

Systems Proposal

Systems Analysis and Design
INFO 361 – 002

Kyle Hagood

Contents

Project Description.....	4
Executive Summary.....	5
Case Scenario and Systems Request.....	9
Creative Team Name Charter	10
Mission Statement.....	10
Strengths.....	10
Shortcomings	11
Roles.....	11
Team Meetings	11
Team Values.....	12
Team Expectations.....	12
Charter Amendment	12
Business Case and Feasibility Analyses.....	13
Statement of Purpose:.....	13
Scope Statement:.....	13
Technical Feasibility: Good	13
Familiarity with application - (Medium Risk).....	13
Familiarity with technology – (Good)	13
Project size – (Good)	14
Economic Feasibility - (Excellent).....	14
Organizational Feasibility - (Good).....	15
Additional Comments:	15
Use-Case Diagrams and Descriptions	17
ACTORS	18
USE CASE DIAGRAMS	23
Non-Functional Requirements.....	33
Class Diagram and Descriptions.....	34
UML Model Descriptions	34
Sequence Diagrams and Descriptions.....	41
Place Online Order Sequence Diagram Descriptions.....	42
Fill Online Order Sequence Diagram Descriptions.....	43
State Machine Diagram and Descriptions.....	44

Customer Order State Diagram Descriptions	44
User Interface Prototype Screens	46
Homepage.....	46
Admin/Staff Access Page	47
Customer Login Page	48
Customer Signup/Register Page	49
Product List Page.....	50
Shopping Cart Page.....	51
Guest Payment Page.....	52
Logged-In Customer Payment Page.....	53
Purchase Confirmation Page.....	54
Windows Navigation Diagram	55
Usability Test Report.....	56
Gantt Chart	57

Project Description

The Richmond Millennial Chocolatier Company information system development project is one born from the intention to branch out to a global market while greatly increasing the efficiency for business practices involving employees and customers alike. In order to achieve such results, requirements dictated that multiple systems, some virtual and some real, be planned, built, and implemented. Of these was the inclusion of a company website which secures the RMCC a global presence, and enables customers to view inventory and place orders online with the convenience of a profile database system and micro transactions. On the business side, the information system will, upon completion, allow employees to manage product inventory, manage employee schedules, and generate management reports.

The current scope of the project lies completely in the area of planning out interactions and interfaces. Our team has assembled a team charter, made the business case highlighting monetary benefits, built the use case diagram for the most important high-level use cases, the class diagram, sequence diagrams for the ‘Place Online Order’ and ‘Fill Online Order’ use cases, the customer order state machine, the prototype screens for the website along with the accompanying windows navigation diagram, and the project Gantt chart. These completed objects can all be found within this document.

Executive Summary

While working on this project, our team has compiled a great amount of information, mostly pertaining to planning in terms of what actors will need to do and how different components will interact with one another in the completed system.

We have developed a team charter which outlines the team's mission statement along with a collection of the members' strengths, weaknesses, group roles, meeting times, team values, expectations, and amendment policies. Moving forward, it will be helpful if new teams created for further work on this project a similar document to spot problems early and introduce regular operating procedures to keep all members on the same page.

We have created a business case document, complete with a statement of purpose, scope statement, feasibility analyses and its accompanying excel document and payback point graph. The mission statement will stay the same throughout completion of the project, but it is very possible that the scope of the project could change. If such an event were to occur, it would be imperative to modify the scope statement appropriately to fit the new requirements. In this case, all feasibility analyses and the excel document would almost surely need to be revised as well. In looking after this step, keep a close eye on scope creep so as to avoid unnecessary amounts.

We have compiled a use case diagram which includes all of the major, high-level use cases that will be necessary to take into consideration upon completion of this project. All of the major actors are included, as well. If there is any confusion, descriptions of all major actors and use cases can be found below the accompanying diagram in this document. It is possible, as with the above paragraph, that any changes in the scope of the project may require alteration of this document, too. Just like before, keep an eye on scope creep.

We have put together a high-level class diagram outlining all of the major classes involved with this project, many of each classes common properties, functions, and how these most important classes will interact with one another in the overall system. Teams working on this project in the future should keep this diagram at hand, as it should prove invaluable to simplifying some of the complexity of the system. Just as with the use case diagram, this diagram contains brief descriptions of each class below the diagram itself to alleviate any confusion. And just as with many of the above paragraphs, this diagram may need to be modified in the future in the case that additional requirements are necessary.

We have created sequence diagrams for two of the main use cases, Place Online Order and Fill Online Order. These diagrams should be very helpful in answering questions about exactly which components are involved, and their behaviors when these two use cases are invoked. Below the diagrams can be found short descriptions of each object and actor involved. It is important to remember that even these diagrams may require alteration in the future in the case of additional requirements being added, but with the sequence diagrams it is also important to note that these two are but a fraction of the amount that will be needed. The additional sequence diagrams required for certain reduction of complexity to the overall system will be explained later in this section.

We have put together a state machine diagram for the object Customer Order. This diagram shows the states that a single order object will move through in its life cycle, thus outlining the

necessary steps and procedures that must take place before an order arrives at a customer's doorstep. Use this diagram as a guide and keep in mind that this, too, may need alteration in the future. As with previous diagrams, short descriptions of the states involved can be found below the accompanying diagram in this document.

We have developed prototype screens and a windows navigation diagram for the website that will be later implemented. These screens have been put through usability testing with a small sample of two people, so very well may need more user-involved testing to ascertain whether further modifications are needed. A usability report is included in this document outlining the results of the aforementioned tests. The windows navigation diagram should serve as an excellent guide pertaining to the way in which different screens interact with each other, specifically what links lead where. Just as with all other objects in this document, each of these may require future modification in line with requirement additions or in response to further usability testing reports.

Finally, we have created a Gantt Chart outlining what has been done, what needs to be done, and an estimate of the time frames which will be needed to complete the overall project. This chart is broken up into collapsible segments for ease of reading and should serve as an excellent guide in the completion of the project. However, it is important to remember that the times and tasks added are only estimates, and there very well may need to be modifications in the future.

The majority of the effort spent in the completion of this project will come in the future work to be done, as most all of our efforts outlined above have been spent in the high-level planning stage of production. What has been completed, though, should provide great simplification to the very complex low-level processes, as they accurately explain how many of the abstractions contained within work, both alone and with one another. However, the planning and diagramming stage is not entirely complete as of yet.

Future work in planning should involve the outlining of additional state diagrams, including ones for the use cases Place Supply Order, Fill Management Report, Create Customer Profile, Manage Recipes, and Track Damaged Supplies. In addition, state machine diagrams should be created for the objects Management Report, Inventory Item, Recipe, Supply Order, Customer Invoice, Customized Product, Customer Payment, Customer Profile, and Damaged Supply. Finally, user interface and windows navigation diagrams need to be developed for the Inventory Management Software, Employee Management Software, Management Report Generation Software, and the Kiosk Display. While creating these diagrams can be time consuming, completing them will often cut down the complexity of the overall project to manageable levels, while avoiding a great deal of potential confusion and establishing normal operating procedures for many project pieces so that everyone working toward the same goal is on the same page.

Once these diagrams are complete, the construction and implementation stage can begin. Decisions will have to be made for many components regarding whether different pieces of the information system should be developed in-house or bought off the shelf.

Servers will need to be set up to house databases which will be a part of the system. It should be noted that challenges involving server setup can include location picking including environmental concerns such as temperature and humidity and which brand of server is best for the information system being put into use. Keep in mind that the closer these servers are to the company where the

system is stored, the less wiring which will have to be placed meaning less maintenance concerns in the future.

A database software system will need to be installed on the servers once they are implemented. The main challenge for this portion will be in conducting the proper amount of research as to pick a good, reliable brand for the software, as developing the software in-house is unlikely to be necessary. In-house installation is a likely scenario once the software is developed though, as we should have enough manpower resources to do so already. The software will need to be tested thoroughly, which will also serve as a test of the physical servers' functionalities. Be sure to keep this in mind when developing tests, as it will be much easier to fix problems with the server functionalities before actual data is loaded into the system.

The last physical item that will need to be added to the information system is that of the in-store kiosks. Since it is likely to be highly inefficient attempting to construct these in-house, thorough research should be conducted on outside companies looking to sell, as proper research now can potentially avoid numerous problems in the future. The kiosks themselves should be chosen to include presentation software, so after one is chosen the only tasks left are to place them in the store and provide hookup to the database servers. Choosing a kiosk display that is shown to be pleasing to users while emphasizing ease of use will be imperative in this step, as a very diverse group of customers will be making use of the setup, potentially including the elderly.

What will certainly be the largest part of the process is writing the programs necessary for all of the systems components, as with the exception of the employee management software, all else is planned to be constructed in-house. Software systems will need to be created for the Management Report Generation, Inventory Management, Customer Profile Management, and the Kiosk display. While it was not outlined previously, it is possible that some of these components can be incorporated as different parts of one unified program. In this step, it will be imperative to make use of all diagrams created beforehand as the complexity of such a task otherwise can easily lead to project failure. All software should be created incrementally, with prototypes that will be shared with the users in order to refine user needs. Final versions of the software should be thoroughly tested, first with virtual data, and then tested again with actual data once being hooked up to the other systems, such as the physical kiosks and the database servers. Be sure to thoroughly test as well how each piece of software interacts with the other pieces of software. Database Interaction Software is no good if it doesn't know how to talk to the software in the physical database server. After all code is produced, tested, and installed, the project will be mostly complete.

Of the final steps, the first will be to develop the actual website for the company, of which there will be the choice to hire externally or to develop in-house, though in-house development is a very feasible and likely choice. The website should either conform to the windows navigation diagram currently drafted, or this diagram should be modified appropriately to reflect changes made in the design of the actual website. Upon implementation, the website will need to be connected to the database as well to keep track of customer profiles, inventory, and so on. The website should be linked with a micro-payment system for ease of use with payment options. For this step, there are many existing services which can be used at little cost, but research before making a decision will still be necessary.

Finally, it will be necessary to hire additional staff for the company. Unfortunately, and despite our best efforts, there will surely be some faults in our system that will require people with specialized knowledge to address, meaning the company will need an IT staff. It will be necessary to compile help wanted forms complete with all the necessary requirements, conduct interviews, and make hires before the implemented system is actually put into use. These individuals will need to be trained and briefed on all the inner workings of the system and will require some time to absorb the information, so early hires will be of great benefit.

That completes most of the summary of what will need to be done in the future. As for the existing system, it may be of great benefit to present the diagrams as compiled so far to company representatives in a formal session, with people of technical expertise who will be able to accurately explain how the diagrams work to the others. Doing so will allow the hiring company to spot any changes they would like to make to the inner workings of the system early on, and thus may help to avoid the construction of actual software which is not to the user's liking.

The implementation strategy of this information system is something that must be considered with great care. It is very important to keep in mind that people by their very nature are resistant to change, including change that may be for the better in the long run. Due to this, it would be very wise to implement the current system in tandem with the old system for a while, and then to slowly wean from the old system until it has disappeared completely. Some of the hired IT staff with well-developed interpersonal skills should be propositioned to stay in the storefronts during this tandem system process, and should be tasked with presenting this new system to those in the store that are attached to the old way of doing things. It's important to note that this help should be offered rather than forced, coming off in a way that the help is genuine and friendly. Implementing the system in such a way should help greatly in easing those resistant to the new system over to the new, ensuring that the new information system, once fully constructed and implemented, is one that is widely accepted.

