Skyler's Systems

Disciple's Pizza Delivery System

System Proposal

Prepared for:

Mr. Taiwoo Park

Disciple's Pizza

Prepared by:

Skyler Vez

Skyler's Systems

December 4th, 2019

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Executive Summary

Mr. Park, on behalf of Disciple's Pizza, a co-op of Christian wood fired pizza trucks in the greater Seattle area, desires to partner with a software development company to aid in workflow and delivery experience. Disciple's Pizza desires to have a new delivery system to provide an easier and more convenient way of delivering pizza to their customers.

Mr. Park, on behalf of Disciple's Pizza, has enlisted the help of Skyler's Systems to develop a system that assists Disciple's Pizza in providing a smoother workflow and environment, as well as a convenient method for customers to order pizza. Skyler's Systems has the experience in developing these computer systems and acknowledges the importance and benefits that this delivery system can provide for Disciple's Pizza and their customers.

1: Introduction and Overview

1.1 Problem Statement

Disciple's Pizza has hired Skyler's Systems to develop a delivery system and mobile app to enhance their online ordering experience. Disciple's Pizza acknowledges that having a wide range of food trucks constantly traveling can cause a challenge in providing customers with a quality delivery service. Due to this, Disciple's Pizza seeks out a solution to have a more convenient and intuitive system for their employees and customers.

Disciple's Pizza states that they are not a "company", but rather, a group of food trucks and couriers that simply provide pizza to the locals. With their unique style and taste, they have captured the residents' attention for many years. Disciple's Pizza seeks to support their brand and main and upcoming mission of international mission and local church support, which is a main factor in building a delivery system. Unlike the more common pizza places like Dominos and Pizza Hut, Disciple's Pizza desires to have a more robust system, allowing their trucks and couriers to be on the move.

Disciple's Pizza looks to take full advantage of their mobile devices for both their employees and customers. Developing this system will increase all aspects of Disciple's Pizza as a business and significant figure in the local area. At Skyler's Systems, we desire to assist Disciple's Pizza in achieving their goal of providing a system, named Disciple's Pizza Delivery System (DPDS), consisting of a set of convenient applications, specifically named "Disciples" for the customer end and "Disciple's Companion" for internal use.

1.2 Project Vision and Scope

Disciple's Pizza's vision is to provide customers with an easy, convenient method of ordering and receiving pizza from their favorite pizza place. As Disciple's Pizza's partner, we intend to assist them in achieving this by creating a system, named Disciple's Pizza Delivery System (DPDS), consisting of two different applications for customer use and internal use called, "Disciples" and "Disciple's Companion", respectively. Disciples will feature the functionalities that the customer will use within the application; while Disciple's Companion will be for internal, employee use and will feature workflow-related functionalities.

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We at Skyler's Systems intend Disciples to have online ordering and status tracking functionalities. Disciples will feature this so customers can order through the application and have a better sense of where their pizza is located. The application will also support credit cards and the business's own food vouchers if customers need one. Although customers will benefit through a delivery application, the trucks and couriers will be on the receiving end of this as well. Disciple's Companion, the business's internal application, will enhance order handling, so the employees will receive ongoing and pending orders as clear as possible. This will assist the employees, ensuring that the Disciple's Companion will provide smoother workflow. Disciple's Companion will support couriers with delivery information, providing them delivery tasks, as well as aiding them with navigation for pickup and delivery. Additionally, Disciple's Companion will provide menu changes and administration support, allowing the owners to change their menu based on seasonal and specialty items. Finally, this internal application will display the sales statistics and summary for a certain day, week, or month.

Skyler's Systems intends to keep the two applications within their respective scopes and boundaries. Skyler's Systems also desires to adhere to any specific wants or needs to any applications if they provide business value and meet the application's scope and vision. Additionally, this project will only emphasize providing Disciple's Pizza with a delivery service to enhance their business. Skyler's Systems will not be adding functionality for other aspects like human resources, sales (other than displaying sales statistics), and/or promotion.

1.3   Requirements Summary

The following list includes the business requirements for Disciples and Disciple's Companion:

- Customers need to be able to supply their order, credit card/food voucher for payment, and personal information (Phone number, address, etc...)
- Food truck owners need to be able to know ongoing and pending orders in a clear, concise manner. Owners will also need the ability change the status of an order and create a new order made in-person on the application
- Couriers need to be able to know their tasks and destination during a delivery
- Food truck owners need the ability to change the menu, handle voucher information, and view the sales summary and statistics

1.4   Stakeholders and Interests

The following are stakeholders will be involved directly or indirectly by Disciples/Disciple's Companion:

- **Customers** – Anyone who is interested in purchasing and receiving a pizza from Disciple's Pizza.
- **Pizza Truck Owners** – Owners would like an effective method to receive their delivery orders and bless their customers.
- **Food Couriers** – Couriers would like more efficient trips and support of navigation and delivery tasks during their shifts.
- **Skyler's Systems Developers** – The developers at Skyler's Systems desire to achieve the goals of Disciple's Pizza and look to provide the business with applications that meet their needs and requirements.
- **Local Churches** – Disciple's Pizza looks to support local churches by creating their own delivery system and applications for online orders.

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- **Investors and Donators** – Any person(s) that are willing to provide the funds for the project and are looking to see the applications flourish.

1.5 Expected Costs and Benefits

1.5.1 Expected Benefits

With the addition of Disciples, we ensure that customers will benefit from this new application by receiving fresh pizza in a quick and timely manner. Customers will not have to worry about constant traveling food trucks to order and receive a pizza. Since Disciples will be a mobile application, customers will be able to conveniently order a pizza from anywhere with a cellular reception. The business will also see benefit with the increase of sales and increased revenue. Disciple's Companion will assist the workers, owners, and couriers with workflow, allowing the business to provide a better delivery experience to their customers. This will result in an increase in customers and sales, since customers will be able to purchase pizza in person and through the Disciple's application. Finally, both applications, Disciples and Disciple's Companion will contribute to the business's main mission of international missionary and spreading Christianity to the local area. Developing these applications will impact both Disciple's Pizza's business and reputation.

1.5.2 Expected Costs

A huge cost for Disciple's Companion, specifically, would be the knowledge gap of technical skills between the members of the business. The skill gap between members vary, meaning that workers, owners, and couriers will have to be trained on how to correctly utilize mobile phones and tablets. This will ensure that the applications wills be utilized to their fullest potential. This cost will most likely decrease with proper training, making sure the business is trained properly with their devices.

An additional cost to consider is the lack of preexisting resources. Since many employees do not have their own devices, this leads to the business providing mobile devices for owners and couriers. The lack of this resource will require additional money, ensuring that everyone in the company has the capability to utilize Disciple's Companion.

