**C868 – Software Capstone Project Summary**

**Task 2 – Section A**



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| **Capstone Proposal Project Name:** | Captain Ahab – The Inventory Tracker |
| **Student Name:** | Nicholas Walters |

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# **Business Problem**

**The Customer**

The Customer is Wallys Walleyes. It is a pair of elderly brothers (in their late 80s) who own a bait and tackle fishing shop. They sell everything from rods, reels, bait, hooks. They are the go-to Fishing Shop in the local Amity Island Area in California. They have a very outdated system with a pen and login book when customers arrive. They track the orders from a book and then every day after closing shop they then spend hours trying to track the sales by transcribing the sales from the book to an Excel Spreadsheet.

They were planning to retire when a bigger, better company Sammy Suckers came into town. Sammy Suckers is like the big fish in town. Sammy Suckers has more of a selection and people do not have to wait. Sammy Suckers is also with the times and has a shipping system where they outsource products from all around the country.

Wallys Walleyes knows that when people come to their shop, they are not just paying for their rods and reels, but they are paying for the experience as well. The brothers go out of their way to share the latest golden hole or bait. They want to try and do lessons and guided tours. They feel like if they could keep up with the times and offer lessons/tours to people that they would improve their clientele.

## **Business Case**

Captain Ahab application will vastly improve Wallys Walleyes. For starters they will be able to get to close shop after the customer buys their rods when they are supposed to close. They will not have to transcribe from a big book into an excel spread sheet. The application will track what is bought. This will vastly improve the number of potential errors that can happen and that has happened in the past. In the past pages have been lost and the brothers have had to deal with these issues. Captain Ahab will take that all away.

With this application they can know what they are selling and what they need to order more of. They will be able to globalize their inventory. This will help them continue their business and make them feel like they are not on a sinking ship.

With Captain Ahab I will create a feature that will help them receive reminders for customers for when customers have signed up for either guided tours or private lessons. This will help the brothers remember when they have booked their new features.

The app will contain a login page to provide a little bit of security just so no one randomly can login to the app. I will make it easy to remember and make the password and the username the same. I will tell them that their password and username are = “fish.” This should be easy to remember, especially since it is their main business.

After the login screen they will have the option to pick from rods and reels, tackle (this will include things like hooks, etc.) and bait. They will also have the option to quickly order things in stock and replenish their inventory. The final feature will allow them to generate a report of total number of rod and reel combos ordered and sold.

The money maker for the app is with the rod and reels combo packages so Captain Ahab will make so if someone is buying something with other things the customer will not be able to get rid of it. It will be an all or none sort of deal.

The rod and reel combo deals will show information on when it was ordered and when it was sold. If the brothers need to remove the rod and reel combo they can delete, change the name and so forth.

They do not have a way to remember if certain rods/ or bait is out of stock until they look at them in the store. With Captain Ahab I will have a feature available that will help with this. It will be a search bar with a filter that will allow them to purchase the soon to be out of stock. It will be very simple for them where they will just have to hit a couple of buttons and it will place the order for them so that they will not ever run out of inventory.

Wallys Walleyes has never had an app before. Their usual clientele are grumpy old men that come to hear fishing stories and get their bait. This application will make it possible for their grandchildren to run the shop once they are finally willing to retire. This will truly be a game changer for them.

## **Fulfillment**

Captain Ahab will continue to meet the needs of the users. The main usage for now will be used be available on An Android platform and later down the road it will be available on an Apple Platform. Based on the research done much of the population near Amity Beach are avid Android Users.

It will have a basic layout with different buttons directing the users to right page. It will let the users see what is available within the shop. The app will allow the customers and the Wally Brothers to view what is available. There will be a search bar that will make browsing simple.

The main part will show a summary or a list to the users on what is available. This will include info from rods and reels other basic tackle. It will show various lists of what is available on hand whether it is a list of rod/reel combo, bait, or tackle/tacklebox combo. I will also include a menu that can generate a report to show the total rod/reel ordered and combo and the other feature will include a sample data store so that the brothers can see how it works.

If the brothers wish to go to the Rod/Reel page they will be able to add the name of the rod and reel. They will be able to key in the ordered date and the date sold and save it to the database. If the brothers

The main part of the tracking system will be used in a database with the database system of Room so that it can be lightweight and easy to maintain. This tracking system will have a specific number attached to it so that the brothers will know how to track each rod. This tracking system will allow the brothers to add more rods, accessories, bait, and other things to it. They will also be able to modify existing rods and even delete them once an order is fulfilled.