Case Scenario and Systems Request

System Request

Project Name:	The Richmond Millennial Chocolatier Company
Project Sponsor:	Coco Caramel (Chocolatier Entrepreneur)
Business Need:	To generate a level of sales through brick-and-mortar and virtual store fronts and to lower the cost of business operations by enabling effective and efficient business processes for customer ordering processing and inventory management; to manage employee work schedules, and to create management reports that will enable the business better decisions to create a competitive advantage.
Functionality:	<p>The information system should allow customers to ...</p> <ul style="list-style-type: none">❖ Purchase products in-store and through an Internet store website; this would include the ability to:<ul style="list-style-type: none">⌚ View images of current product inventory through an Internet store website.⌚ Display full product description.⌚ Check availability of inventory.⌚ Select delivery option (in-store pickup or delivery service)⌚ Confirm and track Internet orders.⌚ Determine delivery cost and date.⌚ Provide customer delivery tracking identification number.⌚ Specify customized products (special orders).⌚ Confirm custom order within 24 hours.⌚ Generate customer order invoice⌚ Accommodate payment by micro payment system (credit & debit card) such as PayPal.⌚ Keep track of customer order profiles (customer or employee created—add/modify/delete)❖ Manage Product Inventory to include the ability to:<ul style="list-style-type: none">⌚ Track all supply ingredient quantities (add/update/delete quantities)⌚ Manage all product recipes (ingredient batch quantities)⌚ Generate supply acquisition orders⌚ Send order payment⌚ Track damaged supplies❖ Manage Employee Schedules<ul style="list-style-type: none">⌚ Add/update/delete employees⌚ Create employee work schedules⌚ Track employee work hours❖ Generate Management Reports<ul style="list-style-type: none">⌚ Create production reports⌚ Create employee work reports⌚ Create sales reports⌚ Create inventory reports⌚ Create customer reports

Creative Team Name Charter

Kyle Hagood, Syed Rizvi, Christopher Doan

hagoodkk@mymail.vcu.edu, rizvish@mymail.vcu.edu, doancp@mymail.vcu.edu

1(804)247-1880, 1(540)834-6673, 1(703)801-5274

Mission Statement

The Creative Team Name team has been formed in order to complete all necessary guided study project assignment requirements for INFO 361. Our mission is to extravert a deep understanding of the main points of the course material through our final report and presentation. In order to accomplish this as team members instead of individuals, we are committed to working effectively as a group through strong communication practices and the exercising of interpersonal skills.

Strengths

In ascertaining our strengths, we discussed our personal strengths and how the sum of those strengths would contribute to the success of the group.

Background and Experience

One member of our group has experience with topics in information systems while the remaining two have experience with topics in computer science. Combined, our diverse areas of background knowledge will serve to fill any information gaps that may be present in each member.

Interpersonal Skills

Our group works very well together. Communication flows naturally and there are no detrimental conflicts in personality. All members are eager to contribute and we have defined specific roles for each so that there is no redundancy in contributions.

Work Ethic

Each member of our group has a strong work ethic, such that all jobs begun are seen to completion. The summation of these strengths will ensure that no stone is left unturned in each portion of the project.

Shortcomings

In ascertaining our shortcomings, we discussed our personal shortcomings and how we will work together as a group to fill in the developmental gaps where necessary.

Procrastination

Every member of our team has expressed a tendency to procrastinate completing coursework. We will overcome this weakness by policing each other frequently to ensure that no member gets too far behind on deadlines.

Roles

Team Leader – Kyle Hagood

The team leader will oversee the operation of the group, consistently ensuring that the direction of the group remains focused on the task at hand.

Work Submitter – Kyle Hagood

The work submitter will compile all pieces of a project from each group member and submit the unified work to the professor.

Meeting Scheduler – Syed

The meeting scheduler will develop and implement a plan for the best times in which the group should meet.

Time Keeper – Chris

The time keeper will ensure that members are aware of approaching deadlines, and develop a plan to ensure that deadlines are consistently met.

Team Meetings

Our group will meet on a day-to-day basis when necessary directly after class on any day with the exception of Wednesday. Members will be notified during the class period if a group meeting is to take place.

Team Values

Integrity

All work contributed is expected to be the sole work of the contributor. Cheating of any kind will not be tolerated and will immediately result in a grade of 0 for the group assignment for the perpetrator as well as the notification of the instructor.

Respect

All members are required to respect the opinions of others and give all a fair chance to speak. Note that this does not imply any member is required to agree with any other member.

Team Expectations

Team members will be expected to be present at meetings and to contribute significantly to all group efforts. To cover ramifications for any and all transgressions, each member at the end of the semester will have the option to dock up to a total of 50% of each of the other two member's grades for the overall group project via written notification handed in to the instructor.

Charter Amendment

At any time throughout the semester, this charter can be amended granted that the majority of the group members vote in favor of the amendment.

**ALL GROUP MEMBERS HAVE READ THIS CHARTER, ATTAINED A THOROUGH UNDERSTANDING OF THE WORDING
WITHIN, AND AGREED TO ALL CONDITIONS.**

Business Case and Feasibility Analyses

Statement of Purpose:

The purpose of this project is to provide the Coco Caramel organization with an information system purposed to attract new customers, streamline business practices for both buyers and employees, and automatically provide business management with collected information. We will structure a system aiming to retain current members and attract new members while automating a great many business practices and storing important data. Our objective is to improve upon the current system in use by Coco Caramel to increase customer base and reduce currently necessary man hours, thereby increasing sales significantly.

Scope Statement:

Coco Caramel's Information System will allow customers to access store inventory online in addition to in-store. Customers will be able to view product images, descriptions, and availability on the virtual storefront. It will provide functionality for in-store pickup, delivery complete with cost and date options, order tracking, special order processing, and saving customer order profiles. Additional functionalities will include order confirmation, automatic order invoice generation, and micropayments for online order processing. The system will automate inventory management to track inventory, send order requests, and make payments. It will manage a data structure to create, edit, and track employee work schedules. The system will automatically gather information about production, employee schedules, sales, inventory, and customer reports and compile all into comprehensive reports for management review. The organization will have a global internet presence, increasing customer base, and business practices will be managed much more efficiently.

Technical Feasibility: Good

Familiarity with application - (Medium Risk)

- **Employees not familiar with new applications, will require some training (minimal)**
- **Users not familiar with new applications, will take some time to feel comfortable with the change**
- **Should a problem occur with the Information System, company can revert to old system of phone-orders until problem is resolved (backup)**

Familiarity with technology – (Good)

- **Employees will initially have no experience with new interfaces, but these will be structured for ease-of-use**
- **Employees not familiar working with online store-front, but should require negligible time for training**
- **Most employees and customers have previous experience with common interfaces, thus should catch on quickly to new systems**

Project size – (Good)

- Initial installation of the complete Information System foundation will require considerable time and effort, but will be very reliable and can be easily expanded on in the future
- All records that are on paper will be transferred to the new system
- Linking the Information System foundation to external servers for database storage will take additional time and effort, but will allow for storage of important information for a great many years to come
- Building of the website should be a small task in the overall project
- The standing service Hotschedules will be used for employee management, thus negating the need for new employee management service construction
- All other software developed in house, but have sufficient resources and experience for efficient and reliable software generation

Economic Feasibility - (Excellent)

See attached spreadsheet for details.

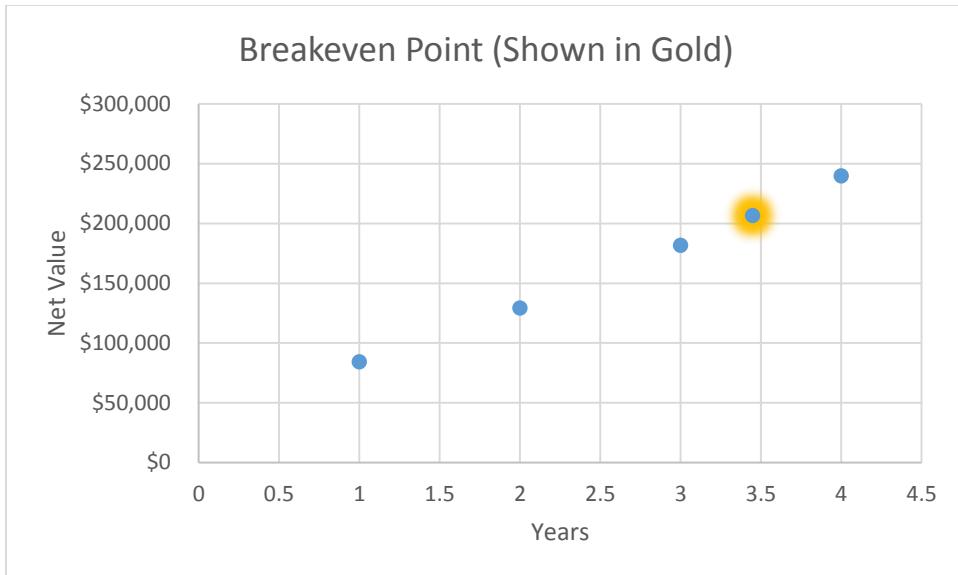
- Coco Caramel's Information System was designed to improve revenue and to automate a large number of business applications and services. The cost for implementing and maintaining a system is quite high, as it includes a great many technical developments and maintenance of those developments.
- The risk is overwhelmingly offset by the potential future gains to the company. The customer base should rise exponentially in a short period of time, and the automation additions will allow for the company to work much more efficiently while being better suited to make smart business decisions.

Tangible Costs and Benefits

- 134.7% return on investment over a five-year period
- Payback point estimated at 3.45 years
- NPV of net benefits estimated at \$536,078.75
- Total benefits after a five-year period is equal to \$679,296

Intangible Costs and Benefits

- Reduced time spent generating reports due to automation
- Exponentially larger customer base
- Reduced employee cost due to automated services



Organizational Feasibility - (Good)

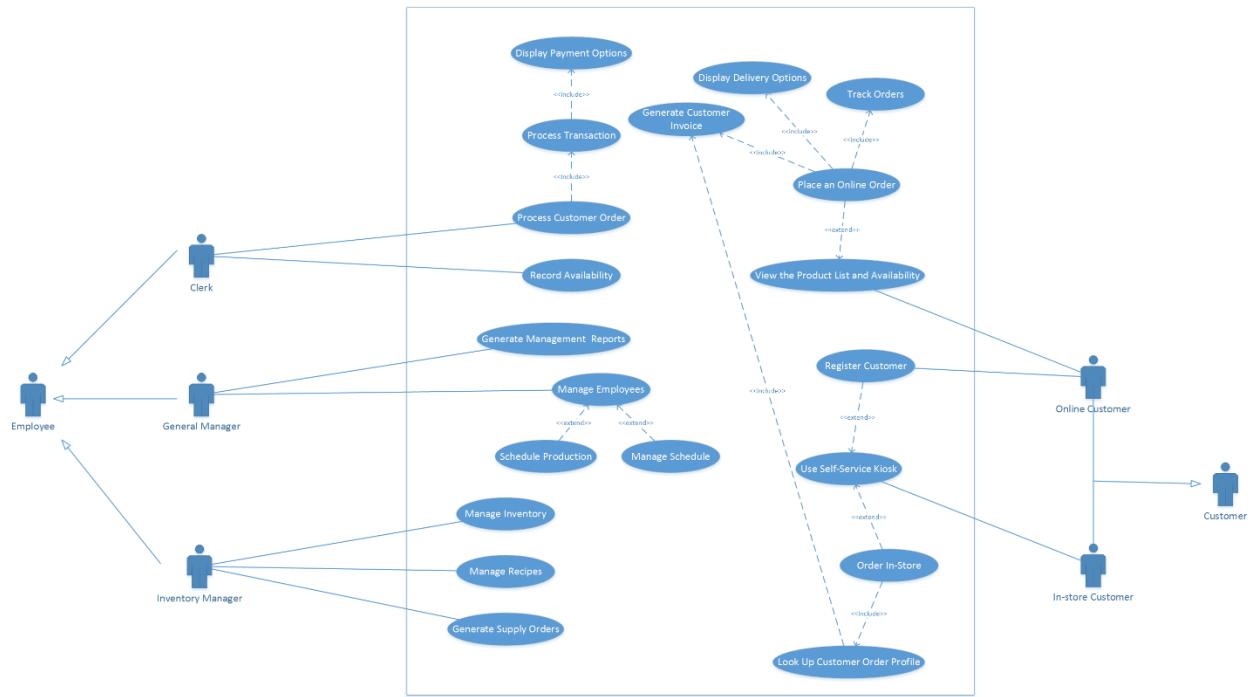
- **Project Champion - Bruce Banner, Senior Management**
- **Management -** The management will be the same, but with the employee system in place, this will make management more efficient. There was already strong support for the management.
- **Users -** The users will consist of customer and employee created accounts, guests, and anyone else that interacts with Coco Caramel.
- **Stakeholders –** Coco Caramel Executive Board, sponsors, vendors

Additional Comments:

- An IT staff will be hired to manage the new system and provide support
- There will be an expansion on the system with hardware and software updates
- The employee management system is provided by Hotschedules, a restaurant management system.
- Budgeted money for future software and hardware upgrades for the system. Repairs have also been budgeted.