There are little to no costs now for the customer's application, Disciples. Skyler's Systems assumes that customers who install and own the application will have a basic understanding of how a delivery system will work. Skyler's Systems also assume that customers have knowledge on how to navigate their mobile devices and how to download applications from the app store. Skyler's Systems will provide the customer with an intuitive user interface to ensure an easy and straightforward experience with Disciples.

1.6 Constraints

The following list includes potential constraints for Disciples and Disciple's Companion:

- Funds for new equipment and resources will need to be saved for the upcoming project. Members are willing to invest in new equipment and programs; however, Disciple's Pizza can utilize any funds given to them from gracious donators.

- Some employees are sure to be skeptical on the arrival of new applications, considering the technical skill gap. Disciple's Pizza is encouraged to hold training sessions on the applications and mobile devices in general upon arrival.
- On behalf of Disciple's Pizza, Mr. Park wishes to have a system provide clear and concise orders to the owners, as well as have a system that provides smoother workflow. Therefore, Skyler's Systems will ensure that the internal application, Disciple's Companion, will emphasize an intuitive and concise design and user interface for better workflow.
- The customer's application, Disciples, will not be as effective and efficient if it does not provide an appealing and intuitive design and experience. Therefore, Skyler's Systems will emphasize user experience within the customer's application, ensuring that the customer has an appealing experience during use.
- The ambiguity of the time schedule can cause confusion on when certain aspects of the applications should be completed. Disciple's Pizza is advised to provide a timetable of when they would like certain aspects of the applications done, including prototypes and core functionalities like sales, workflow, design, etc...

1.7   Recommendation

Skyler's Systems recommends that Mr. Park and Disciple's Pizza reads the DPDS system proposal thoroughly. Disciple's Pizza should not hesitate to contact Skyler's Systems with any concerns, issues, or feedback that arise from reading this proposal. This allows Skyler's Systems to gain a better understanding of what Disciple's Pizza desires from their system. It also allows Skyler's Systems to refine and tune any aspects of the proposed system before beginning the development stages. Skyler's Systems recommends that at least one meeting be organized between Disciple's Pizza and Skyler's Systems to ensure both parties are in agreement of the proposed system. Although there is no strict deadline for the proposed system, Skyler's Systems will provide the system in a timely manner while also taking necessary time and effort to ensure a quality product.

1.8   Document Overview

The remainder of this document presents the following sections:

- **System Request:** The original system request presented by Mr. Park, representing Disciple's Pizza.
- **Sales Letter:** The proposed sales letter from Skyler Vez, representing Skyler's Systems in response to the system request.
- **Feasibility Analysis:** An analysis of the five areas of feasibility (Technical, Resource, Schedule, Organizational, Legal and Contractual) in respect to the two applications, Disciples and Disciple's Companion
- **Requirements Definition:** This provides an overview of the application's services and behavioral properties
- **Requirements Model:** This section includes drawings and diagrams to explain the functionalities of DPDS
- **System Evolution:** This section provides a brief discussion on the future of DPDS and how Skyler's Systems will provide more functionality to the system.

- **Conclusions/Recommendations:** This summarizes the DPDS system proposal and provides recommendations for the post-development stages.

2.0 System Initiation

October 11, 2019

SYSTEM REQUEST – Disciples' Pizza

Project Sponsor

> Name: Mr. Taiwoo Park
> Representing: Wanderer's Tools
> Phone: x7258 E-mail: twp@spu.edu

Opportunity Statement:

Disciples' Pizza is the new brand of the co-op of Christian wood fired pizza trucks in the greater Seattle area. Our trucks have our own unique style and taste and thus been loved by local residents for years. Our trucks move to many different places every day, so it has been challenging for us to provide our customers with a quality delivery service. However, we would like to start a delivery service by hiring food couriers (i.e., delivery persons). It is a very interesting setting – our kitchens and food couriers both move! We are going to need some technology to make *this* happen!

Proposed Product:

Background and Context:

Disciples' Pizza isn't a "company" per se, but rather a group of food trucks and a group of food couriers to bake and deliver pizza to local customers. We have 30 pizza trucks in the greater Seattle area, mostly on the west side of Lake Washington, and will have 30-40 food couriers in the near future. Most of our trucks moves every day, or even in the middle of a day depending on neighborhood and/or sports events. For its brand and to support our upcoming mission of international missionary and local church support, we would like to have our own delivery system and mobile apps for online orders.

We would like to take a full advantage of mobile devices for trucks, food couriers, and customers. Specifically, most of trucks already have tablets for credit card transactions. Food couriers have smart phones, and of course, our customers do. Our dream is that once our customer is craving for pizza, s/he opens our app, and make an order, then the nearest pizza truck receives the order. Also, one of our food couriers nearby will receive a delivery request, and the courier will deliver the pizza to the customer. We hope that all these processes would work smoothly to find the best truck and courier so that we can be always cost-effective and maximizing customer satisfaction.

Initial Vision and Scope:

➢ *Online Order and Status Tracking*

Our customers need to be able to order pizza specifying its dough, size, base sauce, cheese, and toppings. We also offer a set of specialty pizzas with presets, as well as bread sticks, wings, and drinks. We think to support credit cards as main payment method, while supporting our own food

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voucher cards for ones who are in need. Once a customer makes an order from our app, it automatically dispatches the work to one of our trucks --- perhaps the closest one -- and one of our couriers. Our app needs to be able to show the current status of the order, among preparation / in oven / on its way, and the courier's location in case when the pizza is on its way. After delivery, our customers can hear a message of blessing from the truck owner who made the pizza.

➢ *Pizza Truck Order Handling*

The app in our food trucks is to notify our food truck owners of new orders, and show all ongoing and pending orders on the screen. Most of our food truck owners make multiple pizzas at the same time, while handling customers in-person, so the app needs to give the information as clear as possible. Our owners are supposed to change the current status of the orders, and it would be nice if they can record a voice message (to spread the love and blessing of God) for a customer when they hand the pizza to a courier. Also, our owners should be able to create a new order made in-person through the app.

➢ *Courier Support*

Our couriers will have a smartphone app for delivery information. It will show a list of delivery tasks, as well as the current destination. If a courier is with pizza, the destination is to be delivery address, or a pizza truck for the next delivery otherwise. Our couriers need navigation service for their pickup and delivery.

➢ *Menu change and administration support*

We may want to change ingredients and specialty pizza styles depending on availability and season, hopefully through web browsers. Also, we would like to handle the food voucher information.

➢ *Sales summary and statistics*

Stakeholders Identified:

➢ Pizza truck owners – who would like a more effective way to receive delivery orders and bless the customers.

➢ Food couriers – who would like make more efficient trips and easy 'where-to-go-next' information.