The next part will have a list on it showing the rod details. The rod details will display each type of rod with a tracking id number, price, and a description. This page will also allow the user to modify existing rod information and add notes to system as well. I will give the brothers the ability to add bait, reels, and tackles to rod as well. The menu on top will allow the user to restart the whole screen so that it goes back to the beginning.

The next part will have a list showing the available reels and accessories attached to the rods. I will make it so that the brothers will not be able to delete any reels/accessories that are attached to the rods. This will ensure that the correct information is being tracked and that the brothers will not accidently delete whole packages that they are offering. This part will make it so that they can add as many reels or accessories as needed.

On the menu screen I will allow the ability for the brothers to be alerted when they will be providing fly fishing lessons. They will also be notified when they are going to go on a guided tour. The notification will notify them so that they will be able to remember when a customer has signed up for this specific service. This will really boost the sales for Wallys Walleyes.

The last part will display a list of the current tackle. This will let the brothers know what they currently have and what they will need to order. The tackle will be offered as is its own thing, but the brothers will be able to add promos to the tackle. The promos will allow them to bundle everything all together. The bundle will include rod, reel/accessories, tackle, and lessons and I will make the promos unable to be deleted if they have a rod/reel/ attached to it.

# **Existing Gaps**

Captain Ahab will replace the old system of manually adding things to a big book then to excel. With the old system the brothers would spend countless nights staying awake to try and go through the books of the orders. They had to make sure that everything was accounted for. They would verify that the orders matched their inventories and then from there they would track it into excel.

As you can see this system is very outdated and there is a very high margin for error. With this system the brothers would mess up many times due to the late hours and the fuzzy handwriting. The brothers have had issues in the past that have caused errors to occur, ordering the wrong rod. They have thought multiple times that they had something in stock because of an error that was caused prior. They then would find out that things that should have been ordered and things that they already had were ordered in its place.

All though their business has been around for a long time they need Captain Ahab to get rid of the errors so that they can modernize their system and prevent the errors that have happened in the past.

# **SDLC Methodology**

The Software Development Life Cycle Methodology used will be that of an Agile Development cycle because we want to be constantly changing and adapting our software. We want to be pleased with our work even in the beginning stages of our app. The brothers want the app to adaptable to truly see if what if Captina Ahab will do what it says it will do. We want to sink Sammy Suckers. If there is a feature that just is not working for the brothers, we will want to change it.

The requirements are known but as soon as we start, we will want to know if they are all that the brothers want. With this app we might find out later down the road that the requirements could change.

With the Architecture and design, we will be able to produce a working changing prototype that will ensure success. This prototype will allow us to assess and receive feedback while still having our prototype in the hands of the brothers. If there is something that they do not like, then we can take it back to the development phase while still having a working app.

With the Test and feed back phase we will be able to evaluate in real time what our working prototype has and what features we would like to add in the next go around. Once we received the feedback, we can start working on that while still having our prototype deployed.

With the development phase we then can add those features to the already deployed prototype.

I know that with this approach of having an Agile Approach we will have a working changing app. Everything that will be done to it will be implemented and improved. This will give the brothers the most flexibility to determine what they like and do not like. They will be able to be involved in every step of the process.

# **Deliverables**

We will provide a working prototype. This will be our working application Captain Ahab and be able to customize it and make sure that it works. This will be divided into more manageable chunks of project deliverables and product deliverables. Let us dive into the explanation below.

## **Project Deliverables**

* User Stories
  + This is an informal explanation or description of features that are written by the end user.
  + It is the user’s point of view.
  + We will use this to gather the information that so that we will know exactly what the end user will need and want.
* Product roadmap
  + This will outline the vision and direction of the project.
  + It will show the priorities and progress overtime.
  + It will also show the short term and long-term goals and how we will be able to achieve them.
  + We will use this to make sure that we are on track with our sprints.
* Product Backlog
  + We will house the User stories and the Product Roadmap here along the top to make sure that we know what we are dealing with.
  + This will help us better track if there are bug fixes or really what we will need to focus our efforts on.

## **Product Deliverables**

* Prototype
  + This will show us a working application that will allow us to do basic functions.
  + We will use the prototype that will display the basic function of Captain Ahab.
  + We will use a prototype in a high fidelity setting to help us better understand how and what we want the Application to look like.
  + The prototype will give us a better chance of understanding the proper functions of Captain Ahab.
* Wireframe
  + We will use the wireframe to understand the flow of Captain Ahab.
  + This will show what page goes where.
  + We will convey the actual idea of Captain Ahab to the brothers.

