**Contribution Report**

**Team 4**

**Team Members:**

Weng Yi-Chieh

Park Subyung

P Sanjay Kumar

Leon Wan

Li Danyang

Sun Yichun

Miki Rusly

Koh Yong Chun

**Member Name: Weng Yi-Chieh**

**Roles and responsibilities:**

Preliminary use case design

Database design

ASP.NET coding for web

Integration of web application

WCF for mobile application

**Deliverables and interaction within the team**

Deliverables:

1.Use case diagram/activity diagram

2.Master page of web application

3.Login page of web application

4.ASP.NET coding for web for the following use cases:

ChangeDepartmentRep

Receive notification

View notification history

Delegate Authority

Generate purchase order

View statistic chart

Interaction within team

1. Communicating with design group to make sure the consistency between programming and design
2. Communicating with database administrator to deal with issue regarding data storage during programming phase
3. Communicating with mobile developer to integrate web system and mobile application
4. Communicating with project manager to tracking the project progress

**Major challenges and resolution**

|  |  |
| --- | --- |
| During doing delegate authority use case, featuring out the difficulty to update aspnetdb when additional information was added. | After discussing, creating a new datatable of employee roles to store information of employee roles and active duration. |
| During doing notification use case,finding out difficulty to store notification information and provide real time notifications | After discussing, create an new datatable to store all the notifications generated by every use cases. And finding using SignalR to provide real time notifications. |
| During doing statistic chart use case, encountering the problems to find the suitable tools to present statistic chart with multiple conditions. | After searching,come out with chart using MSchart to generate statistic chart in our application. |

**Quantum**

Group Discussion: 40 hours

Programming: 120 hours

Documentation: 20 hours  
Total 20 days \* 9 hrs = 180 hrs

**Experience**

During the process of the application developing project, I figure out making a ideal application is not always easy. Not only need to have design thinking to find out a way to reduce workload of our users, but also should have knowledge to overcome many technical hundles. After hearing feedbacks from users during User Acceptance Testing, I think our application still have room to improve, not user-friendly enough, misleading information provided on screen, not reducing the workload of users, some validation functions not implemented yet.

Thanks for the experience, I know the importance of filtering out the key features of a application in web and in mobile, knowing the importance of connecting team member together without communication barriers, knowing how to find the source of a problem and finding the best way to solve it , and knowing the original source of technology, which is all about helping people.

**Member Name: Park Subyung**

**Roles and responsibilities:**

Documentation of Webforms

Front end design of some parts of Webforms

**Deliverables and interaction within the team**

Deliverables

1. Some parts of Use Case
2. Some parts of User Interface
3. Revised Class Diagrams, Sequence Diagrams
4. Part of progress report(3rd week)

Interaction within team

1. Sequence diagrams for webforms have been changed because the sequence of our programs has been changed. So, I kept communicating with our back-end developers to add changes in sequence during developing.
2. Some sequences in sequence diagrams were not logical. So I suggested the team to change the sequence of the program and changed.
3. Communicate with team members to know how the progress had been made in 3rd week.

**Major challenges and resolution**

One major challenge faced was to develop a program according to original sequence diagrams. Even though we spent a lot of time designing sequence diagrams, in programming there were many difficulties to follow. So we discussed as often as possible to change sequence diagrams and programs reasonably.

**Quantum**

The number of hours for each major activity are:

Group discussion - 20 hours

Programming - 40 hours

Documentation - 100 hours

**Experience**

Previously, even I finished the exam, I couldn’t understand whole programming stages and coding well. So, I wanted to make practice as long as I am allowed to have my understanding in programming clearer. As my main part was not in programming itself, I was not able to practice enough in coding. However, during some time period, I could practice asp.net coding related database including CRUD using spare time when I don’t have anything to prepare a document. I could experience how the asp.net was working and how the result I want to get could be seen in my computer.

In addition, preparing Use Cases, Sequence Diagrams, and Class Diagrams, I could understand our program better. In revising Sequence Diagrams and Class Diagrams, I could understand the whole program developing stages better and how important communication in the team project.

**Member Name: P Sanjay Kumar**

**Roles and responsibilities**

Documentation

Front end design of mobile component of clerk use cases.

**Deliverables and interaction within the team**

Deliverables

1. Produce functions and designs of the mobile app.
2. Documentation such as sequence diagrams, class diagrams, formulating use cases, project report, plan, etc.