➢ Our customers – people who will enjoy our fresh pizza delivered quickly.

➢ You – as our partner.

Expected Benefits:

➢ Opportunity 1 – Fresh pizza, made in my neighborhood, delivered quickly.

➢ Opportunity 2 – Improve our sales experience and increased revenue.

➢ Opportunity 3 – Spread God's love and blessing.

Special Issues or Constraints:

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We're not made of money. Members are willing to invest in the new equipment and programs, but we're talking a few hundred (not thousand) dollars each from maybe 30 owners. Similarly, I'm not sure everyone is going to be excited to run out and by a new phone or tablet to manage sales or use this system. (Although maybe we could handle that with a few purchases "by the co-op".)

Also, our members represent a wide range of computer skills and types of computers they know and use. Some are really into their smartphones and others aren't. Pretty typical people.

I don't think we are on a particularly tight time schedule. The core sales functionalities might be considered to be finished sooner, while others can be more down the road.

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October 21, 2019

Mr. Taiwoo Park
Wanderer's Tools
241 Miller St
Seattle, WA 98119

Dear Mr. Park,

It was a pleasure meeting with you last week to discuss your concern for providing pizza at a more efficient and cost-effective way rate. We want you to know that, on behalf of Skyler's Systems, we fully understand your situation and are eager to provide you with a proper solution.
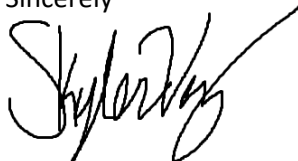
Based on your description of your business, it is most definitely difficult for one to provide pizza to a customer, especially if the business is based on a group of food trucks. The constant traveling causes hassle and frustration for not only your business, but also for the customer. It is essential to maximize your customer's satisfaction to increase your business in the local area, as well as areas your food trucks travel to.

Your request for an application that allows one to place orders and have them delivered will fulfill that need to satisfy your customers. This application provides the customer the convivence of having a pizza delivered without needing to worry about constant traveling food trucks. It will also increase your business in the Seattle area, since business will not only be at your food trucks, but also on the road.

Our services here at Skyler's Systems will assist you in achieving your goals for maximizing business. We will provide you the utmost attention to detail, design, and accuracy while developing an application that will increase your revenue and customer satisfaction. As your partner for this project, we will adhere to your needs, while also ensuring that your application has the necessary capabilities to accurately locate the nearest courier, notify food truck owners of new orders, and provide an intuitive user interface for customers. We guarantee that your customers will receive pizza at a fast and efficient rate and that our application will coordinate smoothly with the best truck and courier.

Please refer to the following contents for our proposed application for Disciples' Pizza. If you have any questions or concerns, please contact me via mobile or email.

Sincerely

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3.0: Feasibility Assessment

3.1 Introduction

Skyler's Systems has created the following feasibility analysis for the Disciples and Disciple's Companion projects. The following detailed assessment reviews the five areas of feasibility and is graded on the following scale:

- **Exceptional:** There are minimal to no concerns regarding a given area of feasibility. Disciples and Disciple's Companion will be able to continue with development with little to no obstruction
- **Great:** There are a couple to few different concerns regarding a given area of feasibility. Disciples and Disciple's Companion will be able to continue with development with cautionary measures.
- **Acceptable:** There are significant concerns regarding a given area of feasibility. Development will still be feasible; However, Skyler's Systems will consider additional caution and alternative methods to ensure safe and successful production of Disciples and Disciple's Companion.
- **Poor:** There are major concerns regarding a given area of feasibility. Development may be hindered or ceased without the consideration of alternative methods. Development may also be no longer possible or feasible due to the extreme nature and risk of the concerns.

3.2 Feasibility Analysis

3.2.1 Technical Feasibility

- User Familiarity: Mobile devices and tablets are constantly used in today's world. Concerns are **low** regarding Disciples. Disciples may have a quick tutorial upon first startup, allowing the user to get an initial feel of the application. Concerns are low to moderate regarding Disciple's Companion. Since the skill gap regarding the employees of Disciple's Pizza vary, Disciple's Pizza may need to provide training sessions for owners, couriers, and workers.
- Analyst Familiarity: Although this is the first time Skyler's Systems will develop mobile application as a company, Skyler's Systems developers have proficient knowledge in this area of expertise. Therefore, the concerns in this area are **low.**
- Project Size: Disciples and Disciple's Companion will divide sections of the project vision and structure into their respective applications. Customer related functionalities (Online ordering, User payment, status of order) will be implemented in Disciples while business related functionalities (Order handling, courier support, menu changing, etc…) will be implemented in the internal application, Disciple's Companion. The size of the project may pose **moderate** concern.
- Project Structure: The components of the requested system/application are well-defined and reasonable from Mr. Park, on behalf of Disciple's Pizza. No future requirements or desires have been provided as of now. Components of the requested system will be divided into their respective applications. Given the well-defined requirements and desires, the project structure poses **low** concern.

Technical Feasibility for Disciples and Disciple's Companion is currently **Exceptional** with potential **moderate concern** in project size.

3.2.2 Resource Feasibility

- People: Skyler's Systems is staffed with senior developers along with a handful of junior developers and interns. Teams will be organized, mixing the staff with varying knowledge and skills. Skyler's System's senior developers are equipped with mobile application development experience and will be the leads of the teams. This area poses **low** concern.
- Hardware: Skyler's Systems is equipped with up-to-date systems, allowing them to develop and create the Disciples and Disciple's Companion with today's modern technology. However, Disciple's Pizza does not have preexisting systems apart from their personal devices. This may cause hassle during the testing and implementation phases. The overall area poses **low to moderate** concern.
- Software: Since this project will be the first time Skyler's Systems is developing mobile applications, we are under prepared with our software related resources. Related software may not be enough for this project. However, obtaining relevant software will not be difficult and be possible through other means. Consider this area to pose **moderate to high** concern.
- Environment: Given the hardware and software specifics of Skyler's Systems, the work environment is suitable with hardware-related tasks as opposed to software-related. The skills and knowledge of the developers at Skyler's Systems also contribute to a more suitable environment to ensure a quality system. Consider this area to pose **low to moderate** concern.

Resource Feasibility for Disciples and Disciple's Companion is currently **Great to Acceptable**.

3.2.3 Schedule Feasibility

- Expected Timeline: Skyler's Systems has not received a strict deadline for the proposed system. Since this project is the first time Skyler's Systems is developing mobile applications, the anticipated delivery date for a fully functional system can range from Summer 2020 to Early Fall 2020. This date is anticipated and subject to change. Skyler's Systems is currently not developing any systems at the moment, giving the developers full focus and effort towards Disciples and Disciple's Companion. This area poses **low** concern.
- Slippage Consequences: Since there is not a strict deadline for the proposed system, consequences are minimal to none. Skyler's Systems anticipates a fully functional system with additional support and revisions post development. This area poses **low** concern.
- Resource Availability: Most of the relevant resources are in-house or easily obtainable. Refer to "Resource Feasibility" for an in-depth analysis of Skyler's System's resources. This area poses **low** concern.