INFO 361 - AS2 - CreativeTeamName							
Benefits	Year 0 (\$)	Year 1 (\$)	Year 2 (\$)	Year 3 (\$)	Year 4 (\$)	Year 5 (\$)	Total (\$)
Customer Base Increase	\$33,000	\$101,000	\$101,000	\$101,000	\$101,000	\$101,000	\$538,000
Reuseability of materials	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$30,000
Donations	\$500	\$600	\$1,500	\$2,000	\$2,000	\$5,000	\$11,600
Increase in Sales	\$6,000	\$15,000	\$40,000	\$90,000	\$120,000	\$150,000	\$421,000
Advertisement	\$0	\$1,000	\$20,000	\$20,000	\$20,000	\$20,000	\$81,000
Reduce management costs	\$10,000	\$15,000	\$15,000	\$17,000	\$20,000	\$25,000	\$102,000
Total benefits	\$54,500	\$137,600	\$182,500	\$235,000	\$268,000	\$306,000	\$1,183,600
Development costs							
Website	\$5,000	\$0	\$0	\$0	\$0	\$0	\$5,000
Self-Serve Kiosk	\$5,000	\$0	\$0	\$0	\$0	\$0	\$5,000
Hot schedules	\$5,000	\$0	\$0	\$0	\$0	\$0	\$5,000
Delivery Service	\$15,000	\$0	\$0	\$0	\$0	\$0	\$15,000
Keeping track of Customer Orders	\$15,000	\$0	\$0	\$0	\$0	\$0	\$15,000
Planning	\$50,000	\$0	\$0	\$0	\$0	\$0	\$50,000
Training	\$50,000	\$0	\$0	\$0	\$0	\$0	\$50,000
Software	\$15,000	\$0	\$0	\$0	\$0	\$0	\$15,000
Hardware	\$20,000	\$0	\$0	\$0	\$0	\$0	\$20,000
Touch Screen	\$5,000	\$0	\$0	\$0	\$0	\$0	\$5,000
Product Inventory	\$5,000	\$0	\$0	\$0	\$0	\$0	\$5,000
management report generator program	\$5,000	\$0	\$0	\$0	\$0	\$0	\$5,000
Database	\$5,000	\$0	\$0	\$0	\$0	\$0	\$5,000
Total Development Costs	\$200,000	\$0	\$0	\$0	\$0	\$0	\$200,000
Operational Costs							
Software upgrades	\$0	\$1,500	\$1,500	\$1,500	\$1,500	\$1,500	\$7,500
Maintenance for website	\$200	\$200	\$200	\$200	\$200	\$200	\$12,000
Hardware upgrades	\$0	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$5,000
Maintenance for Kiosk	\$300	\$300	\$300	\$300	\$300	\$300	\$18,000
Software licenses	\$250	\$250	\$250	\$250	\$250	\$250	\$1,500
IT Support Staff	\$60,304	\$50,000	\$50,000	\$50,000	\$25,000	\$25,000	\$260,304
Total Operational Costs	\$61,054	\$53,250	\$53,250	\$53,250	\$28,250	\$28,250	\$304,304
Total costs	\$261,054	\$53,250	\$53,250	\$53,250	\$28,250	\$28,250	\$504,304
Net Value	(-\$206,554)	\$84,350	\$129,250	\$181,750	\$239,750	\$277,750	\$679,236
Return On Investment							
NPV of Net Benefits @ 5% discount rate							\$536,078.75
Break-Even Point (years)							3.45

Use-Case Diagrams and Descriptions



ACTORS

Actor: Clerk	ID: 1
Stakeholders and Interests: Employees at Creative Team Name need to be able to process customer's order	
Description: Any employee with the position of clerk. Responsible for processing customer orders and updating availability records.	
Trigger:	
Type:	
Relationships:	
Association:	
Include:	
Extend:	
Generalization: Employee	
Normal Flow of Events:	

Actor: General Manager	ID: 2
Stakeholders and Interests: General Manager wants to generate revenue and costs elements report for the store.	
Description: Any employee with the position of General Manager. Responsible for managing revenue and cost elements of the store; The use case demonstrates the following: Generate Management Reports which creates production reports, employee work reports, sales reports, inventory reports, customer reports.	
Trigger:	
Type:	
Relationships:	
Association:	
Include:	
Extend:	
Generalization: Employee	
Normal Flow of Events:	

Actor: Inventory Manager	ID: 3
<p>Stakeholders and Interests: Inventory Manager wants to add, restock, locate items in store.</p>	
<p>Brief Description: Any employee with the position of Inventory Manager. Responsible for managing inventory, recipes, and generating supply orders.</p>	
Trigger:	
Type:	
Relationships:	
Association:	
Include:	
Extend:	
Generalization: Employee	
Normal Flow of Events:	

Actor: In-Store Customer	ID: 4
<p>Stakeholders and Interests: In-Store Customer wants to view and purchase item(s) in store.</p>	Description: Any customer who enters the store's physical location. Can use self-service kiosks to place orders.
Trigger:	
Type:	
Relationships:	
Association:	
Include:	
Extend:	
Generalization: Customer	
Normal Flow of Events:	

Actor: Online Customer	ID: 5
<p>Stakeholders and Interests: The Online Customer needs to access the virtual storefront to view inventory and/or make purchases.</p>	
<p>Description: Any customer who views the webpage using the virtual storefront. Can register and use the website to place orders.</p>	
Trigger:	
Type:	
Association:	
Include:	
Extend:	
Generalization: Customer	
Flow of Events:	

USE CASE DIAGRAMS

Use Case Name: Record Availability	ID: 1 Importance Level: High
Actor: Clerk	Use Case Type: Essential
Stakeholders and Interests: Clerk have the ability to record the availability of chocolates for in-store customers	
Description: Allows the store to add and subtract the total available chocolates currently in the store based on what is purchased and added	
Trigger: An item is added or subtracted from store inventory	
Type: Internal	
Relationships:	
Association: Clerk	
Include:	
Extend: Schedule Production, Manage Schedule	
Generalization:	
Normal Flow of Events 1. General Manager uses ID to get rights to see profits made by store 2. General Manager uses data to create production reports, employee work reports, sales reports, inventory reports, customer reports	

Use Case Name: Process Customer Order	ID: 2 Importance Level: High
Actor: Clerk	Use Case Type: Essential
Stakeholders and Interests: Clerks at Creative Team Name need to be able to process customer's order	
Description: Allows clerks complete any orders made by the customer	
Trigger: Customer places an order	
Type: Internal	
Relationships:	
Association: Clerk	
Include: Process Transaction, Payment Options	
Extend:	
Generalization:	
Normal Flow of Events: 1. Customer approaches Clerk 2. Clerk scans the chocolate and gets total sum 3. Clerk processes transactions 4. Customer uses the form of payment he/she chooses as long as it is within store agreements	

Use Case Name: Generate Management Reports	ID: 3	Importance Level: Medium		
Actor: General Manager	Use Case Type: Detail			
Stakeholders and Interests: General Manager needs the ability to generate management reports				
Description: Allows managers to receive automated management reports				
Trigger: Manager requests from the Information System a management report				
Type: Internal				
Relationships:				
Association: General Manager				
Include:				
Extend:				
Generalization:				
Normal Flow of Events <ol style="list-style-type: none"> 1. General Manager uses ID to get rights to see profits made by store 2. General Manager uses data to create production reports, employee work reports, sales reports, inventory reports, customer reports 				

Use Case Name: Manage Employees	ID: 4 Importance Level: Medium
Actor: General Manager	Use Case Type: Detail
Stakeholders and Interests: General Manager needs the ability to manage employees	
Description: General Manager will use the system to add/update/delete employees, create employee work schedules, and track employee work hours	
Trigger: Manager uses the Information System to add/update/delete employees, create work schedules, or track employee work hours	
Type: Internal	
Relationships:	
Association: General Manager	
Include:	
Extend: Schedule Production, Manage Schedule	
Generalization:	
Normal Flow of Events <ol style="list-style-type: none"> 1. General Manager uses ID to get rights to see profits made by store 2. General Manager uses data to create production reports, employee work reports, sales reports, inventory reports, customer reports 	

Use Case Name: **Generate Supply Order** ID: 5 Importance Level: **Medium**

Actor: **Inventory Manager**

Use Case Type: **Detail**

Stakeholders and Interests:

Inventory Manager needs to be able to generate Supply Orders

Description: **The inventory manager will generate supply orders to make sure the store is always in stock of items.**

Trigger: **Inventory Manager uses Information System to generate supply order**

Type: **External**

Relationships:

Association: **Inventory Manager**

Include:

Extend:

Generalization:

Normal Flow of Events:

1. **Inventory Manager uses ID to have rights to order supplies**
2. **Inventory Manager orders supplies**

Use Case Name: **Manage Inventory** ID: **6** Importance Level: **Medium**

Actor: **Inventory Manager**

Use Case Type: **Detail**

Stakeholders and Interests:

Inventory Manager needs to be able to keep track of supplies

Description: **The inventory manager will manage inventory by keeping track of supply ingredients (add/update/delete quantities), manage all product recipes, generate supply acquisition orders, send order payment, track damaged supplies.**

Trigger: **Inventory Manager uses the IS inventory management system**

Type: **External**

Relationships:

Association: **Inventory Manager**

Include:

Extend:

Generalization:

Normal Flow of Events:

1. **Inventory manager uses ID to have rights to manage inventory**
2. **Inventory manager checks for number of supplies**

Use Case Name: Manage Recipes	ID: 7 Importance Level: Medium
Actor: Inventory Manager	Use Case Type: Detail
<p>Stakeholders and Interests: Inventory Manager needs the ability to add, update, or remove recipes</p> <p>Description: The inventory manager will manage recipes to maintain an up to date recipe for the menu</p>	
Trigger: Inventory Manager uses the IS recipe management system	
Type: External	
Relationships:	
Association: Inventory Manager	
Include:	
Extend:	
Generalization:	
<p>Normal Flow of Events</p> <p>3. Inventory Manager uses ID to get rights to manage recipes</p> <p>4. Inventory Manager adds, updates, removes recipes from menu</p>	

Use Case Name: Use Self-Service Kiosk	ID: 8 Importance Level: High
Actor: In-Store Customer	Use Case Type: Essential
Stakeholders and Interests: In-Store customers need to be able to use the self-service kiosk.	
Description: The in-store customer will use the self-service kiosk to interact with the store without the inclusion of employees.	
Trigger: Customer uses the in-store kiosk	
Type: External	
Relationships:	
Associated with: In-store Customer	
Include: Look Up Customer Order Profile, Generate Customer Invoice	
Extend: Register to Database for Online Purchasing, In-Store Order	
Generalization:	
Normal Flow of Events: 1. Customer uses self-serve kiosk 2. Customer can register or make an order 3. If order is made, invoice will be generated 4. If register is done, customer is added to database	

Use Case Name: **View the Product List and Availability** ID: 9 Importance Level: **High**

Actor: **Online Customer**

Use Case Type: **Essential**

Stakeholders and Interests:

Online customers need to be able to view products and make orders.