Interaction within team

1. Sequence diagrams for the android component was slightly different for the mobile components. Suggested to the team to go through all the sequence diagrams as a team to ensure that the business logic remains the same, despite some functions being different given the platform difference.
2. Some use cases were missing. Suggested to the team to implement the missing use cases and to redraw the use case diagram so as to produce the final diagram.
3. Consolidated each team member’s deliverables for the week and updated the gantt chart and the weekly progress report accordingly.
4. For the department staff search requisition status (mobile), gave suggestions to display the color of approved and reject differently.

**Major challenges and resolution**

1. One major challenge faced was in getting to edit the text in the listview for the mobile system.

The workaround solution was to instead click the listview and to display a form field instead where modifications to the listview data can be made. This made it easier for the viewing of the form field details as compared to viewing it on a listview.

2. The other challenge was to ensure that in the dashboard layout, both the image button and cardview can be clicked. Initially, only the image button can be clicked . This meant that if users clicked on the cardview, no response was received.

The workaround solution was to ensure the cardview can be clicked.

3. The other challenge was to ensure that the interface was user friendly. For example, in the initial design phase, the forms were not organized together.

The workaround solution was to ensure organization and that all the similar business logic are kept under one place. This makes it easier for users to access to for example forms of all types, where they are kept under a common documents folder.

**Quantum**

The number of hours for each major activity are:

Group discussion - 20 hours

Programming - 100 hours

Documentation - 60 hours

**Experience**

1. Prior to starting the project, my knowledge with working on android studio was limited. The codes and concepts learning during lessons were rather limited and basic. As such, to incorporate complex functions, further research was needed.
2. I enjoyed learning about the features provided by android studio. The flexibility given in the ide that allows developers to code any type of app is something that was fun.
3. Further, learning about the different types of codes and how newer versions of android studio supported codes that increase efficiency in creating a function was thoroughly enjoyable.
4. As i was learning along the way while doing the project, some considerable time was spent with solving certain problems with certain functions.
5. I also realized the importance of tapping on each other’s strengths and weaknesses. Learning from each other is important. As I come from a background with no prior experience in programming, I learnt alot from my peers who have prior coding experience and knowledge.
6. Communication and coordination is also extremely important. I was working on the front end design of the application. However, the feasibility of the design had to be verified with the team member working on the back end portion (WCF- database connection for CRUD). Execution of the program is more important than just having an idea and coming up the design. Further, i had to also ensure that values and naming convention used was in line with terminologies and data used in the database.
7. I also learnt in the importance of having healthy debates with my teammates and not to waste time having harmful conflicts.

**Member Name: Leon Wan**

**Roles and responsibilities**

Documentation

Front end design of mobile component of department use cases.

**Deliverables and interaction within the team**

For my part, the main deliverables that I was required to produce was the various functions required in the front end design of the mobile app, such as swipe menu and custom listview layouts, depending on the information that needs to be displayed.

One contribution I made was regarding the stock adjustment form for the mobile component. The original business logic was very cumbersome and had unnecessary steps involved. I suggested to change the flow of the steps to make the process more user friendly by reducing the number of screens involved, as well as providing a clearer business logic to the process.

Another contribution was regarding the validation of the ‘submit’ button in the stock adjustment form of the mobile component. Clicking on the button while there were empty fields would cause the app to crash. I suggested making the button invisible until data from another page which was required to fill the required fields were put in first, only then would the button become visible again. This helped to solve the problem and made the app more user friendly, as there was a clearer flow for the user to follow.

**Major challenges and resolution**

One major challenge was regarding the mobile UI for appointing of department rep. The challenge was getting a label to show beside the name of the staff that was appointed as department rep. This was solved by creating a custom adapter which displayed two columns: the staff name and the label. The labels were made invisible and only made visible when the staff was appointed.

Another challenge was regarding the coding for adding of item to the requisition list on the previous page for the raise requisition use case for department staff. What we had learned in class was passing intent to the next activity, and not the previous activity. Through personal research, I found the method to make an activity return results to the activity that calls it, which helped to solve the problem.

**Quantum**

The number of hours for each major activity are:

Group discussion - 20 hours

Programming - 100 hours

Documentation - 60 hours

**Experience**

As I was delegated to working on the mobile side of this project, I was mainly involved in working on android coding. Before the project, I was quite weak in android studio. However, through the course of this project, I was able to learn how to identify various features and functions of android studio and am now much more proficient than I was before the project.

I am now able to create working apps which boasts several features such as creating lists, adding items to lists, search functions, just to name a few.

I have also learned the importance of communication and teamwork as I am working on the front end design of the mobile component. Clear communication with the group mate working on the back end design component was very essential in ensuring that integration was smoother and helped to reduce a lot of potential problems which might arise due to poor understanding of each other’s codes.