Schedule Feasibility for Disciples and Disciple's Companion is currently **Exceptional.**

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3.2.4   Organizational Feasibility

- Stakeholder Impact
  - o Project Sponsor: Mr. Park will act as the sponsor for this project on behalf of Disciple's Pizza. Mr. Park will serve as the "middleman" for the project, communicating between the development team and Disciple's Pizza to ensure Skyler's Systems has clear and concise instruction throughout the development process. The relationship between Mr. Taiwoo and Skyler's Systems is stable and in good standing, indicating clear and concise instruction will pose **low** concern.
  - o Disciple's Pizza Customers: Disciple's Pizza is allowing a new system into their environment, indicating a significant change for their customers. Customers' perception on a new system will vary from each customer. Customer's with proficient and familiar knowledge on delivery applications will be assumed to have no issues, while others with minimal to no knowledge may struggle. This area poses **moderate to high** concern.
  - o Disciple's Pizza Owners and Couriers: As mentioned, Disciple's Pizza is allowing a new system to significantly change their environment. Although this will affect customers, this will also affect the truck owners and couriers. It is stated by Mr. Park that the workers have varying skill regarding technical knowledge. Additionally, workers may be optimistic about this significant change, while other may tend to be pessimistic. This area poses **moderate to high** concern.
  - o Skyler's System's Developers: Although this may be new territory for Skyler's System's Developers, the developers have created similar systems and programs for several clients. Due to a project with a different scope, the change may take time for the developers to get accustomed to. However, no serious concern is prompted here. This area poses **low** concern.
  - o Local Churches: Local churches will not be directly affected by the development process of Disciples and Disciple's Companion. This area poses **low** concern.
  - o Investors and Donators: Although members of Disciple's Pizza are willing to contribute towards new equipment and programs, a source of funding will come from investors and donators. Funds provided by investors and donators will contribute towards additional equipment and programs, allowing Skyler's Systems to acquire much needed resources. Once development is complete and the applications are implemented, donators and investors will observe the impact and success of the applications and hopefully invest additional funds for post-development and support. This area poses **low** concern.

- Need: Disciple's Pizza's main goal and desire is to provide customers with a quality delivery service. However, since no preexisting delivery system is present, Disciple's Pizza is unable to obtain this. To obtain this goal, developing Disciples and Disciple's Companion is necessary to provide a quality delivery service. This area poses **low** concern.

Organizational Feasibility for Disciples and Disciple's Companion is currently **Great.**

3.2.5 Legal and Contractual Feasibility

- Legality/Compliance Concerns: The development for Disciples and Disciple's Companion is legal by law and does not violate any compliance requirements. The intended use for Disciples and Disciple's Companion does not pose any risk or harm to all stakeholders involved in the project. The area poses **low** concern.
- Privacy Rights: Disciples and Disciple's Companion will deal with a substantial amount of personal information from customers, owners, and couriers. Security within the application will be implemented with the utmost attention. However, there is no guarantee of certain safety from any cyber-attack. Therefore, Skyler's Systems will proceed with caution when dealing with the protection of data during the development process. This area poses **moderate to high** concern.
- Ownership of Disciples and Disciple's Companion: Skyler's Systems will hold ownership of Disciples and Disciple's Companion. In the post-development phase, support and future revisions of the applications will lead to additional charges from Skyler's Systems. Specific prices and rates will be negotiated later after development. This area poses **low** concern.
- Software Licensing: Skyler's Systems will only issue a limited number of licenses for members of Disciple's Pizza to utilize the internal application of DPDS. This amount will depend on how many members need to utilize the internal application. Disciple's Pizza may request additional licenses if needed.

Legal and Contractual Feasibility for Disciples and Disciple's Companion is currently **Great.**

3.3 Additional Comments

- This project is considered an exceptional fit for Skyler's Systems. Although this is Skyler's Systems first mobile application, the developers' skills and knowledge are proficient enough to deliver a quality system.
- It is advised that a software consultant be taken onboard to suggest the most up-to-date and relevant software to add to Skyler's System's resources. This will ensure Skyler's Systems possess all the resources necessary to deliver a quality application.
- It is recommended that rough deadlines be provided for Skyler's Systems to plan and organize the project accordingly.

3.4 Conclusion

Overall, the project's feasibility across all areas is currently **Great to Exceptional** with a few areas posing **moderate to high** concerns. Areas that will need special attention and to be proceeded with caution are **privacy rights, project size, and software resources.** To combat this, Skyler's System's will proceed with the utmost caution during development, to ensure these concerns are held to a minimum. Skyler's System's will also onboard a software consultant to advise relevant software to equip for the project.

4.0 Requirements Definition

4.1 Introduction

This section will cover the functional and nonfunctional requirements of Disciples and Disciple's Companion. A functional requirement is defined as tasks that the applications must allow the user to do. Particularly, these requirements will focus on what the user will accomplish or do within the applications. A nonfunctional requirement is defined as a characteristic of the applications. Consider these to be the behavioral properties of the applications. The functional and nonfunctional requirements are listed below and are listed under the application it pertains to.

4.2 Functional Requirements

Disciple's Pizza Delivery System

Creating an account:
- All users of DPDS (Customers, Truck Owners, Couriers) must be able to create an account associated with DPDS (*Section 5.3, Use Case 3*)
- Users must be able to provide personal information (Name, email, phone number, etc…) and allow it to be stored in the DPDS database (*Section 5.3, Use Case 3*)
- Customers must be able to store their food preferences, delivery addresses, credit card information, and other personal information safely and securely in his/her account for a smoother and easier ordering experience. (*Section 5.3, Use Case 3*)

Creating online order:
- DPDS must allow the customer to choose which food truck he/she would like to order from
- Customers must be able to pick and modify his/her pizza by choosing the type of pizza, which ingredients they wish to add or remove, and the quantity of the desired pizza. (*Section 5.3, Use Case 1*)
- DPDS must allow customers to view the whole menu as well as the specialty items depending on the chosen food truck. (*Section 5.3, Use Case 1*)
- DPDS must have a cart be accessible for the customer to allow him/her to compile his/her desired menu items into one order (*Section 5.3, Use Case 1*)

View entire online order:
- Customers must be able to view his/her compiled cart with his/her desired menu items at time of checkout. (*Section 5.3, Use Case 1 and 2*)