# **Implementation**

I will take the same approach to deploy the application as it should be when Captain Ahab gets implemented. We will start small and go from there. We will see what is and is not working.

The brothers’ goals are to have a system that will help them beat out their competition Sammy Suckers. Their approach to be the best is one of the best I have seen. They know that the customers value the one-on-one time that the brothers offer. They also know that Sammy Suckers does not care about the customer like they do. Sammy Suckers are not spending time out of their day to tell the customer about the best fishing tips. They know that Sammy Suckers are not providing guided tours and lessons. By exploiting this and really focusing on this key indicator of how they value their customers, they will once again get to be the big fish in the pond.

By knowing this main goal, we can focus and capitalize on that. We will implement the sharing notification/alerts with the application. This notification/alert will remind the brothers that they are providing lessons and tours. The brothers are older and unfortunately, they tend to forget things easier than most. That is why by allowing them to receive the notifications on the app they will be able to remember and not drop the ball on a tour/lesson.

We will use a Scrum method to implement the application. We will test early and often ensuring that we will not have any errors, minimizing and reducing the risks.

We will verify that and validate early on through each iteration and sprint. This will help us get everything we need to make sure that we can continue to have an error free project.

Wallys Walleyes is a small operation, but we are going to try and outsource a group of people to manage the project. We will outsource a Project Manager to oversee the overall project success. The Project Manager will be in direct contact with myself and the brothers, so that we can assure that each milestone is being met. We will also outsource a Scrum Master so that they can oversee each sprint we make to verify that we are make sure each sprint is running like it should.

This will be too big of a project for just us three to work on, so we are proposing ton outsourcing a couple of developers. They will help me get Captain Ahab running, error free, and quickly as possible.

The other two developers will answer to me, and I will assign them tasks based on what the Scrum Master has us do. The Scrum Master will receive guidance from the Project Manager, thus assuring a clear chain of command.

# **Validation and Verification**

To validate the project, we will use a various of methods to make sure Captain Ahab is what it needs to be. One of the methods we will use is the receiving of User Stories.

Myself and the other two developers will collaborate with the brothers to see if the brothers can review and evaluate each function. This will be helpful in clarifying to see what the brothers are looking for and what Captain Ahab is able to perform. The developers will continue to gather feedback from the brothers to see how we can improve on our features. The Developers will make or add features one by one to the prototype to ensure that the brothers’ opinions are heard and taken into consideration.

The first user story we will collect will be from the brothers themselves. We will add functionality to make sure the application can share notifications. We will complete our first sprint by designing the prototype and adding functionality to share and receive dated notifications.

We will evaluate this by letting the brothers have access to prototype with both versions. From the admin version we will evaluate whether the brothers are receiving notifications on their own personal phones. This will ensure that the application is working correctly so that when it goes into production, the brothers will be able to see when a fishing lesson/guided tour is.

We will also allow the brothers access to the customer version of the application to make sure that they can pick a date. This will simulate the customers point of view and that way we can all be on the same page.

To verify the project is preforming like it should we will conduct various methods ensuring that Captain Ahab is working.

One method we will use to verify its functionality is the use of peer reviews. The other two developers will both do an informal peer review of they code they produced. They will then do a peer review of each other’s code to see if there was anything that they missed. After their peer review, they will then collaborate and combine their code. From there they will send the combined code to me to do one more Peer review. This last peer review will be a formal review and we will use this to verify that Captain Ahab is without bugs. We will use Git throughout the entire process.

# **Environments and Costs**

## **Programming Environment**

We used a Windows Surface to create the application. It ran on Android Studio with Room/SQL Database provided.

Below is the information that it was created on through Windows.

Device name TABLET-0PSU8JDM

Processor Intel(R) Core (TM) i5-1035G4 CPU @ 1.10GHz 1.50 GHz

Installed RAM 8.00 GB (7.60 GB usable)

Device ID 1AFD7443-E5ED-4393-A329-299DA9B4AC2A

Product ID 00342-23803-61448-AAOEM

System type 64-bit operating system, x64-based processor

Pen and touch Pen and touch support with 10 touch points

Edition Windows 11 Home

Version 22H2

Installed on ‎9/‎21/‎2022.

OS build 22621.2715

Serial number 038664113653

Experience Windows Feature Experience Pack 1000.22677.1000.0

Below is what was you to create the application through Android Studio.

Android Studio Flamingo | 2022.2.1 Patch 2

Build #AI-222.4459.24.2221.10121639, built on May 12, 2023

Runtime version: 17.0.6+0-b2043.56-9586694 amd64

VM: OpenJDK 64-Bit Server VM by JetBrains s.r.o.

