VIRTUAL WAREHOUSE

Software Project-1

Submitted By

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Declaration

We declare that the submitted project is our original work and has not been submitted in any form for another degree or diploma at any university or other institute of tertiary education. Information derived from the published and unpublished work of others has been acknowledged in the text and a list of references is given. We declare that this project does not contain any content that discloses the secret of any organization or related parties. American International University – Bangladesh (AIUB) will not be held liable for any such activities, as for the project is presented as our original work.

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Approval

This software project "VIRTUAL WAREHOUSE "has been submitted to the following respected members of the board of examiners of the Department of Computer Science in partial fulfillment of the requirements for the degree of Bachelor of Science in Computer Science and Software Engineering on 05th May 2018 has been accepted as satisfactory.

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Acknowledgement

At first, we want to thank our almighty. We also want to thank our respectable parents for their kind and supports. We want to thank our honorable supervisor Md. Shamsur Rahim sir. His outstanding supervision and support makes this project possible. We also thank to our Head of Computer Science department Dr. Dip Nandi, Director of the Computer Science department Mashiour Rahman, Dean of FSIT Professor Dr. Tafazzal Hossain and our honorable Vice Chancellor, Dr. Carmen Z. Lamagna for their genuine support.

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1.1 Documentation History & Distribution

Table 1-A: Revision History

Revision	Revision Date	Description of Change	Author(s)
1.0		N/A	1)Moinuddin Imran 2)Ahmed Md. Fahim 3) Chowdhury Humaira 4) Emran Khan

Table 1-B: Distribution

Recipient Name	Recipient Organization	Distribution Metho
Md. Shamsur Rahim	AIUB	Hard Copy

1.2 Purposes/Objectives

- ✓ Find out the problems about "Online Product management system"
- ✓ Define a solution
- ✓ Figure out the requirements
- ✓ Develop the software

1.3 Anticipated Benefits

- ✓ Time saving
- ✓ Cost reducing
- ✓ More available

- ✓ User friendly control panel
- ✓ Automated system
- ✓ Buyer can easily connect with other e-commerce website

1.4 Customers/End Users Impacted

- ✓ Vendor
- ✓ Admin

1.5 Requirements

- ✓ Computers / Cell phones
- ✓ MS SQL Database
- ✓ Operating System: Windows 7, Windows 8 Windows 10, Android OS > 4.0 version • Internet Browsers

1.6 Deliverable include in scope

- ✓ Full software
- ✓ Technical documentation
- ✓ User manual

1.7 SDLC methods

The Full form of SDLC is Software Development Life Cycle. SDLC is a process to develop high qualified software. SDLC have six stages. Software life cycle models describe phases of the software cycle and the order in which those phases are executed. Each phase produces deliverables required by the next phase in the life cycle.

1.7.1 Phase of SDLC

Fig 1-1: Phase of SDLC

1. **Planning:**

   Requirements are gathered in this phase. This phase is the main focus of the project managers and stake holders. Meetings with managers, stake holders and users are held in order to determine the requirements like, who is going to use the system? How will they use the system? What data should be input into the system? What data should be output by the system? All the answers are in this planning step.

2. **Analysis:**

   This is the documentation stage. After requirement analysis, requirements are clearly documented and approved from the customer.

3. **Design:**

   Based on the requirements, more than one design is proposed. Designed are also documented. It's called DDS (Design Document Specification). After analysis the DDS, the best design approach is selected for the product.

4. **Implementation:**

   The work is divided in modules/units and actual coding is started. Since, in this phase the code is produced so it is the main focus for the developer. This is the longest phase of the software development life cycle.

5. **Testing:**

In this stage tester try to find bugs and check if the software meets the requirements or not. During this phases all types of functional testing like unit testing, integration testing, system testing, are done as well as non-functional testing are also done.

6. **Maintenance:**

After the product is tested then it's ready to release. Release date depends on organization and market conditions. This stage is also containing maintenance. Based on feedback and customer demand, software maintenance happens.