Status Tracking:
- DPDS must allow customer to view the status of the order from the moment the order is processed to when the order is delivered (*Section 5.3, Use Case 4 and 8*)
- DPDS must be able to track courier's present location when the pizza is en route to the specified delivery address. (*Section 5.3, Use Case 4 and 8*)

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- DPDS must provide the customer with an accurate time of delivery to the specified delivery address. (*Section 5.3, Use Case 4 and 8*)

Checkout Items:
- DPDS must allow customer to be able to input personal information (address, phone number, and credit card information for method of payment) and have it stored in the DPDS database under his/her account if they choose to do so. (*Section 5.3, Use Case 2*)
- DPDS should be able to utilize and accept food voucher cards (provided by Disciple's Pizza) if a customer needs one/wishes to redeem one. (*Section 5.3, Use Case 2*)
- DPDS must allow the customer to provide special instructions/directions for his/her order so the truck owner and courier can cater to his/her requests while preparing or delivering the order. (*Section 5.3, Use Case 2*)

Order Handling:
- Food truck owners must be able to view all ongoing and pending orders in a clear and concise manner while using the application (*Section 5.3, Use Case 7*)
- Food truck owners must be able to change the status of the customer's order, specifying in which phase of preparation the order is currently in (Order processed, preparing, baking, etc...). (*Section 5.3, Use Case 7*)
- Food truck owners must be able to create a new order made in-person through the application. (*Section 5.3, Use Case 7*)

Courier Support:
- DPDS must be able to generate a list of delivery tasks and the most optimal and efficient route to the delivery address for the courier (*Section 5.3, Use Case 5*)
- DPDS must allow the courier to change the status of the customer's order, specifying when his/her order is picked up from the food truck or en route to the delivery address. (*Section 5.3, Use Case 5*)
- Couriers must have navigation services for his/her pickups and delivery to ensure a smooth and easy delivery (*Section 5.3, Use Case 5*)

Menu Changing:
- Owners must be able to change menu based on seasonal and specialty items. Seasonal items are considered as menu items that are only available during a certain time of the year while specialty items are menu items of unique and varying ingredients. All seasonal and specialty items are different for each food truck. (*Section 5.3, Use Case 9*)

Food Voucher Handling:
- Owners should be able to handle food voucher information and provide them to customers you need one. (*Section 5.3, Use Case 2*)

Accessing Sales Statistics and Summary:
- Owners could be able to view a report of the sales statistics and summary from a given day, week, or month of their choosing.

4.3 Data Requirements

1. For customer accounts, DPDS must be able to store all personal information for the customer including: Name, email, phone number, previous and saved orders, and delivery addresses.
2. For truck owner and courier accounts, DPDS must be able to store member-related information for the truck owner or courier including: Name, business email, phone number, truck location (for food truck owners), and type of car (for couriers).
3. DPDS must be able to store all the menu, ingredients, and nutritional facts, and customer's orders as well as be able to remove/delete them from the database if desired.

4.4 Nonfunctional Requirements

1: Operational Requirements

1.1. Depending on the chosen operating system (iOS or Android), DPDS must be able to be fully functional on the desired operating system

1.2. Viewing orders will be displayed with a clear and readable font, so workflow will not cease during online order preparations

1.3. Courier delivery and navigation directions will be generated on the respective navigation system of the chosen operating system (Apple Maps or Google Maps)

2: Performance Requirements

2.1. DPDS must be able to provide and display the customer's online orders at a reasonable refresh time (every 5 seconds or less)

2.2. DPDS must be able to provide the best and most efficient route within 5 seconds to the courier

3: Security Requirements

3.1. All personal information must be limited, and only relevant information must be displayed across all users of the system

3.2. DPDS should be able to allow a secondary email to be provided in the case of an account breach or password loss

3.3. DPDS should be able to lock a user out of his/her account after five incorrect login attempts and send a recovery email to the primary and secondary email.

4: Development Requirements

4.1. DPDS has an expected completion date by Summer 2020.

4.2. DPDS will developed with maximum effort and efficiency by Skyler's Systems and with the utmost caution to all feasibility risks
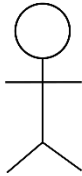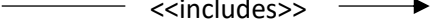
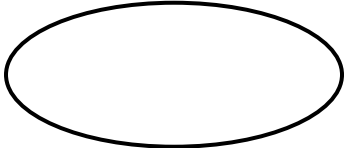5: Service Requirements

5.1. DPDS will consist of two applications, one for customer use and one for internal, business use

5.2. DPDS will be maintained every quarter (every 4-6 months) after its initial development
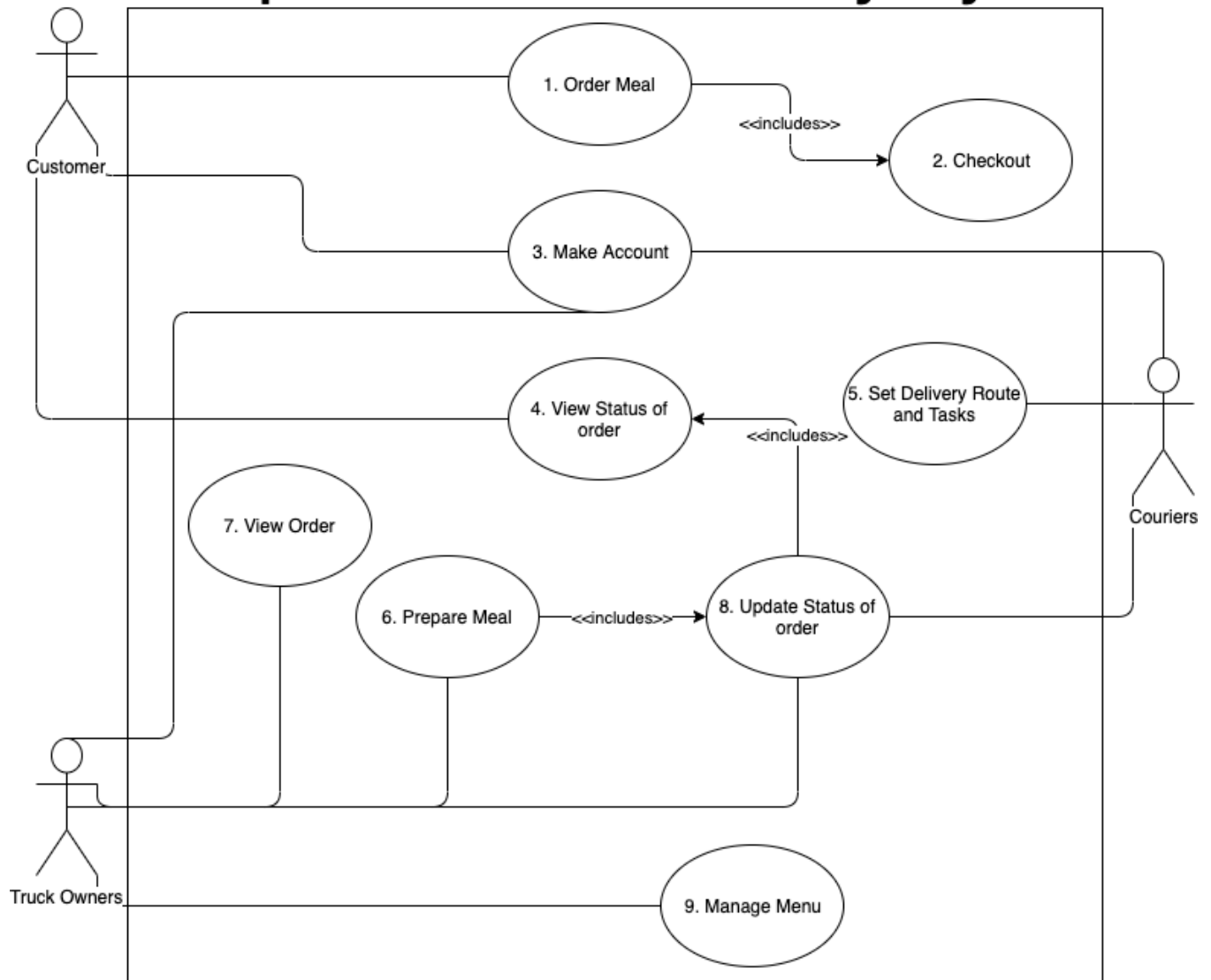
5.0: Requirements Model