Description: **The online customer will be able to log on the website, view the products, view the description of products, check availability of inventory, select delivery options, confirm and track Internet orders, determine delivery cost and date, provide customer delivery tracking identification number, specify customized products, confirm custom order within 24 hours, generate customer order invoice, accommodate payment by micro payment system, keep track of customer order profiles, and make online orders.**

Trigger: **Customer accesses the website's product list page**

Type: **External**

Relationships:

Associated with: **Online customer**

Include: **Tracking Orders, Delivery Options, Generate Customer Invoice**

Extend: **Place an Online Order**

Generalization:

Normal Flow of Events:

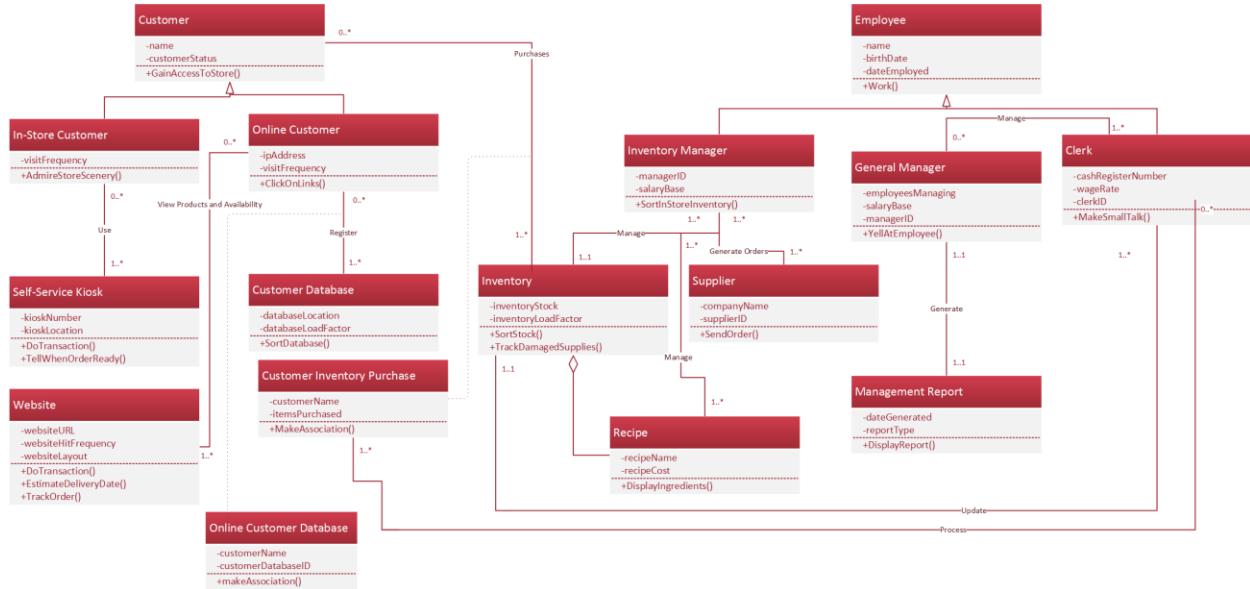
1. **Customer will be able to view the products available**
2. **If the customer wants to, will be able to place an online order**
3. **If an order is made, it will be tracked, there will be delivery options, and an invoice will be generated**

Use Case Name: Register Customer	ID: 10 Importance Level: High
Actor: Online customer	Use Case Type: Essential
<p>Stakeholders and Interests: Online customers need to be able to add themselves to the database.</p>	
<p>Description: The online customer will enter his/her information to the database for streamlined processes in the future.</p>	
<p>Trigger: Customer enters the website's registration page</p>	
<p>Type: External</p>	
<p>Relationships:</p>	
<p>Associated with: Online customer</p>	
<p>Include:</p>	
<p>Extend:</p>	
<p>Generalization:</p>	
<p>Normal Flow of Events:</p> <ol style="list-style-type: none"> 1. Online customer on the website will click to register and enter his/her information into a registration form 2. Information will then be added to the database for future use 	

Non-Functional Requirements

- Operational Requirements
 - All programs and databases will be available wirelessly
 - Customers can order in-store or online
- Performance Requirements
 - All operations will complete in < 2 seconds
 - Order confirmation should be immediate
 - Delivery confirmation should be within 12 hours
- Security Requirements
 - Daily backups will secure data
 - Management and database systems will be password protected
 - Micropayment system chosen will need to be proven secure
- Political/Cultural Requirements
 - There are no notable political/cultural considerations to be made

Class Diagram and Descriptions



UML Model Descriptions

Class Name: Customer	Class Type: SuperClass
Properties: name, customerStatus	
Functions: GainAccessToStore()	
Description: Someone who purchases from inventory listed through the store or our webpage	

Class Name: In-Store Customer	Class Type: SubClass of Customer
Properties: visitFrequency	
Functions: AdmireStoreScenery()	
Description: Walk-Ins who can view and purchase items listed on shelves	

Class Name: Online Customer	Class Type: SubClass of Customer
Properties: ipAddress, visitFrequency	
Functions: ClickOnLinks()	
Description: A customer who browses the website and orders product items through the online order form.	

Class Name: Employee	Class Type: SuperClass
Properties: name, birthDate, dateEmployed	
Functions: Work()	
Description: Anyone who works at the store	

Class Name: Inventory Manager	Class Type: SubClass of Employee
Properties: managerID, salaryBase	
Functions: SortInStoreInventory()	
Description: An employee who manages the store's supplies.	

Class Name: Clerk	Class Type: SubClass of Employee
Properties: cashRegisterNumber, wageRate, clerkID	
Functions: MakeSmallTask()	
Description: A person employed to help customer make transactions	

Class Name: Self-Service Kiosk	Class Type: Class
Properties: kioskNumber, kioskLocation	
Functions: DoTransactions(), TellWhenOrderReady()	
Description: A self-operated machine which can be used to purchase goods from the store without the use of a Clerk	
Relationships:	
Association: In-Store Customer uses Self-Service Kiosk (1)	
Aggregation:	
Multiplicity of Association/Aggregation: Many to Many (1)	

Class Name: Customer Inventory Purchase	Class Type: Association
Properties: customerName, itemsPurchased	
Functions: MakeAssociation()	
Description: Associations to link customer's names with the items they've purchased	
Relationships:	
Association: Clerk processes Customer Purchases (1)	
Aggregation:	
Multiplicity of Association/Aggregation:	

Class Name: Customer Database	Class Type: Class
Properties: databaseLocation, databaseLoadFactor	
Functions: SortDatabase()	
Description: Data held in a server which reveals the information of the customers who have registered to our website	
Relationships:	
Association: Online Customer registers to Customer Database (1)	
Aggregation:	
Multiplicity of Association/Aggregation: Many to Many (1)	

Class Name: General Manager	Class Type: Class
Properties: employeesManaging, salaryBase, managerID	
Functions: YellAtEmployee()	
Description: A person hired at the store as a general manager	
Relationships:	
Association: General Manager Manages Clerk (1)	
Aggregation:	
Multiplicity of Association/Aggregation: Many to many (1)	

Class Name: Inventory	Class Type: SubClass
Properties: inventoryStock, inventoryLoadFactor	
Functions: SortStock(), TrackDamagedSupplies()	
Description: A list of our goods that are ready to be sold	
Relationships:	
Association: Customer purchases Inventory (1) Inventory Manager manages Inventory (2) Clerk updates Inventory (3)	
Aggregation:	
Multiplicity of Association/Aggregation: Many to Many (1) Many to One (2) Many to One (3)	

Class Name: Supplier	Class Type: Class
Properties: companyName, supplierID	
Functions: SendOrder()	
Description: Provides store with goods ordered by the inventory manager	
Relationships:	
Association: Inventory Manager Generates Order for Supplier (1)	
Aggregation:	
Multiplicity of Association/Aggregation: Many to Many (1)	

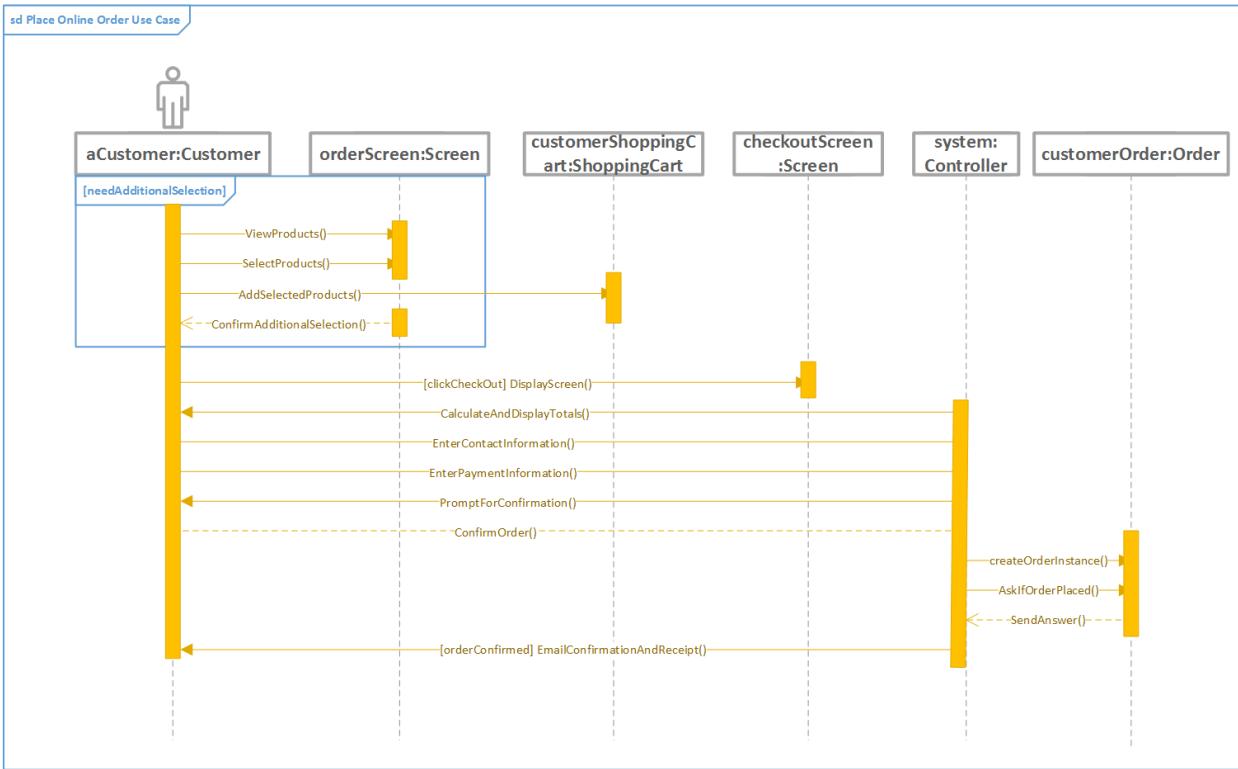
Class Name: Recipe	Class Type: Class
Properties: recipeName, recipeCost	
Functions: DisplayIngredients()	
Description: Set of documents that contain ways on how to create chocolate for the company.	
Relationships:	
Association:	
Aggregation: Inventory Manager manages Recipe (1)	
Multiplicity of Association/Aggregation: Many to Many (1)	