**Member Name: Li Danyang**

**Roles and responsibilities**

Preliminary partial UI Design

Preliminary Non-functional requirements analysis

Preliminary workflow analysis

ASP.NET coding for web

**Deliverables and interaction within the team**

Deliverables:

1.Some parts of preliminary UI Design

2.Preliminary activity diagram

3.ASP.NET coding for web for the following use cases:

Change Collection Point

Maintain User Profile

Change Reorder Level

Perform ChargeBack

Replenish Stock

View Department Rep Collection Point

Pending PR Request UI

4.Consolidated Class Diagram

Interaction within team

1. UI design for some webforms was not user-friendly after interview with our users. So I suggested UI designers to cater for what user need. For example, make the colour of buttons differently.
2. Non-functional requirements are supposed to consider about so many factors, so I followed the design of front end designers and generated several tables based on what users may need.
3. Everyone in my team contributed to draw activity diagram in different machine. I referred to what they did and communicated with them to make diagram more logical and combine them in one project during week 2.
4. Communicating with other web back end developer to make the workflow consistently.

**Major challenges and resolution**

|  |  |
| --- | --- |
| During doing perform chargeback UI, featuring out two difficulties:  1.make checkbox in gridview be selected in certain line;  2.Calculate and show department requisition total amount first whether requisition is charged or not, and save the amount to certain table of database after checkbox is selected. | 1.After searching online, I found that I can use for loop to find checkbox in certain line and change the status of certain checkbox by setting properties.  2.After discussing, getting data from different table, and calculating total amount in background first, then binding it back to gridview. If checkbox is selected, read data from gridview and save it. |
| During doing pending requisition use case ,finding out difficulty to select certain requisition, show its detail and approve or reject it in one page. | After searching, I decided to use the property to change the visilable of different tools. |
| During doing consolidated class diagram, there are so many classes in one page making it is hard to connect them. | After thinking, I found it is better to make entity classes in the middle, outside them are DAO, controller and UI. |

**Quantum**

Identify user requirement, UI design -- 8 hours/day during week 1.

Analysis workflow, draw sequence diagram -- 8 hours/day during week 2.

ASP.NET programming for web use cases, draw consolidated class diagram -- 8 hours/day during weeks 3 & 4.

Total 20 days \* 8 hrs = 160 hrs

**Experience**

I have never had such an experience before, from gathering user requirements, system analysis and design, application implementation and testing, to User Acceptance Testing.

Just like seeing an infant births and grows up step by step. How proud am I for everyone in my team！

Although I have to acknowledge that our system still have many weaknesses, such like not user-friendly enough, missing some important features. I am appreciated that everyone in my team tried their best to make our system better.

Facts speak louder than words. Practicing what we learn in class is harder than what I thought. The theory we learned in course is limited, we need to explore much more knowledge when we are doing actual project. And at the same time, communication is very important for teammates to make the whole system consistent and integrated.

Actually, the most significant thing I learnt is let customer satisfied, and excess customer’s exception if it is possible. Customer is god!

Through this project I know how difficult it is to develop a mature application which cater for what user need correctly. There are still lots of things I need to learn to become a good developer.

**Member Name: Sun Yichun**

**Roles and responsibilities**

Some parts of User Interface

Connect the Wcf with the android

Integration of android application

Write some functions of Wcf

**Deliverables and interaction within the team**

1. Write models for android to receive and update the data with wcf

2. Login part for the android

3. All the asynctask for the list to show

4. Test for the wcf and the post method

Interaction within team

1.Communicating with wcf members to design android models

2.Communicating with design members to write some functions code for android

**Major challenges and resolution**

1.Wcf sends some string back with some “ in that. For example, when send back “number” back, it should be like “number”, but it becomes “”number””, so I should debug what is different from it should be.

2. When login, I just post back username and password, it will return a string with true or false and id number together. I should write a method to get only true or false and then id number.

3. hard code for android, but when real wcf deployed, it will be different, rewrite some model attribute to suite for the wcf, or change wcf to suite for android models.

**Quantum**

Group Discussion: 40 hours

Programming: 120 hours

Documentation: 20 hours

Total 20 days \* 9 hrs = 180 hrs

**Experience**

During android, I know android is small screen, it should show some important information for user. And make more color to make some information more important. Use touch more, use type text less.

Most times make the program operate first is more important than just perfect design. During making some function can run, some design will become more clearly. Then we will know how to design some details for android.

Because wcf and android is parallel, so there will be mistakes when connect. We Should have more interaction with team members who do the wcf parts.