5.1   Introduction

This section documents the most common and major ways end users will interact with DPDS (Disciple's Pizza Delivery System). A "use-case" is utilized to represent the common scenarios that end users will face with when using DPDS. Each use-case is visually diagramed in the use-case diagram (Section 5.2). The use-cases are described more in depth in section 5.3. The use-case diagram in section 5.2 utilizes Unified Modeling Language (UML), which is a standard set of symbols used to represent the end users (actors) and use cases (scenarios for use). Below are the descriptions of the symbols used for in the use-case diagram.

	Stick figures are used to represent the end users, or in this case, actors. Each actor takes part in interacting with DPDS and its use cases.
	Lines are used to represent associations between an actor and a use case. If an actor directly interacts with a use case, a line would be used to denote that interaction.
<<extends>>	Lines with the text "<<extends>>" represent optional behavior into a use case. In other words, it is an extension of a functionality and is used to separate optional and mandatory behavior
<<includes>>	Lines with the text "<<includes>>" represent mandatory performance from one use case to another. In other words, it is a required functionality and is drawn from the base case to the included case.
	Ovals represent the use cases (scenarios) of DPDS. Each use case is denoted by a number and is named appropriately. Each use case is also described more in depth in section 5.3
	The entire system (DPDS) is represented by a gray rectangle. This system boundary contains all the major use cases as well as the associations between the actors and use cases.

5.2 Use-Case Diagram

Disciple's Pizza Delivery System

5.3 Use-Case Descriptions

Use-Case name: Order Meal		ID: 1	Importance: High
Primary actor: Customer		Use-Case type: Detailed, Essential	
Stakeholders and interests: *Customer* – Desires to order a meal from Disciple's Pizza; Wants to view the available menu items from Disciple's Pizza *Disciple's Pizza* – Desires the customer to view menu items and order from their business			
Brief description: This use case describes the ability of customers to view and purchase menu items from Disciple's Pizza. Customers will be able to select the type of pizza, the size of the pizza, and any additional food items and beverages. The items will be added by the customers and compiled into a cart for the them to have an overview of all the desired items.			
Trigger: Customer accesses DPDS to view menu items and place an online order Type: External			

Relationships:
      Association: Customer
      Include: 2 - Checkout
      Extend: 3 – Make Account
      Generalization: N/A			

Normal flow of events:
   1. Customer opens DPDS application on his/her mobile device.
   2. Customer can browse through all menu items that are available through Disciple's Pizza and can pick and choose based on their own preferences and needs.
   3. Perform S-1: Add to Cart
   4. Perform 2 – Checkout			

Subflow:
S-1. Add to Cart
   1. Customer clicks on desired food item
   2. DPDS will display the details of the food item (Name of the food item, type of food, contained ingredients, nutritional facts, etc...)
   3. Customer can modify the food item to their needs (Removing and adding ingredients, specifying the quantity of the food item, etc…)
   4. Customer clicks "Add to Cart".
   5. Food item is added into a cart where the customer's desired food items are held to be checked out and notified to the food truck owner.			

Alternate / exceptional flows:
4a. If customer chooses to login to their account
   1. Customer logs into DPDS account.
   2. OR, if no DPDS account exists, perform 3 – Make Account			

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Use-Case name: Checkout		**ID**: 2	**Importance**: High
Primary actor: Customer		**Use-Case type**: Detail, Essential	

Stakeholders and interests:
Customer – Desires a secure, safe method of paying for their online order(s)
Disciple's Pizza – Desires a secure, safe method for their customers to pay for their online order(s)

Brief description:
This use case occurs when the customer is finished with ordering their meal. The items that are compiled into the cart are viewed by the customer. Once the customer confirms the order is accurate, the order is submitted and received by the nearest Disciple's Pizza Truck.

Trigger: Customer views cart and places an online order

Type: External

Relationships:
      Association: Customer
      Include: N/A
      Extend: N/A
      Generalization: N/A

Normal flow of events:
1. Customer reviews his/her cart and confirms the accuracy of the order
2. Customer provides intended delivery address for the order
3. Customer provides credit card information
4. Customer completes the order by clicking "Finish Order"
5. Confirmation message is displayed to the customer on the screen upon successfully finishing the order
6. Order is passed and received by the chosen Disciple's Pizza Truck to undergo preparations.

Subflows: None

Alternate / exceptional flows:
2a. If Customer is not signed into DPDS
1. Sign into DPDS with account credentials
2. If no DPDS account exists, perform 3 – Make Account
3. Customer can choose from any preexisting delivery addresses that are stored in the database or add, remove, or modify the delivery addresses

3a. If customer is not signed into DPDS
1. Customer can choose from any preexisting credit cards that are stored in the database or add, remove, or modify the credit card information

4a. Special Instructions/Directions
1. Customer can choose to input special instructions (Specific delivery location, specific delivery time) for Truck Owners and Couriers to consider when preparing the order

5a. If placing the order is unsuccessful
1. A message will display on the screen notifying the customer that the order is unsuccessful
2. Any incorrect or invalid inputs will be outlined in red, notifying the customer to reevaluate the information and try finishing the order again

Use-Case name: Make DPDS Account		ID: 3	Importance: High
Primary actor: Customer, Courier, Food Truck Owners		Use-Case type: Detail, Essential	

Stakeholders and interests:
All Actors – Desire a reliable and safe application to only display relevant information to other users and provide a quick and efficient process with delivery and order handling

Brief description:
This use case describes how all users of DPDS (Customers, Couriers, and Truck Owners) will create their own accounts. All users will provide an email and a strong password for login credentials. Customers will be able to save payment information, delivery addresses, previous orders, and customized orders. Accounts for couriers and truck owners will provide organized workflow, allowing them to coordinate delivery pickups in a smooth and easy manner.