Class Name: Management Report	Class Type: Class
Properties: dateGenerated, reportType	
Functions: DisplayReport()	
Description: A report that generates production reports, employee work reports, sales reports, inventory reports, and customer reports.	
Relationships:	
Association: General Manager Generates Management Report (1)	
Aggregation:	
Multiplicity of Association/Aggregation: One to One (1)	

Class Name: Website	Class Type: Class
Properties: websiteURL, websiteHitFrequency, websiteLayout	
Functions: DoTransaction(), EstimateDeliveryDate(), TrackOrder()	
Description: A location connected to the internet which can be accessed to view what we have to offer	
Relationships:	
Association: Online Customer View Products and Availability of Website (1)	
Aggregation:	
Multiplicity of Association/Aggregation: Many to Many (1)	

Class Name: Online Customer Database	Class Type: Association
Properties: customerName, customerDatabaseID	
Functions: displayAssociation()	
Description: An association class linking customers to their respective profiles	
Relationships:	
Association: Relationship from Online Customer Class to Customer Database Class	
Aggregation:	
Multiplicity of Association/Aggregation:	

Sequence Diagrams and Descriptions



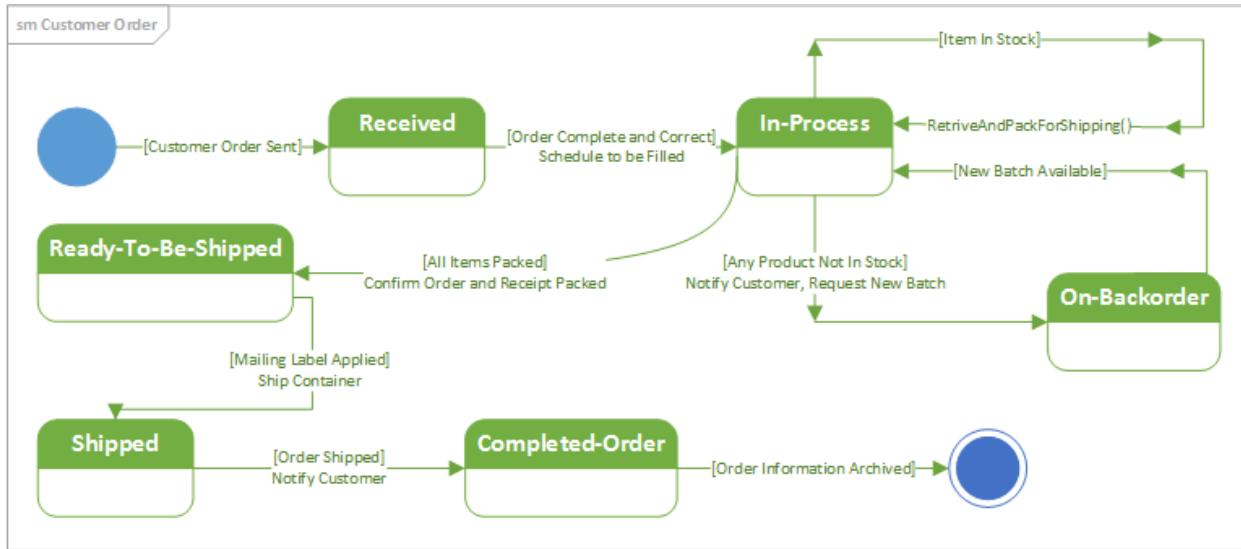
Place Online Order Sequence Diagram Descriptions

Instance: aCustomer	Object Name: Customer
Description: Anyone who shops at the store	
Instance: orderScreen	Object Name: Screen
Description: A virtual representation of what the customer can order	
Instance: customerShoppingCart	Object Name: ShoppingCart
Description: A virtual list of the items selected	
Instance: checkoutScreen	Object Name: Screen
Description: A screen that displays checkout options	
Instance: system	Object Name: Controller
Description: The main controller	
Instance: customerOrder	Object Name: Order
Description: A virtual representation of the order being placed	

Fill Online Order Sequence Diagram Descriptions

Instance: anEmployee	Object Name: Employee
Description: Anyone who works at the store	
Instance: mainMenu	Object Name: Screen
Description: Main menu screen that the employee can access when they are logged in	
Instance: fillOrderScreen	Object Name: Screen
Description: Display that shows the order being filled	
Instance: system	Object Name: Controller
Description: Main controller for the sequence	
Instance: aReceipt	Object Name: Receipt
Description: Object created to record the transaction	
Instance: aMailingLabel	Object Name: MailingLabel
Description: Object created for mailing purposes	
Instance:	Object Name: Printer
Description: Prints receipts and mailing labels that the system requests.	
Instance: customerOrder	Object Name: Order
Description: System retrieves, updates, and confirms orders for the customer.	
Instance:	Object Name: ProductInventory
Description: Virtual list of all available in the store's inventory	

State Machine Diagram and Descriptions



Customer Order State Diagram Descriptions

State Name: **Initial**

Description: **Beginning of the process, where the order of the customer is sent.**

State Name: **Received**

Description: **State where order has been received, but nothing else has happened to it yet.**

State Name: **In-Process**

Description: **State where the order has been scheduled for filling. Only changes to this state if the order has been verified as complete and correct.**

State Name: **On-Backorder**

Description: **State where at least one part of the customer order was not in stock. This state is entered when this occurs, the customer has been notified, and a new batch of the out-of-order items has been requested.**

State Name: **Ready-To-Be-Shipped**

Description: **State where all items have been packed, and it has been confirmed that the order and receipt are packed as well. Item is ready for shipping in this state.**

State Name: **Shipped**

Description: **State where the mailing label has been applied, and the container has been shipped.**

State Name: **Completed Order**

Description: **State where the customer has been notified that the order was shipped, after successful shipping.**

State Name: **Final**

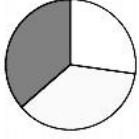
Description: **The end of the process meaning all states have been satisfied.**

User Interface Prototype Screens

Homepage

Richmond Millennial Chocolatier Company

Welcome to our Richmond Millennial Chocolatier Company Webpage!



Our online store is up to speed with the latest chocolately goodness!

Online ordering is available

Quick search:

Admin/Staff Access Page

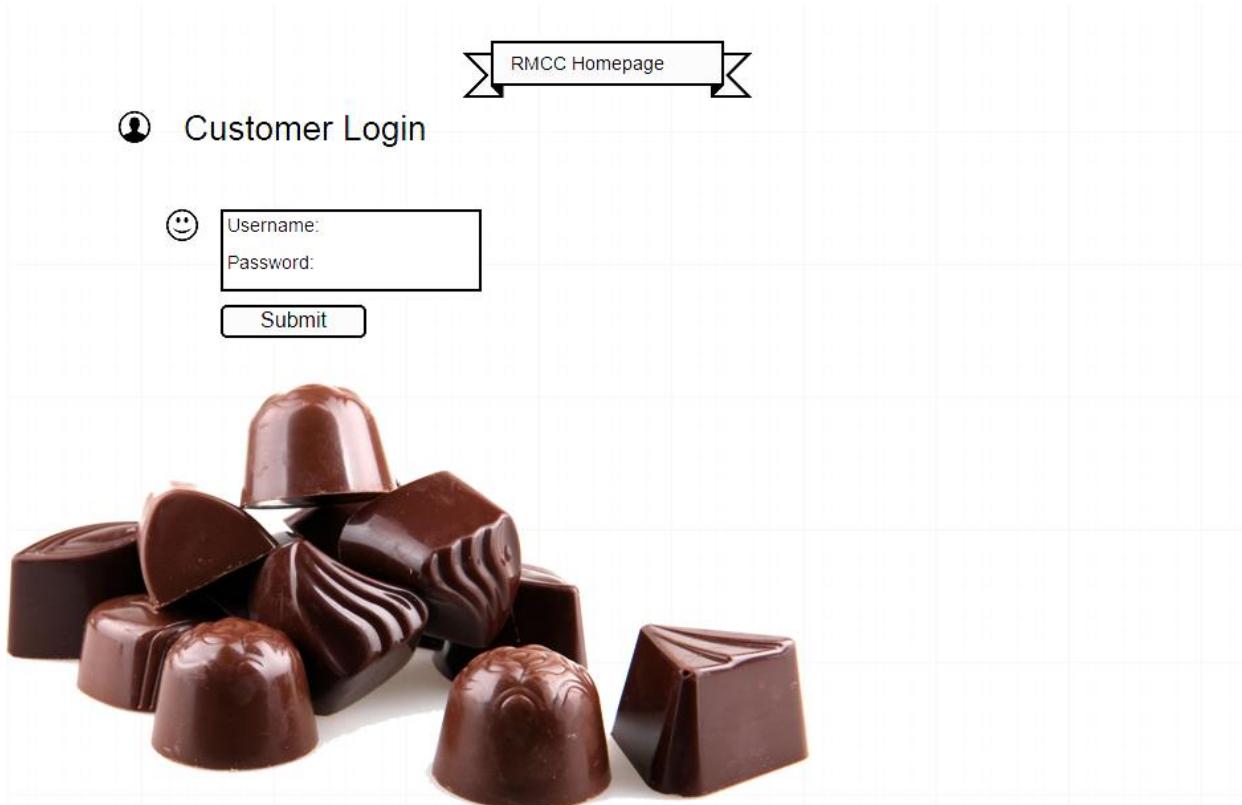


❶ Admin/Staff Access

☺



Customer Login Page



Customer Signup/Register Page



Customer Signup/Register



Customer Information

Username:

Password:

Email:

Date of Birth:

Address 1:

Address 2:

State

Zip:

Phone number:

Add

I agree to the terms and conditions

Submit

Payment Method:

[Visa](#) | [Mastercard](#) | [Paypal](#) | [Bitcoin](#)

Card Number:

Security Code:

Add



Product List Page

i Product List [RMCC Homepage](#) [Shopping Cart](#)

Chocolate Types	Submit
Chocolate brands	Submit
Price range	Submit

Search Product List

Chocolate Types

Milk chocolate	White Chocolate	Dark Chocolate
----------------	-----------------	----------------



Select Quantity	▼	Add
Select Quantity	▼	Add
Select Quantity	▼	Add

Chocolate Brands

Cadbury	✓
Hershey's	✓
Toblerone	✓

[Click to see more](#)

Shopping Cart Page

RMCC Homepage

Shopping Cart

Your orders:

Order 1 Name and Price: 

-

-

-

Order n Name and Price: 

Total Price :



Guest Payment Page

! Payment page - Guest [RMCC Homepage](#)

☺ Checkout as guest

Username:
Password:
Email:
Date of Birth:
Address 1:
Address 2:
State:
Zip:
Phone number:

Add

Guest Payment Method:

Card Number:
Security Code:

Visa | Mastercard | Paypal | Bitcoin



Review your order

Order 1: Name Price Quantity Add/Remove ☺
Order n: Name Price Quantity Add/Remove ☺

Total Price :

Confirm



I agree to the terms and conditions

Logged-In Customer Payment Page

 RMCC Homepage

Payment Page - Logged in Customer

Add New Payment Method

[Visa](#) | [Mastercard](#) | [Paypal](#) | [Bitcoin](#)

Card Number:

Security Code:

Use Existing Card: #####

Review your order

Order 1:  

Order n:  

Total Price :

I agree to the terms and conditions



Purchase Confirmation Page

[RMCC Homepage](#)

🔑 Purchase Confirmation Page

Thank you for choosing Richmond Millennial Chocolatier Company (RMCC)!

Your order has been placed!