**Member Name: Miki Rusly**

**Roles and responsibilities**

WebUI Design, Database design, Application and Database server configuration.

**Deliverables and interaction within the team**

Deliverables:

Some part of use case design, week 2 and 3 of Project Progress Reports, Week 2 and 4 of Project Schedule, Entity diagrams and some part of sequence diagrams, User Guides, UAT Scripts, database objects (table, views and trigger), Initial coding for purchase order, Data migration, Integration Test.

Interaction:

While timelines and requirements were given at the beginning of the project, it was still a juggle between an ideal solution and a deliverable solution. My main interaction with the team is (1) to provide the container to store the information from users and how to utilize the data later on for computation; and (2) to perform the integration testing between modules.

**Major challenges and resolution**

|  |  |
| --- | --- |
| The role assignment in IIS authentication is not configurable to automatically expire after a certain date in the future. | Created a new table to hold the duration of each role assignment. The records in table is automatically created by an After-Insert trigger in aspnet\_UsersInRoles |
| Computation of the Suggested PO quantity. | Designed the database to capture all the "quantities" columns across entities.  e.g. Suggested Purchase Order Quantity =  [Requisitions].[RequestedQuantity]  - [Inventory].[OnhandQuantity]  - [PurchaseOrders]. [OpenPurchaseOrderQuantity] |
| Messy and overwhelming notifications. | Create an entity to store all the notifications generated by every use cases.  Create a single use case to send out the notifications |

**Quantum**

Group Discussion: 40 hours

Programming: 60 hours

Documentation: 80 hours  
Total 20 days \* 9 hrs = 180 hrs

**Experience**

There are way too many information to be contained and to be processed in a system that automates the process across departments. We needed to build a simple yet systematic entities not only to contain all these information, but also to classify them so that the same piece of information is stored only in an entity as the single source. With the knowledge taught during the class, especially on data entity modeling and optimization, I was finally able to come out with optimized entities to contain these information, allowing the correct information to flow from requisitions to purchase orders to disbursements and to the very end of the flow, the charge-back.

**Name: Koh Yong Chun**

**Roles and responsibilities**

Preliminary Web UI Design

ASP.NET coding for web

**Deliverables and interaction within the team**

Screengrabs for Web UI with walkthrough

ASP.NET coding for web for the following use cases:

Maintain Suppliers

Maintain Catalog

Stock Check

Adjust Inventory

Approve Adjust Inventory

Stock Retrieval

Disbursement List

Purchase Requisition

View Requisition History

View Outstanding Requisitions

Approve Outstanding Requisitions

In running the stock check function, the actual item quantities had to be stored somewhere. Since the team decided not to add additional tables to the database, application state was used instead. The use of application state was further supplemented by integer flags to “lock” the function (disable UI controls) while 1 stock check process was being carried out. An additional class was created for the transfer of values across UIs (StockCheck, AdjustInventory, ApproveAdjustInventory) to store reasons behind inventory adjustments.

**Major challenges and resolution**

Segregation of tables and thereafter requiring to draw table from multiple tables posed a challenge. Multiple join statements were used and the resulting values had to housed in additionally created classes with unique attributes. This caused the code to become cluttered and difficult to debug. In future use of views will be considered for neater coding.

Particular difficulty in replicating retrieval form to be the same as provided in documentation; a table that illustrates both item breakdown by item description and by requested department. Discussion was made within the team and it was decided to have 2 gridview controls to show the distribution of items by item description (stock retrieval) and the distribution of items by department (disbursement list).

**Quantum**

Preliminary project plan, charter, project schedule and concept-of design discussions = 8 hours/day during week 1.

Web UI Design - 8 hours/day during week 2.

ASP.NET programming for web use cases with debugging after integration - 8 hours/day during weeks 3 & 4.

**Experience**

User Acceptance Testing: User-Experience Design-Centric Improvements: Values that were not user-friendly need not be displayed, i.e. ItemCode. Logical oversights were elucidated. Stock retrieval value was not validated to be lower or equal to instock value. Stock retrieval value was not validated to be equal to disbursed value. This was due to a perceived lack of technical expertise but upon further reflection, perhaps the problem could have been broken down into simpler parts that did not require the need for validation within the gridview; i.e. values to be validated could have been extracted elsewhere that made them easier to validate.

Project was segregated cleanly from the get-go. While this enhanced speed, individual members were occasionally lacking in awareness of other members’ work and this led to differences in functions between web and mobile applications. Perhaps logical errors could have been spotted with higher likelihood and pointed out and resolved had there been a platform for the team to review the work of individual members.