

Background:

Conducting a comprehensive risk analysis into the budget and financials of a college dining hall is crucial for several reasons. Firstly, it allows for the identification and mitigation of potential financial risks that could adversely impact the sustainability and efficiency of the dining services. By scrutinizing budgetary allocations, one can pinpoint vulnerable areas susceptible to economic fluctuations, inflation, or unforeseen events, providing an opportunity to implement proactive strategies for financial resilience. Additionally, a thorough risk analysis aids in optimizing resource allocation, ensuring that funds are directed efficiently to meet the diverse needs of the student population.

Risk Identification:

In the very beginning of the risk analysis process I focused my attention on the risks of the rising food costs which I then transferred to Consumer Price Index (CPI) as that deals with issues that can affect the budget such as tuition increasing, grocery store prices increasing, and gas prices increasing. The Consumer Price Index as of September 2023 are: groceries increased 2.4%, going out to eat increased 0.4%, and gas increased 2.1%. In addition to these increase the average college tuition in 2021-22 increased 1.6%. The next big risk I found was the fact that PSU Berk's is a very large commuter campus. Out of the almost 3000 students that attend, approximately 2000 of them are commuter students. This provides a unique for campuses such as PSU Berks because it is harder to judge how many students will end up in Tully's and how many of them will even purchase meal plans. Only students living on campus are required but there are options for commuter students like LionCash which offers discounts in dining locations on campus. There is also a meal plan for commuter students (referenced in the image below), but unfortunately many commuter students don't invest in this option as there are so many surrounding restaurants that they prefer to frequent.

In West Reading popular options are: Say Cheese, Brewers, Simply Bold, B2 Bistro.In Wyomissing in Broadcasting Square: Chick Fil A, Honeygrow, Panera, Chipotle, at The Shoppes: Zoup and On the Border, and the Berkshire Mall.
For quick cheap bites there is Wawa, Sheetz, Creekside Market, Cyber Cafe. For cooking at home: Giant, Target, Kimberton Whole Foods, Weis, Wyomissing Farmers Market.

You are eligible for the following **Spring 2024** meal plans at **Berks**.

COMMUTER MEAL PLAN

Choose a Commuter Meal Plan Level:

- ○ Meal Plan Level - $250
- ○ Meal Plan Level - $500
- ○ Meal Plan Level - $1,000

▸ Details about the commuter meal plan

CAMPUS MEAL PLAN

	Level	Dining Dollars	Base Cost	Total
○	1	$843.00	+ $1590.00	= $2433.00
○	2	$1066.00	+ $1590.00	= $2656.00
○	3	$1271.00	+ $1590.00	= $2861.00

▸ Details about the Campus Meal Plan

LIONCASH+

Account Balance: $0.00

▸ Manage your LionCash+ account

▸ Details about LionCash+

Coffee, Cafes & Juice Bars

10% OFF CAMPUS MEAL PLAN | 10% OFF COMMUTER MEAL PLAN | 10% OFF LionCash

Food Court

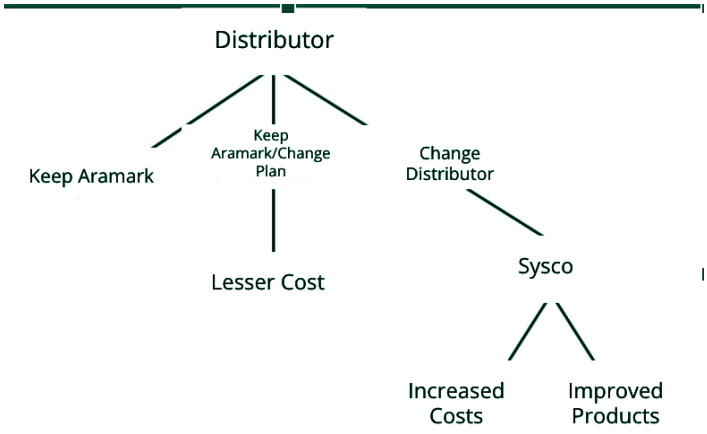
65% OFF CAMPUS MEAL PLAN | 10% OFF COMMUTER MEAL PLAN | 10% OFF LionCash

Using the risk matrix below the issue of having a high commuter campus was ranked a likelihood of 4 and a severity of 4 which gave it a score of 16. The rising CPI was ranked a severity of 4 and a likelihood of 5 which gave it a risk rating of 20. Our supplier/distributor Aramark had a cost increase of 3,760.3 million dollars which placed it at a severity of 5 and a likelihood of 4 for a final score of 4.

Likelihood	Negligible	Minor	Moderate	Major	Disastrous
5	5	10	15	20	25
4	4	8	12	16	20
3	3	6	9	12	15
2	2	4	6	8	10
1	1	2	3	4	5
Severity	1	2	3	4	5

Risk Mitigation:

To mitigate the risks of having issues with our supplier/distributor Aramark which initially received a score of 20 I proposed three potential solutions.