Trigger: Actor clicks "Create Account"

Type: External

Relationships:
       Association: Customer, Courier, Truck Owner
       Include: N/A
       Extend: 1 – Order Meal
       Generalization: N/A

Normal flow of events:
1. Actor provides email and password for login credentials
2. Actor provides first and last name to use for the account name
3. Actor provides phone number to use for delivery notifications
4. Actor clicks "Finish" and the account is stored into DPDS

Subflows: None

Alternate / exceptional flows:
1a. Email and Password
1. If the actor is a customer, he/she will use his/her personal email for use and create a strong, secure password
2. If the actor is a truck owner or courier, he/she will be provided a business sanctioned email for use.
3. The actor can choose to provide a secondary email in the case of a password loss
4. The actor will be able to receive a recovery email, allowing the actor to provide a new password to regain access into his/her account.
3a. Allow texts for future promos and deals
1. If the actor is a customer, he/she can choose to allow texts to be sent to him/her, notifying him/her of any ongoing deals or promos.

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Use-Case name: View Status of Order		**ID**: 4	**Importance**: High
Primary actor: Customer		**Use-Case type**: Detail, Essential	
Stakeholders and interests: *Customer* – Desires to be notified when the status of their online order has changed; Desires to have real time tracking of the online order when it is en route; Desires to know the estimated time of delivery and who it is delivered by *Couriers and Truck Owners* – Desires to view the status of the online order to ensure the customer has successfully received his/her order.			
Brief description: This use case describes the real-time status updates for the customers, truck owners, and couriers. The status updates will be viewable by the customer and will be able to track his/her online order as it is en route.			
Trigger: DPDS will update the status of the customer's online order every 5 seconds **Type**: Temporal			

Relationships:
      Association: Customer
      Include: N/A
      Extend: N/A
      Generalization: N/A			

Normal flow of events:
  1. Actor will navigate to his/her profile and click "Track Order" to view online order status.
  2. Actor will be able to view a tracker that displays the status of order and what phase of the preparation the order is in (Order Placed, Prepping, Baking, etc…)
  3. DPDS will provide the customer with an estimated time of delivery as soon as the order is handed off from the truck owner to the courier.
  4. Actor will be able to track the online order via a third-party map and navigation service (e.g., Apple Maps) once it is en route to the specified delivery address			

Subflows: None			

Alternate / exceptional flows:
1a. Sign into account
  1. If Actor is not signed into account, actor signs into DPDS with account credentials
  2. Proceed with normal flow; return to step 1.			

Skyler's Systems

Use-Case name: Set Delivery Route and Tasks		ID: 5	Importance: High
Primary actor: Courier		**Use-Case type**: Detail. Essential	

Stakeholders and interests:
Courier – Desires to have support for navigation during the delivery; Desires to have a task-list viewable in case of any special directions provided by the customer; Desires to have an accurate route to the specified delivery address to ensure smooth and fast delivery.
Customer – Desires to have his/her order to be delivered in a fast and timely manner.

Brief description:
This use case describes the courier's delivery task-list and navigational services to ensure smooth and fast delivery. DPDS will provide the courier with the most efficient route to the specified delivery address as well as display the delivery task-list for the customer's online order.

Trigger: Courier signs into DPDS

Type: External

Relationships:
      Association: Courier
      Include: N/A
      Extend: N/A
      Generalization: N/A

Normal flow of events:
1. Courier signs into DPDS with account credentials
2. Courier selects "My Deliveries" and DPDS will display all deliveries (if more than one) he/she has been tasked with.
3. DPDS will automatically select the best and most efficient route to the specified delivery address.
4. The selected route will be displayed on the courier's mobile device and driving directions will be provided by the third-party map/navigation service.
5. A default set of tasks will be generated by DPDS and displayed on the courier's mobile device if the customer did not provide special instructions/directions

Subflows: None

Alternate / exceptional flows:
5a. Online order with special instructions/directions
1. If the customer has provided special instructions/directions, DPDS will add those instructions/directions to the default set of tasks and display them on the courier's mobile device

Use-Case name: Prepare Meal		ID: 6	Importance: High
Primary actor: Truck Owners		Use-Case type: Detail, Essential	

Stakeholders and interests:
Truck Owner and Couriers – Desires to provide the customer with quality service, food, and quick delivery
Customer – Desires to receive quality service and food

Brief description:
This use case describes how DPDS will display a list of needed ingredients and tasks required to successfully complete a customer's online order. The list will be generated by DPDS and based on the customer's online order. The list will also provide an estimated time of completion, so the truck owner can notify the customer and courier of the estimated delivery and pickup time. The truck owner must be able to view these tasks and ingredients list in an organized and clear manner to ensure a smooth workflow.

Trigger: Truck Owner opens DPDS and selects a customer's online order

Type: External

Relationships:
      Association: Truck Owner
      Include: 8 – Update Status of Order
      Extend: N/A
      Generalization: N/A

Normal flow of events:
1. Ingredient list and task list of customer's online order will be automatically generated by DPDS and displayed to the Truck Owner
2. Truck Owner will prepare customer's online order, while performing 8 – Update Status of Order as it progresses through the phases of preparation to notify the customer of the order's status.
3. Truck Owner performs S – 1.1
4. Truck Owner will hand off order to courier and he/she will perform 8 – Update Status of Order to notify the customer that his/her order is en route.

Subflows:
S-1. Notify Courier
1. Once truck owner knows estimated pickup time, he/she selects "Notify Courier" and DPDS will ping the nearest courier's mobile device.