Windows 11 10.0

GC: G1 Young Generation, G1 Old Generation Memory: 1280M Cores: 8 Registry

## **Environment Costs**

There will not be many outside influences that will make the environmental cost go up. With that said the brother have said that we have a budget of $200,000 and so we will plan to use all but a small amount for wiggle room.

There will be a $20,000 cost that will cost the brothers to get everything set up and running. This will include a guarantee that they will have a team later down the road that will be their support line. The team will offer 24/7 support around the clock, so if the application starts to see bugs, then the team will be the first to respond. The team will also be available to send various patches and updates to Captain Ahab as well.

There will be a licensing fee that will apply to whichever vendor has agreed to host their rod/reel etc. on the application. This will cost the brothers 10% of their earnings. For example, if a vendor like “Big Tuna” wanted to host their rod on the application then the brothers would owe 10% of that cost to Big Tuna.

We will deploy a free version of the application that will be your basic shopping cart type application. However, if the customer wants to pay for the premium version, they will have to pay a monthly fee of $3.00. The premium version will include specific features as well as the shopping cart, like the ability to sign up for lessons or guided tours, and the daily fishing tips.

## **Human Resource Requirements**

Each Developer (excluding myself) will get paid for the job they did. This project will take 3 months to complete and at the end of the 3 months they will get paid $20,000 each which will equal $40,000. This will ensure that the developers are producing the highest quality products. The developers will be the ones constantly using their 3-month contract.

For myself, the Project Manager, and the Scrum Master will get $40,000 each because we will be making sure everyone is where they need to be. We will be making sure we do not go over budget. After everyone and the startup fee we will have $20.000 left for wiggle room.

# **Project Timeline**

Below is what our 3-month Agile Project Timeline will look like.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| WBS Number | Task Name | Status | Assigned to | Start Date | End Date | Duration |
| 1 | Project Idea and start | Complete | Ricky Bobby (Developer1) | 09/01/2023 | 09/06/2023 | 5 |
| 1.1 | Research effortless ways to implement | Complete | Bobby Buschay (Developer2) | 09/05/2023 | 09/12/2023 | 7 |
| 1.2 | Project Charter | Complete | Bobby Buschay | 09/13/2023 | 09/15/2023 | 2 |
| 1.3 | Meet with Brothers | Complete | Macey Walters (Project Manager) | 09/25/2023 | 10/01/2023 | 5 |
| 2 | Captain Ahab planning and Definition | In Progress | Bobby Buschay, Ricky Bobby, Nicholas Walters (Developer Manager),  Macey Walters,  Buddy Elf (Scrum Master) | 10/01/2023 | 10/02/2023 | 1 |
| 2.1 | The Goals and Scope | In Progress | Macey Walters | 10/04/2023 | 10/06/2023 | 2 |
| 2.2 | Budget | In Progress | Macey Walters | 11/01/2023 | 11/11/2023 | 10 |
| 3 | Launching | In Progress | Buddy Elf | 11/15/2023 | 11/20/2023 | 5 |
| 3.1 | Status Tracking | In Progress | Buddy Elf, Macey Walters | 12/01/2023 | 12/04/2023 | 3 |
| 3.2 | User Stories | In Progress | Bobby Buschay | 12/03/2023 | 12/11/2023 | 8 |
| 3.3 | Product Roadmap | In Progress | Ricky Bobby | 12/05/2023 | 12/14/2023 | 9 |
| 3.4 | Product Backlog | In Progress | Ricky Bobby | 12/15/2023 | 12/17/2023 | 2 |
| 4 | Project Performance and Monitoring | In Progress | Buddy Elf | 12/01/2023 | 12/17/2023 | 16 |
| 4.1 | Project Objectives | Not Started | Nicholas Walters | 12/18/2023 | 12/20/2023 | 2 |
| 4.2 | Quality deliverables | Not Started | Ricky Bobby, Bobby Buschay | 12/19/2023 | 12/20/2023 | 1 |
| 4.3 | Effort and Cost tracking | Not Started | Macey Walters | 12/21/2023 | 12/22/2023 | 2 |
| 4.4 | Wireframe | In Progress | Bobby Buschay | 12/06/2023 | 12/20/2023 | 14 |
| 4.5 | Prototype | In Progress | Ricky Bobby, Bobby Buschay | 12/07/2023 | 12/22/2023 | 17 |
| 5 | Project closure | Not Started | Nicholas Walters, Macey Walters, Buddy Elf | 12/30/2023 | 01/01/2023 | 1 |