Thank you for your patronage,

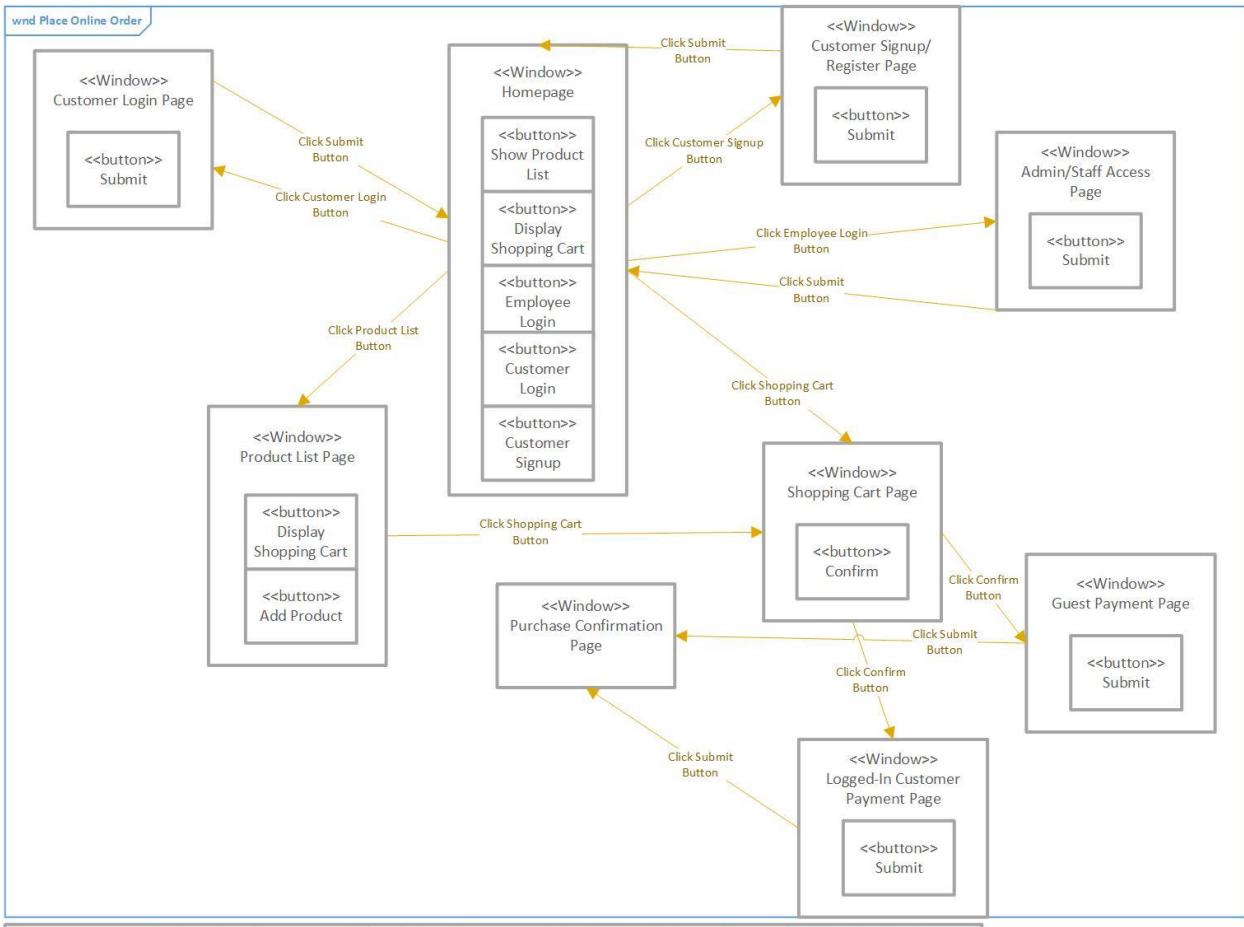
Your order receipt: #####

Your order number: #####

A copy of the receipt has been sent to your email address provided.

[Homepage](#)

Windows Navigation Diagram



Usability Test Report

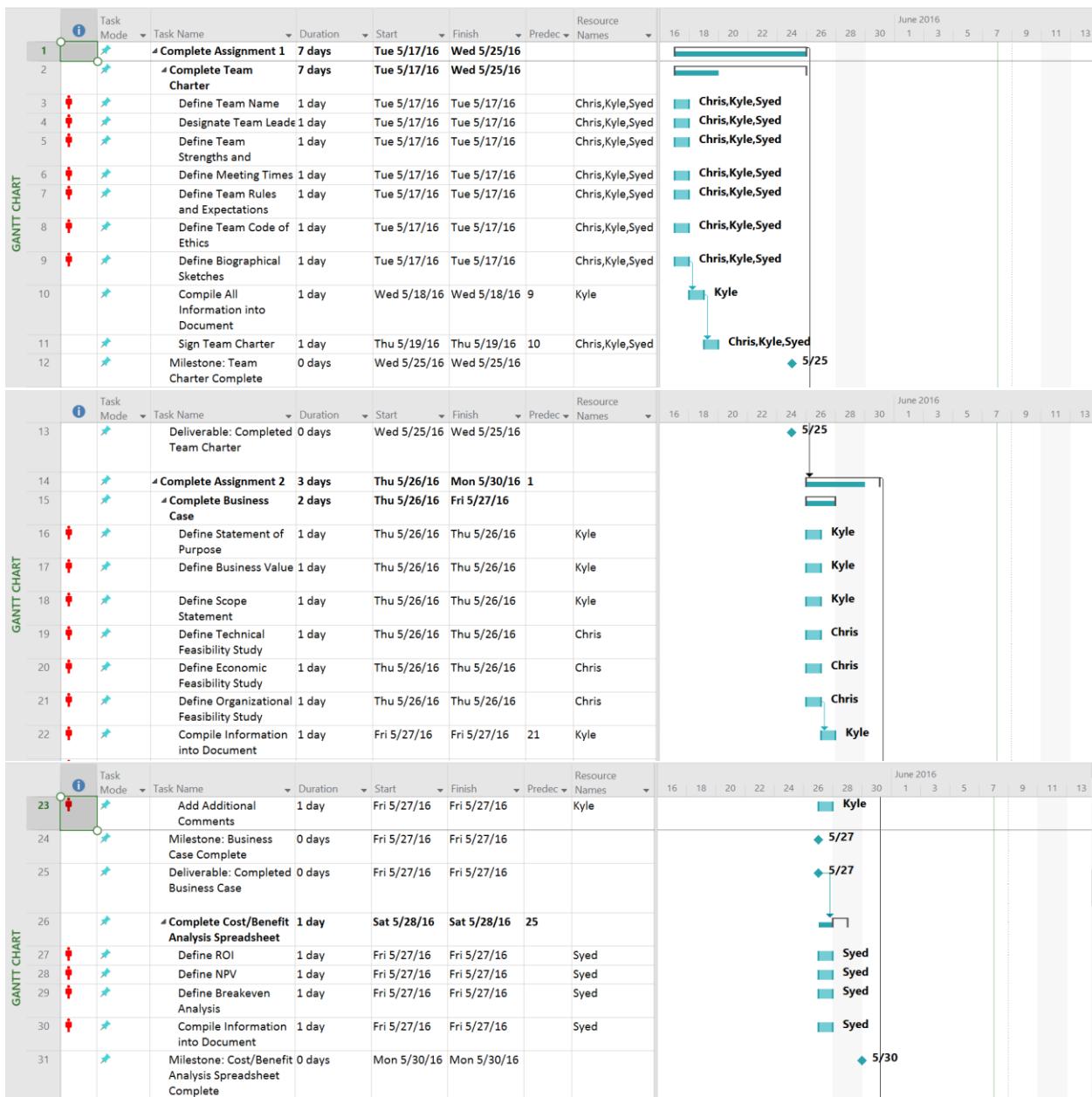
In order to document ways in which we could improve on the prototype screens, two members of the group were selected to conduct usability reports making use of people within their own vicinities. Chris chose to show the prototype screens to his roommate, and Kyle chose to show them to his father. Each person's comments and reactions were recorded and both used to improve the current prototype models and noted as considerations to keep in mind in future modeling.

Chris' roommate was the first person to be interviewed, and commented that the font was too small and may be difficult to read for senior citizens. He commented that each of the pages needed a homepage button for navigation back to the main website. In response to these suggestions, we first increased the font and then added a homepage button to every page of the website. Other than the initial comments used for improvement, Chris' roommate thought that the website layout looked pretty good.

Kyle's father was the second person to be interviewed, and was quite impressed with the layout of the website. The first suggestion he offered was that we should spruce up the look of the buttons to make them pop out in the website more. In response to this, we added small images to go with each button so that they were more visually appealing and so that they popped out more. The second suggestion he offered was to put the shopping cart icon in the same location on every page that it appears, and in response to this we did just that.

Overall, the results of the usability report were good, as each of the two people enjoyed the layout of the website and were able to provide constructive feedback which led to multiple improvements of the overall project.

Gantt Chart



GANTT CHART								June 2016														
	Task Mode	Task Name	Duration	Start	Finish	Predec	Resource Names	16	18	20	22	24	26	28	30	1	3	5	7	9	11	13
32	Normal	Deliverable: Completed Cost/Benefit Analysis Spreadsheet	0 days	Mon 5/30/16	Mon 5/30/16										5/30							
	Normal	Milestone: Assignment 2 Complete	0 days	Mon 5/30/16	Mon 5/30/16										5/30							
	Normal	Deliverable: Completed Assignment 2	0 days	Mon 5/30/16	Mon 5/30/16										5/30							
	Normal	△ Complete Assignment 3	4 days	Tue 5/31/16	Fri 6/3/16	14																
	Normal	△ Create Gantt Chart	1 day	Tue 5/31/16	Tue 5/31/16																	
	Normal	Define Activities and Tasks	1 day	Tue 5/31/16	Tue 5/31/16		Kyle															
	Normal	Define Dependencies	1 day	Tue 5/31/16	Tue 5/31/16		Kyle															
	Normal	Define Start and Finish Dates	1 day	Tue 5/31/16	Tue 5/31/16		Kyle															
	Normal	Define Milestones and Deliverables	1 day	Tue 5/31/16	Tue 5/31/16		Kyle															
	Normal	Compile Information into Chart	1 day	Tue 5/31/16	Tue 5/31/16		Kyle															
42	Normal	Assign Resources	1 day	Tue 5/31/16	Tue 5/31/16		Kyle								6/1							
	Normal	Milestone: Gantt Chart Completed	0 days	Wed 6/1/16	Wed 6/1/16										6/1							
	Normal	Deliverable: Completed Gantt Chart	0 days	Wed 6/1/16	Wed 6/1/16																	
	Normal	△ Create Use Case Model	1 day	Wed 6/1/16	Wed 6/1/16	36																
	Normal	Define Main Actors	1 day	Wed 6/1/16	Wed 6/1/16		Chris															
	Normal	Define Generalization Specialization Relationships	1 day	Wed 6/1/16	Wed 6/1/16		Chris															
	Normal	Define Main Use Cases	1 day	Wed 6/1/16	Wed 6/1/16		Chris															
	Normal	Define Relationships Between Actors and Use Cases	1 day	Wed 6/1/16	Wed 6/1/16		Chris															
	Normal	Compile Information into Document	1 day	Wed 6/1/16	Wed 6/1/16		Chris															
	Normal	Signify Includes and Extends Cases	1 day	Wed 6/1/16	Wed 6/1/16		Chris															
52	Normal	Milestone: Use Case Model Completed	0 days	Wed 6/1/16	Wed 6/1/16										6/1							
	Normal	Deliverable: Completed Use Case Model	0 days	Wed 6/1/16	Wed 6/1/16										6/1							
	Normal	△ Create Description Document	1 day	Thu 6/2/16	Thu 6/2/16	45																
	Normal	Define Actor Descriptions	1 day	Thu 6/2/16	Thu 6/2/16		Syed															
	Normal	Define Main Use Cases Descriptions	1 day	Thu 6/2/16	Thu 6/2/16		Syed															
	Normal	Define Non-Functional Requirements	1 day	Thu 6/2/16	Thu 6/2/16		Syed															
	Normal	Compile Information into Document	1 day	Thu 6/2/16	Thu 6/2/16		Syed															
	Normal	Milestone: Description Document Completed	0 days	Thu 6/2/16	Thu 6/2/16										6/2							
	Normal	Deliverable: Completed Description Document	0 days	Thu 6/2/16	Thu 6/2/16										6/2							