The first solution of keeping Aramark as a Distributor which I then lowered the score of to a 12 due to the reasons that there is no additional risk due to change, and distributors such as Sodexo, Aramark and Compass Group are actually very popular low cost

options for college food distributors. The second option of keeping Aramark as our distributor but changing the plan was ranked a 16 because we would save money but potentially lower quality of items students already enjoy. Lastly changing the distributor to Sysco which received a rating of 20 due to increased costs (~$200 increase per meal plan) but improved products/distribution.

To mitigate the risks of having a high commuter campus I proposed the following mitigation plans. First would be to improve financial education to get commuter students to attend which ranked at a 12 as it is very low risk and little to no cost but could possibly have low attendance. Next, is to improve the dining hall through restorations which I ranked at a 9 as PSU Berks already has a $4 million plan to renovate Tully's in 2024, shown in the figure below.

GBBN has initiated professional study and schematic design services for the project. Target milestones include:

- Commence Feasibility Study and Schematic Design 06/05/23
- Begin Design Development 10/23/23
- Begin Construction Documents 01/02/24
- Pre-Purchase Equipment as Needed 01/02/24
- GMP Established 03/17/24
- Begin Construction 05/13/24
- Construction Substantial Completion 08/02/24
- Construction Final Completion 08/16/24

A preliminary project budget has been established at $4M.

Lastly was to implement new partnerships with surrounding restaurants which was ranked a 12. There should be a Chick Fil A in Tully's instead of using meal plan at Chick Fil A, which was a previously failed attempt to motivate students to purchase a meal plan. There is medium risk because it will cost but no doubt there will be ample return as students would frequent Tully's much more often.

To mitigate the risks associated with the rising CPI I couldn't come up with many mitigation measures as it is far out of our control but we just have to stay vigilant, monitor, and update accordingly so the score stayed at a 16.

Conclusion/Thoughts:

In conclusion, undertaking a comprehensive risk analysis into the budget and financials of a college dining hall is crucial for informed decision-making and sustained operational excellence. The financial stability of a dining facility is intertwined with the overall fiscal health of the institution, impacting both the quality of services provided to students and the potential for long-term success. Identifying and understanding potential risks, whether they stem from changes in student enrollment, fluctuating food and labor costs, or external economic factors, allows for proactive planning and strategic mitigation measures. Such a risk analysis not only safeguards the financial

viability of the dining hall but also contributes to the broader goal of creating a resilient and adaptable campus environment that can better navigate the challenges inherent in the dynamic landscape of higher education.

Teammates Contributions:

Throughout the project everyone in our team made equal and valuable contributions towards our comprehensive risk analysis of Tully's.

Julian Took the role of learning researching fire Safety and has 1.5 years experience in the fast food industry. Main Points: risk identification of fire, Current safety levels, Post Mitigation Tactics, Costs of Implementation (COI), and Conclusions/thoughts. I have found some low & high expenses to reduce the Risk Matrix score, the formula being (Risk = Severity*Likelihood). The maximum is 25 and the lowest is 1. My contributions to this work were Introduction, Background, and Fire Safety.

Robert's role in this project focused on evaluating and improving the physical security measures at Tully's. With the knowledge gained from working at Tullys, he examined multiple parameters to see where metrics such as security guards, entrances, and surveillance systems would fit best. Then, he identified vulnerabilities, such as unlocked doors and limited camera coverage. Furthermore, he proposed mitigation strategies that include hiring security personnel, strengthening entrance security, and enhancing surveillance systems. The report provides risk analysis, financial considerations, and an overall evaluation to guide the enhancement of Tully's security.

Roger's focus in this project was Food Safety and analyzing the risk within the topic. He covered Foodborne Illnesses, Cross-contamination, Loss of Revenue, Risk of Shutdown, Allergen management, and Temperature Control Issues. He provided solutions and protocols based on information provided by the CDC, Food Safety News, previous experience working as a dietary aide for 3 years, and information about Tullys given to him by Robby. He first identified the likelihood of the risk based on information provided by Robby and then analyzed the severity of it based on the effects of the risk. (ex. Failure to prioritize Allergen Management can cause issues with people with allergies which can lead to illness or death) He then calculated it in a risk matrix and covered the details during the four presentations. After that, he talked about the mitigation techniques that can be used to reduce the risk of cross-contamination,

foodborne illnesses, allergen management, etc. In the end, he then talks about the risk matrix (Risk = Severity x Likelihood) and how the mitigation techniques lowered the likelihood of a risk happening.

Brandon handled the Point of Sales Risks for the duration of the project. He was able to pinpoint threats originating from lack of employee training and the organization's overall lack of knowledge regarding threats to their point of sales systems. His in-depth research proved invaluable in finding solutions to the risks surrounding Tully's point of sale systems and the threats they faced including phishing, skimming, and social engineering. Works on the project includes the abstract for the project paper.