Alternate / exceptional flows: None

Use-Case name: View Order		**ID**: 7	**Importance**: High
Primary actor: Truck Owner		**Use-Case type**: Detail, Essential	
Stakeholders and interests: *Truck Owner* – Desires to have a smooth, fast workflow and receive customer online orders in an organized manner.			
Brief description: This use case describes the display of customer's online orders from oldest to most recent. The truck owner will utilize this display to know which online orders to prioritize first to maximize efficient delivery service. This will also assist in providing smooth and organized workflow for the truck owner. The online order list will update every 5 seconds, populating the display with customer's orders. This will ensure that all customer's orders are being processed and kept on file until the truck owner starts preparing his/her order.			
Trigger: DPDS will update the list of customer's online orders every 5 seconds **Type**: Temporal			

Relationships:
       Association: Truck Owner
       Include: N/A
       Extend: N/A
       Generalization: N/A			

Normal flow of events:
    1. Truck owner will select "View Online Orders"
    2. Truck owner will select the first customer online order at the top of the list.
    3. Perform 6 – Prepare Meal			

Subflows: None			

Alternate / exceptional flows:
2a. Filter Online Order List
    1. If the truck owner desires, he/she can filter the online order list by preparation time to maximize preparation efficiency.
    2. If the truck owner desires, he/she can filter the online order list to display only a certain number of online orders to maintain a concise and readable list.			

Skyler's Systems

Use-Case name: Update Status of Order		ID: 8	Importance: High
Primary actor: Truck Owner, Courier		Use-Case type: Detail, Essential	

Stakeholders and interests:

Truck Owners and Couriers – Desires to provide real time tracking and status updates for customer's online orders

Customers – Desires to have real time tracking and status updates for his/her online order; Desires to have an estimated time of delivery for his/her online order; Desires to know the phase of preparation his/her online order is in (Order Processed, Preparations, Baking, etc…)

Brief description:

This use case describes the truck owners and courier's ability to update the status of a customer's online order. The status of the online order will be updated throughout each phase of preparation (Order Processed, Preparations, Baking, etc…) to provide the customer with real-time tracking and status updates.

Trigger: Truck owner and/or courier will update the online order's status through DPDS.

Type: External

Relationships:
       Association: Truck Owner, Courier
       Include: 4 – View Status of Order
       Extend: N/A
       Generalization: N/A

Normal flow of events:
1. Actor will log into DPDS with his/her account information
2. Actor will select "Update Status" and navigate to the specified customer's online order
3. Actor will choose which phase of preparation the order is in (Order Processed, Preparation, Baking, etc…)
4. Actor will be able to perform 4 – View Status of Order, to track the customer's online order and ensure a successful delivery.
5. Once delivery is successful, actor updates online order status to "Delivery Complete" and the online order is stored in the database for future reference.
6. A confirmation message is sent to the *all actors of the system* via email and/or phone number to ensure delivery is processed, successful, and stored in the database for future reference.

Subflows: None

Alternate / exceptional flows: None

Skyler's Systems

Use-Case name: Manage Menu		**ID**: 9	**Importance**: High
Primary actor: Truck Owner		**Use-Case type**: Detail, Essential	

Stakeholders and interests:
Truck Owners – Desires to have the ability to modify the menu based on seasonal and specialty food items (Use of a variety of ingredients, food items produced during a certain season)

Brief description:
This use case describes the ability of the truck owners to change and customize their food truck's menu. Since all of Disciple's Pizza's menus vary and have unique food items, the truck owners will be able to showcase their signature food items, allowing him/her to attract more business.

Trigger: Truck Owner selects "Manage Menu"

Type: External

Relationships:
       Association: Truck Owners
       Include: N/A
       Extend: N/A
       Generalization: N/A

Normal flow of events:
1. Truck Owner selects "Manage Menu" in DPDS
2. Truck Owner selects *one* of the following for how they want to manage the menu:
      a. Selects "Add Menu Item"; Perform S - 2.1
      b. Selects "Remove Menu Item"; Perform S – 2.2
      c. Selects "Edit Menu Item"; Perform S – 2.3

Subflows:
S – 2.1. Add Menu Item
1. DPDS opens an add menu form
2. Truck Owner inputs the menu item name, ingredients, directions, and nutritional facts
3. Truck Owner clicks "Add to Menu" and DPDS adds menu item to the database and displays it on the menu

S – 2.2. Remove Menu Item
1. DPDS opens the database for all created menu items
2. Truck Owner chooses which menu item to remove from the menu
3. Truck Owner clicks "Remove from Menu" and the item is removed from menu

S – 2.3. Edit Menu Item
1. DPDS opens database for all created menu items
2. Truck Owner choose which menu item to modify
3. Truck Owner changes, adds, or removes information from the menu item
4. Truck Owner clicks "Save" and DPDS updates the menu item in the database and menu

Alternate / exceptional flows: None

6.0 System Evolution

After Disciple's Pizza Delivery System (DPDS) is fully implemented and in the post-development stages, Skyler's Systems will continue to support and upgrade DPDS as needed. Skyler's Systems will stay in contact with Disciple's Pizza and will do quarterly maintenance (every 4-6 months) to ensure maximum functionality and efficiency from the system. Skyler's Systems is also willing to reconsider and extend their contract with Disciple's Pizza should there be any desired upgrades for DPDS. Below are possible features and enhancements that may or may not have been mentioned by Disciple's Pizza, but may be considered useful in the future:

- Include the ability for food truck owners to record a voice message for a customer when his/her order is handed off to a courier and delivered to him/her.
- Include the ability for food truck owners to create a new meal order in-person through the system. This will provide more convenience and workflow and can possible attract more business.
- Include functionality for system to display sales statistics and summary from a given day, week, or month of their choosing
- Include functionality for customers to redeem food vouchers and allow them as a proper method of payment through DPDS.

7.0 Conclusions and Recommendations

Skyler's Systems ensures that Disciple's Pizza Delivery System (DPDS) is a beneficial product and will impact Disciple's Pizza immensely. The proposed system is deemed well-feasible, with low risks and potential medium to high risk. However, those risks are to be taken with the utmost caution and not impossible to work around. Customers of Disciple's Pizza will also benefit from this system, as they will be introduced to a fast and convenient way of receiving pizza. All aspects of DPDS will benefit greatly from smooth and fast workflow, to convenient and efficient delivery.

Skyler's Systems recommends the following actions be taken by Disciple's Pizza to assist with the development of DPDS. These actions will provide more insight to the development process and be beneficial for the developers at Skyler's Systems:

- Meet with customers of Disciple's Pizza to gain additional insight or recommendations that they desire for a delivery system. Note that these recommendations will be considered, but not necessarily implemented in the system's initial development
- Meet with an IT Consultant to gain insight on the type of hardware (Mobile Devices, Tablets) to utilize for DPDS. Since DPDS will be a new addition to Disciple's Pizza, there is a lack of resources from a hardware standpoint. The best action to take is consult with an IT Company to gain recommendations and possibly a quote for these needed resources.

We at Skyler's Systems look forward to developing DPDS and Disciple's Pizza and committed to ensuring a successful and innovative system to Disciple's Pizza and its customers.