	Task Mode	Task Name	Duration	Start	Finish	Predec	Resource Names	June 2016						
								16 18 20 22 24 26 28 30 1 3 5 7 9 11 13						
GANTT CHART		Fill Out Peer Evaluation Scorecards	1 day	Thu 6/2/16	Thu 6/2/16	60								
		Milestone: Assignment 3 Completed	0 days	Fri 6/3/16	Fri 6/3/16								6/3	
		Deliverable: Completed Assignment 3	0 days	Fri 6/3/16	Fri 6/3/16								6/3	
		▲ Complete Assignment 4	3 days	Mon 6/6/16	Wed 6/8/16	35								
		▲ Update Gantt Chart	1 day	Mon 6/6/16	Mon 6/6/16									
		Add New Activities and Tasks	1 day	Mon 6/6/16	Mon 6/6/16		Chris							
		Add New Dependencies	1 day	Mon 6/6/16	Mon 6/6/16		Chris							
		Add New Start and Finish Dates	1 day	Mon 6/6/16	Mon 6/6/16		Chris							
		Add New Milestones and Deliverables	1 day	Mon 6/6/16	Mon 6/6/16		Chris							
		Assign Resources	1 day	Mon 6/6/16	Mon 6/6/16		Chris							
GANTT CHART		Milestone: Gantt Chart Completed	0 days	Tue 6/7/16	Tue 6/7/16								6/7	
GANTT CHART		Deliverable: Completed Gantt Chart	0 days	Tue 6/7/16	Tue 6/7/16								6/7	
		▲ Create Class Diagram	1 day	Tue 6/7/16	Tue 6/7/16	72								
		Define Main Classes	1 day	Tue 6/7/16	Tue 6/7/16		Kyle							
		Define Generalization Specialization Relationships	1 day	Tue 6/7/16	Tue 6/7/16		Kyle							
		Define Aggregation Classes	1 day	Tue 6/7/16	Tue 6/7/16		Kyle							
		Define Association Classes	1 day	Tue 6/7/16	Tue 6/7/16		Kyle							
		Define Class Attributes and Operations	1 day	Tue 6/7/16	Tue 6/7/16		Kyle							
		Define Multiplicities	1 day	Tue 6/7/16	Tue 6/7/16		Kyle							
		Compile Information into Diagram	1 day	Tue 6/7/16	Tue 6/7/16		Kyle							
		Milestone: Class Diagram Completed	0 days	Wed 6/8/16	Wed 6/8/16								6/8	
GANTT CHART		Deliverable: Completed Class Diagram	0 days	Wed 6/8/16	Wed 6/8/16								6/8	
		▲ Create Description Document	1 day	Wed 6/8/16	Wed 6/8/16									
		Define Main Class Descriptions	1 day	Wed 6/8/16	Wed 6/8/16		Syed							
		Compile Information into Document	1 day	Wed 6/8/16	Wed 6/8/16		Syed							
		Milestone: Description Document Complete	0 days	Wed 6/8/16	Wed 6/8/16								6/8	
		Deliverable: Completed Description Document	0 days	Wed 6/8/16	Wed 6/8/16								6/8	
		Milestone: Assignment 4 Completed	0 days	Wed 6/8/16	Wed 6/8/16								6/8	
		Deliverable: Completed Assignment 4	0 days	Wed 6/8/16	Wed 6/8/16								6/8	
GANTT CHART		▲ Complete Assignment 5,6 3 days	1 day	Thu 6/9/16	Sun 6/12/16									
		▲ Update Gantt Chart	1 day	Thu 6/9/16	Thu 6/9/16		Syed							
		Add New Activities and Tasks	1 day	Thu 6/9/16	Thu 6/9/16		Syed							
		Add New Dependencies	1 day	Thu 6/9/16	Thu 6/9/16		Syed							
		Add New Start and Finish Dates	1 day	Thu 6/9/16	Thu 6/9/16		Syed							
		Add New Milestones and Deliverables	1 day	Thu 6/9/16	Thu 6/9/16		Syed							
		Assign Resources	1 day	Thu 6/9/16	Thu 6/9/16		Syed							
		Milestone: Gantt Chart Completed	0 days	Fri 6/10/16	Fri 6/10/16								6/10	
		Deliverable: Completed Gantt Chart	0 days	Fri 6/10/16	Fri 6/10/16								6/10	
		▲ Complete Sequence Diagrams	1 day	Fri 6/10/16	Fri 6/10/16	98	Chris,Kyle,Syed							
GANTT CHART		▲ Place Online Order Use Case Sequence Diagram	1 day	Fri 6/10/16	Fri 6/10/16		Kyle,Syed							
		Define Objects	1 day	Fri 6/10/16	Fri 6/10/16		Kyle							

		Task Mode	Task Name	Duration	Start	Finish	Predec	Resource Names	Wed Jun 8	Thu Jun 9	Fri Jun 10	Sat Jun 11	Sun Jun 12
									12 PM	12 AM	12 PM	12 AM	12 PM
GANNT CHART	102	Define Messages	1 day	Fri 6/10/16	Fri 6/10/16		Kyle						Kyle
	103	Compile Information into Document	1 day	Fri 6/10/16	Fri 6/10/16		Syed,Kyle						Syed,Kyle
	104	Milestone: Place Online Order Use Case Sequence Diagram Complete	0 days	Fri 6/10/16	Fri 6/10/16								6/10
	105	Deliverable: Completed Place Online Order Use Case Sequence Diagram	0 days	Fri 6/10/16	Fri 6/10/16								6/10
	106	Fill Online Order Sequence Diagram	1 day	Fri 6/10/16	Fri 6/10/16		Chris,Kyle,Syed						
	107	Define Objects	1 day	Fri 6/10/16	Fri 6/10/16		Chris						Chris
	108	Define Messages	1 day	Fri 6/10/16	Fri 6/10/16		Chris						Chris
	109	Compile Information into Document	1 day	Fri 6/10/16	Fri 6/10/16		Syed,Chris						Syed,Chris
	110	Milestone: Fill Online Order Sequence Diagram	0 days	Fri 6/10/16	Fri 6/10/16								6/10
	111	Deliverable: Fill Online Order Sequence Diagram	0 days	Fri 6/10/16	Fri 6/10/16								6/10
GANNT CHART	112	Milestone: Sequence Diagrams Complete	0 days	Fri 6/10/16	Fri 6/10/16								6/10
	113	Deliverable: Completed Sequence Diagrams	0 days	Fri 6/10/16	Fri 6/10/16								6/10
	114	Complete State Machine	1 day	Fri 6/10/16	Fri 6/10/16	98	Chris,Kyle,Syed						
	115	Define States	1 day	Fri 6/10/16	Fri 6/10/16		Kyle						Kyle
	116	Define initial state	1 day	Fri 6/10/16	Fri 6/10/16		Kyle						Kyle
	117	Define final state	1 day	Fri 6/10/16	Fri 6/10/16		Kyle						Kyle
	118	Define events	1 day	Fri 6/10/16	Fri 6/10/16		Kyle						Kyle
	119	Define transitions	1 day	Fri 6/10/16	Fri 6/10/16		Kyle						Kyle
GANNT CHART	120	Define guard conditions	1 day	Fri 6/10/16	Fri 6/10/16		Kyle						Kyle
	121	Define frames	1 day	Fri 6/10/16	Fri 6/10/16		Kyle						Kyle
	122	Compile information into document	1 day	Fri 6/10/16	Fri 6/10/16		Kyle,Chris,Syed						Kyle,Chris,Syed
	123	Milestone: State Machine Completed	0 days	Fri 6/10/16	Fri 6/10/16								6/10
	124	Deliverable: Completed State Machine	0 days	Fri 6/10/16	Fri 6/10/16								6/10
	125	Complete Documentation	1 day	Fri 6/10/16	Fri 6/10/16	98	Chris,Syed						
	126	Define Descriptions For All Objects	1 day	Fri 6/10/16	Fri 6/10/16		Chris,Syed						Chris,Syed
CHART	127	Compile Information Into Document	1 day	Fri 6/10/16	Fri 6/10/16		Chris,Syed						Chris,Syed
	128	Milestone: Documentation Complete	0 days	Fri 6/10/16	Fri 6/10/16								6/10
	129	Deliverable: Completed Documentation	0 days	Fri 6/10/16	Fri 6/10/16								6/10
	130	Milestone: Assignment 5,6 Complete	0 days	Fri 6/10/16	Fri 6/10/16								6/10
	131	Deliverable: Complete Assignment 5,6	0 days	Fri 6/10/16	Fri 6/10/16								6/10