Janay was primarily responsible for the research regarding the budget and financials. She has worked in the food industry for almost 3 years and has a very good understanding of what goes on in kitchens, including what goes on behind the scenes when purchasing supplies/dealing with vendors. Her research consisted of finding out reasons why students might avoid Tully's and how a large commuter campus makes the dining hall budgeting a little more difficult. She has to draw parallels between world conflicts, rising CPI, and the specific issues of commuter students to provide a comprehensive risk analysis.

Jayvian's research consisted of the importance of sanitation risks. With 1 year of experience in the food industry aiding to the overall contribution. Enabled him to orchestrate concerning issues linked to the food industry and sanitation. While creating risk mitigation measures framework and cost of implementation to address these concerns. Throughout this research he has incorporated solutions to follow aiding in Regular Inspections, Sanitation/Hygiene and Waste management. Which will enhance Tully's as a reputability establishment for students, faculty and all individuals. Displaying implementation method Tully's could suggestively use.

Risk Scores, Summary

Julian:

Fire Safety:

HAND BURNS:

Before: Serverity (3) * Likelihood (4) = Risk (12)

After Omelette: Serverity (1) * Likelihood (1) = Risk (1)

OPEN FLAMES:

Before: Serverity (4) * Likelihood (5) = Risk (20)

After Omelette: Serverity (2) * Likelihood (3) = Risk (6)

DEEP FRYER:

Before: Serverity (5) * Likelihood (3) = Risk (15)

After Omelette: Serverity (2) * Likelihood (4) = Risk (8)

Jayvian:

Sanitation:

Regular Inspections:

Before: Severity (3) x Likelihood (3) = 9 (Moderate)

After: Severity (2) x Likelihood (1) = 2(Minor)

Sanitation/Hygiene Protocols:

Before: Severity (3) x Likelihood (2) = 6 (Moderate)

After: Severity (2) x Likelihood (2) = 4 (Minor)

Waste management:

Before: Severity (5) x Likelihood (1) = 5 (Disatrious)

After: Severity (2) x Likelihood (1) = 2 (Minor)

Reference Page

https://www.forbes.com/advisor/credit-cards/how-to-spot-a-credit-card-skimmer/
https://www.fico.com/blogs/us-card-skimming-grew-nearly-5x-2022-new-fico-data-shows
https://www.zdnet.com/article/costco-customers-complain-of-fraudulent-charges-company-confirms-card-skimming-attack/
https://www.vadesecure.com/en/blog/q3-2023-phishing-malware-report#:~:text=In%20Q3%202023%2C%20Vade%20detected,Q2%27s%20total%20of%2060%20million.
https://www.graphus.ai/blog/worst-phishing-attacks-in-history/
Industrial - Mid Size, But With All The Power (pyrosoftinc.com)

https://www.epa.gov/emergency-response-research/waste-management

https://rapidswholesale.com/cleaning-janitorial-and-facility-maintenance/commercial-cleaning-supplies/restaurant-cleaning-supplies.html
Keep Your Restaurant Staff Safe with PPE - Pro Restaurant Equipment
https://haccpmentor.com/food-safety-compliance-costs/
https://www.nationalrestaurantshow.com/nrs/restaurant-operations-report
https://www.naccho.org/blog/articles/estimated-cost-to-a-restaurant-of-a-foodborne-illness-outbreak#:~:text=The%20article%20estimated%20that%20%E2%80%9Cthe,restaurant%2C%20varying%20from%20a%205%2D

https://www.cdc.gov/mmwr/volumes/72/wr/mm7226a6.htm
https://www.foodsafetynews.com/2022/05/seven-sick-with-salmonella-after-eating-at-new-hampshire-restaurant/
FICO Skimming
zdNet Costco
Vade Phishing Q3
Graphus
https://coveysecurity.com/2020/01/the-deterrent-effect-of-security-officers/
https://www.adt.com/resources/do-surveillance-cameras-statistically-reduce-crime
https://www.bestcolleges.com/research/college-shootings-statistics/
https://fedsecinc.com/5-benefits-of-hiring-a-security-guard-to-protect-your-business/
https://aramark.gcs-web.com/static-files/3871b3c2-be19-432c-8873-dde733cbdd9d
https://www.foodsafetynews.com/2023/08/sick-restaurant-employee-blamed-for-outbreak-that-caused-more-than-300-illnesses/

https://www.cdc.gov/mmwr/volumes/66/wr/mm6615a2.htm#T1_down
https://www.agriculture.pa.gov/consumer_protection/FoodSafety/pages/default.aspx
https://extension.psu.edu/food-safety-and-quality
https://agsci.psu.edu/research/impacts/themes/nutritional-food-security/enhancing-capacity/reducing-food-waste
https://prla.org/