GANTT CHART								Jun 19, '16							
	Task Mode	Task Name	Duration	Start	Finish	Predec	Resource Names	T	W	T	F	S	S	M	T
114	▲	Complete Assignment 7	2 days	Fri 6/17/16	Sat 6/18/16	90									
115	▲	Update Gantt Chart	1 day	Fri 6/17/16	Fri 6/17/16		Chris						6/17		
116	▲	Add New Activities and Tasks	0 days	Fri 6/17/16	Fri 6/17/16		Chris						6/17		
117	▲	Add New Dependencies	0 days	Fri 6/17/16	Fri 6/17/16		Chris						6/17		
118	▲	Add New Start and Finish Dates	0 days	Fri 6/17/16	Fri 6/17/16		Chris						6/17		
119	▲	Add New Milestones and Deliverables	0 days	Fri 6/17/16	Fri 6/17/16		Chris						6/17		
120	▲	Assign Resources	0 days	Fri 6/17/16	Fri 6/17/16		Chris						6/17		
121	▲	Milestone: Gantt Chart Updated	0 days	Sat 6/18/16	Sat 6/18/16								6/18		
122	▲	Deliverable: Updated Gantt Chart	0 days	Sat 6/18/16	Sat 6/18/16								6/18		
123	▲	Create Prototype Screens	1 day	Sat 6/18/16	Sat 6/18/16	122	Chris,Kyle,Syed								
124	▲	Determine What Program To Use	1 day	Sat 6/18/16	Sat 6/18/16		Kyle,Syed						Kyle,Syed		
125	▲	Brainstorm Layout	1 day	Sat 6/18/16	Sat 6/18/16		Chris,Kyle,Syed						Chris,Kyle,Syed		
126	▲	Use Mockups.com For Prototype Screen	1 day	Sat 6/18/16	Sat 6/18/16		Syed						Syed		
127	▲	Create RMCC Homepage	1 day	Sat 6/18/16	Sat 6/18/16		Syed						Syed		
128	▲	Create RMCC Product Page	1 day	Sat 6/18/16	Sat 6/18/16		Syed						Syed		
129	▲	Create RMCC Shopping Cart Page	1 day	Sat 6/18/16	Sat 6/18/16		Syed						Syed		
130	▲	Create RMCC Payment Page	1 day	Sat 6/18/16	Sat 6/18/16		Syed						Syed		
GANTT CHART								Jun 19, '16							
	Task Mode	Task Name	Duration	Start	Finish	Predec	Resource Names	T	W	T	F	S	S	M	T
131	▲	Create RMCC Purchase Confirmation Page	1 day	Sat 6/18/16	Sat 6/18/16		Syed						Syed		
132	▲	Include Descriptions	1 day	Sat 6/18/16	Sat 6/18/16		Syed						Syed		
133	▲	Include Pictures	1 day	Sat 6/18/16	Sat 6/18/16		Syed						Syed		
134	▲	Milestone: Prototype Screen	0 days	Sat 6/18/16	Sat 6/18/16								6/18		
135	▲	Deliverable: Completed Prototype Screen	0 days	Sat 6/18/16	Sat 6/18/16								6/18		
136	▲	Create Windows Navigation Diagram	1 day	Sat 6/18/16	Sat 6/18/16		Chris,Kyle,Syed								
137	▲	Determine What Pages/Screens Are Required	1 day	Sat 6/18/16	Sat 6/18/16		Kyle						Kyle		
138	▲	Determine Relations Between Screens	1 day	Sat 6/18/16	Sat 6/18/16		Kyle						Kyle		
139	▲	Model After "Place-On-line Use Case Diagram"	1 day	Sat 6/18/16	Sat 6/18/16		Kyle						Kyle		
140	▲	Determine What Program To Use	1 day	Sat 6/18/16	Sat 6/18/16		Kyle						Kyle		
141	▲	Use Visio for Windows Navigation Diagram	1 day	Sat 6/18/16	Sat 6/18/16		Kyle						Kyle		
142	▲	Create The Windows Navigation Diagram	1 day	Sat 6/18/16	Sat 6/18/16		Kyle						Kyle		
143	▲	Milestone: Windows Navigation Diagram	0 days	Sat 6/18/16	Sat 6/18/16								6/18		
144	▲	Deliverables: Completed Windows Navigation Diagram	0 days	Sat 6/18/16	Sat 6/18/16								6/18		
145	▲	Usability Test	1 day	Sat 6/18/16	Sat 6/18/16										
RT								Jun 19, '16							
	Task Mode	Task Name	Duration	Start	Finish	Predec	Resource Names	T	W	T	F	S	S	M	T
146	▲	Test Interface With Two Other People	1 day	Sat 6/18/16	Sat 6/18/16		Kyle						Kyle		
147	▲	Create Report Based On Their Experience	1 day	Sat 6/18/16	Sat 6/18/16		Kyle						Kyle		
148	▲	Compile Information Into Document	1 day	Sat 6/18/16	Sat 6/18/16		Chris,Kyle,Syed						Chris,Kyle,Syed		
149	▲	Milestone: Usability Test	0 days	Sat 6/18/16	Sat 6/18/16								6/18		
150	▲	Deliverables: Completed Usability Test	0 days	Sat 6/18/16	Sat 6/18/16								6/18		
151	▲	Milestone: Assignment 7 Complete													
152	▲	Deliverable: Completed Assignment 7													
GANTT CHART								Qtr 3, 2016							
	Task Mode	Task Name	Duration	Start	Finish	Predec	Resource Names	Jun	Jul	Aug	Sep	Oct	Nov		
192	▲	Complete Project	5 mons	Fri 6/24/16	Thu 11/10/16										
193	▲	Make Sequence Diagrams	1 wk	Fri 6/24/16	Thu 6/30/16										
194	▲	sd Generate Supply Orders	1 wk	Fri 6/24/16	Thu 6/30/16										
195	▲	sd Generate Management Reports	1 wk	Fri 6/24/16	Thu 6/30/16										
196	▲	sd Register Customer	1 wk	Fri 6/24/16	Thu 6/30/16										
197	▲	sd Manage Recipes	1 wk	Fri 6/24/16	Thu 6/30/16										
198	▲	sd Manage Inventory	1 wk	Fri 6/24/16	Thu 6/30/16										
199	▲	Add Customized Products To Existing Place Online Order and Fill Online Order SD's	1 wk	Fri 6/24/16	Thu 6/30/16										
200	▲	Milestone: SD's Complete	0 days	Fri 7/1/16	Fri 7/1/16										
201	▲	Deliverable: Completed SD's	0 days	Fri 7/1/16	Fri 7/1/16										
202	▲	Make State Machine Diagrams	1 wk	Sat 7/2/16	Thu 7/7/16										
203	▲	sm Management Report	1 wk	Sat 7/2/16	Thu 7/7/16										
204	▲	sm Inventory Item	1 wk	Sat 7/2/16	Thu 7/7/16										
205	▲	sm Recipe	1 wk	Sat 7/2/16	Thu 7/7/16										
206	▲	sm Supply Order	1 wk	Sat 7/2/16	Thu 7/7/16										
207	▲	sm Customer Invoice	1 wk	Sat 7/2/16	Thu 7/7/16										

	Task Mode	Task Name	Duration	Start	Finish	Predec	Resource Names	Jun	Qtr 3, 2016	Jul	Aug	Sep	Oct	Nov
208		sm Customized Product	1 wk	Sat 7/2/16	Thu 7/7/16									
209		sm Customer Payment	1 wk	Sat 7/2/16	Thu 7/7/16									
210		sm Customer Profile	1 wk	Sat 7/2/16	Thu 7/7/16									
211		sm Damaged Supply	1 wk	Sat 7/2/16	Thu 7/7/16									
212		Milestone: SM's complete	0 days	Fri 7/8/16	Fri 7/8/16									
213		Deliverable: Completed SD's	0 days	Fri 7/8/16	Fri 7/8/16									
214		▲ Make WND's and Prototypes	1 wk	Sat 7/9/16	Thu 7/14/16									
215		WND/P Inventory Management Display	1 wk	Sat 7/9/16	Thu 7/14/16									
216		WND/P Employee Management Display	1 wk	Sat 7/9/16	Thu 7/14/16									
217		WND/P Management Report Generation Display	1 wk	Sat 7/9/16	Thu 7/14/16									
218		WND/P Kiosk Display	1 wk	Sat 7/9/16	Thu 7/14/16									
219		Milestone: WND's and Prototypes Complete	0 days	Fri 7/15/16	Fri 7/15/16									
220		Deliverable: Completed WND's and Prototypes	0 days	Fri 7/15/16	Fri 7/15/16									
221		▲ Buy and Install Servers	2 wks	Sat 7/16/16	Thu 7/28/16									
222		Research Brands	1 wk	Sat 7/16/16	Thu 7/21/16									
223		Allot appropriate physical space	1 wk	Sat 7/16/16	Thu 7/21/16									
224		Hire or Install In-House	1 wk	Fri 7/22/16	Thu 7/28/16	223								
	Task Mode	Task Name	Duration	Start	Finish	Predec	Resource Names	Jun	Qtr 3, 2016	Jul	Aug	Sep	Oct	Nov
225		Milestone: Servers Installed	0 days	Fri 7/29/16	Fri 7/29/16									
226		Deliverable: Functional Servers	0 days	Fri 7/29/16	Fri 7/29/16									
227		▲ Buy and Install Kiosks	2 wks	Sat 7/30/16	Thu 8/11/16									
228		Research Brands	1 wk	Sat 7/30/16	Thu 8/4/16									
229		Allot Physical Space In-Store	1 wk	Sat 7/30/16	Thu 8/4/16									
230		Hire or Install In-Home	1 wk	Fri 8/5/16	Thu 8/11/16	229								
231		Milestone: Kiosks Installed	0 days	Fri 8/12/16	Fri 8/12/16									
232		Deliverable: Functional Kiosks	0 days	Fri 8/12/16	Fri 8/12/16									
233		▲ Build Website	1 wk	Sat 8/13/16	Thu 8/18/16									
234		Hire or Install In-Home	1 wk	Sat 8/13/16	Thu 8/18/16									
235		Milestone: Website Complete	0 days	Sun 8/14/16	Sun 8/14/16									
236		Deliverable: Functional Website	0 days	Sun 8/14/16	Sun 8/14/16									
237		▲ Build Database	30 days	Sun 8/14/16	Thu 9/22/16									
238		Hire/Install In-Home/COTS	20 days	Sun 8/14/16	Thu 9/8/16									
239		Test Software With Simulated Server	3 days	Fri 9/9/16	Tue 9/13/16									
240		Install Software For Use With Actual Server	3 days	Wed 9/14/16	Fri 9/16/16									
241		Test With Actual Server	2 days	Sat 9/17/16	Mon 9/19/16									
	Task Mode	Task Name	Duration	Start	Finish	Predec	Resource Names	Jun	Half 1, 2016	Half 2, 2016	Half 1, 2017			
242		Link Successful Database Implementation With Necessary Networks	3 days	Tue 9/20/16	Thu 9/22/16				J	F	M	A	M	J
243		Milestone: Database Complete	0 days	Fri 9/23/16	Fri 9/23/16									
244		Deliverable: Functional Database	0 days	Fri 9/23/16	Fri 9/23/16									
245		▲ Build Programs	30 days	Sat 9/24/16	Thu 11/3/16									
246		Hire/Install In-Home/COTS	1 day	Sat 9/24/16	Sat 9/24/16									
247		Start Software Development	20 days	Sun 9/25/16	Thu 10/20/16									
248		Regularly Share Software Prototypes With Company	20 days	Sun 9/25/16	Thu 10/20/16									
249		Test Completed Software	5 days	Fri 10/21/16	Thu 10/27/16									
250		Install Completed Software	2 days	Fri 10/28/16	Mon 10/31/16									
251		Test Completed Software With Actual System Once Installed	3 days	Tue 11/1/16	Thu 11/3/16									
252		Milestone: Programs Complete	0 days	Fri 11/4/16	Fri 11/4/16									
253		Deliverable: Functional Programs	0 days	Fri 11/4/16	Fri 11/4/16									
254		▲ Implement Micropayment System	3 days	Sat 11/5/16	Tue 11/8/16									
255		Research Companies Offering Service	1 day	Sat 11/5/16	Sat 11/5/16									
256		Pick Company And Set Up System	2 days	Sun 11/6/16	Mon 11/7/16									
	Task Mode	Task Name	Duration	Start	Finish	Predec	Resource Names	Jun	Half 1, 2016	Half 2, 2016	Half 1, 2017			
257		Milestone: Micropayment Installed	0 days	Wed 11/9/16	Wed 11/9/16				J	F	M	A	M	J
258		Deliverable: Functional Micropayment System	0 days	Wed 11/9/16	Wed 11/9/16									
259		▲ Hire IT Staff	48 days	Thu 9/1/16	Sat 11/5/16									
260		Send Out Job Wanteds	2 wks	Thu 9/1/16	Wed 9/14/16									
261		Interview Potential Employees	30 days	Tue 9/20/16	Mon 10/31/16									
262		Make Hires	4 days	Tue 11/1/16	Fri 11/4/16									
263		Milestone: Staff Hired	0 days	Sun 11/6/16	Sun 11/6/16									
264		Deliverable: Functional IT Staff	0 days	Sun 11/6/16	Sun 11/6/16									
265		▲ Review Completed Process	3 days	Mon 11/7/16	Wed 11/9/16									
266		Figure Out What Went Well And What Went Badly	1 day	Mon 11/7/16	Mon 11/7/16									
267		Set Up Future Plans To Avoid Mistakes Made	1 day	Tue 11/8/16	Tue 11/8/16									
268		Encourage Future Use Of Practices That Led To Success	1 day	Tue 11/8/16	Tue 11/8/16									
269		Have A Beer	1 day	Wed 11/9/16	Wed 11/9/16									
270		Milestone: Project Complete	0 days	Thu 11/10/16	Thu 11/10/16									
271		Deliverable: Completed Project	0 days	Thu 11/10/16	Thu 11/10/16									