1.7.2 SDLC Models

There are different kinds of SDLC process model. There are two kinds of models:

- Traditional models
- Agile models

Traditional Models:

1. Waterfall model: The Waterfall Model is a linear sequential flow. In which progress is seen as flowing steadily downwards (like a waterfall) through the phases of software implementation. This means that any phase in the development process begins only if the previous phase is complete.

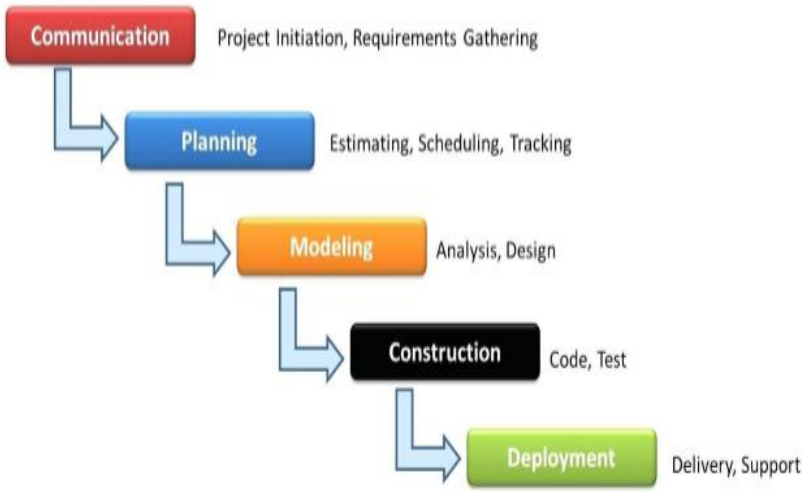

Fig 1-2: Waterfall

2. Iterative Model: Iterative process is start from implementation. It starts implement a subset of the software. This method is based on repeated cycle (iterative). The main plot of this method is to develop a system through repeated cycles (iterative) and in smaller portions at a time (incremental).

Phases of iterative model are:

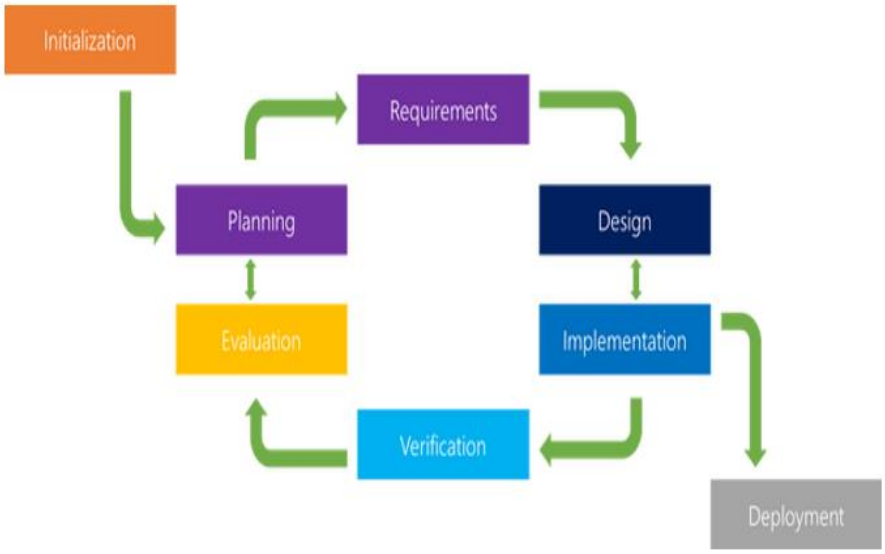

Fig 1-3: Iterative Model

Iterative process is an incremental process. More than one iteration may process at a time. Every iteration includes requirement analysis, design, development, testing and implementation. In this model risk can easily analyse. But this model is so complex. Skilled people need for management.

3. Spiral Model: This Spiral model is a combination of iterative development process model and sequential linear development model i.e. the waterfall model with a very high emphasis on risk analysis. It allows incremental releases of the product or incremental refinement through each iteration around the spiral. This model has four phases. A software project tasks repeatedly passes through these phases in iterations called Spirals. This one is mainly used for medium to high-risk projects, requirements are complex, and significant changes are expected in the product during the development cycle.

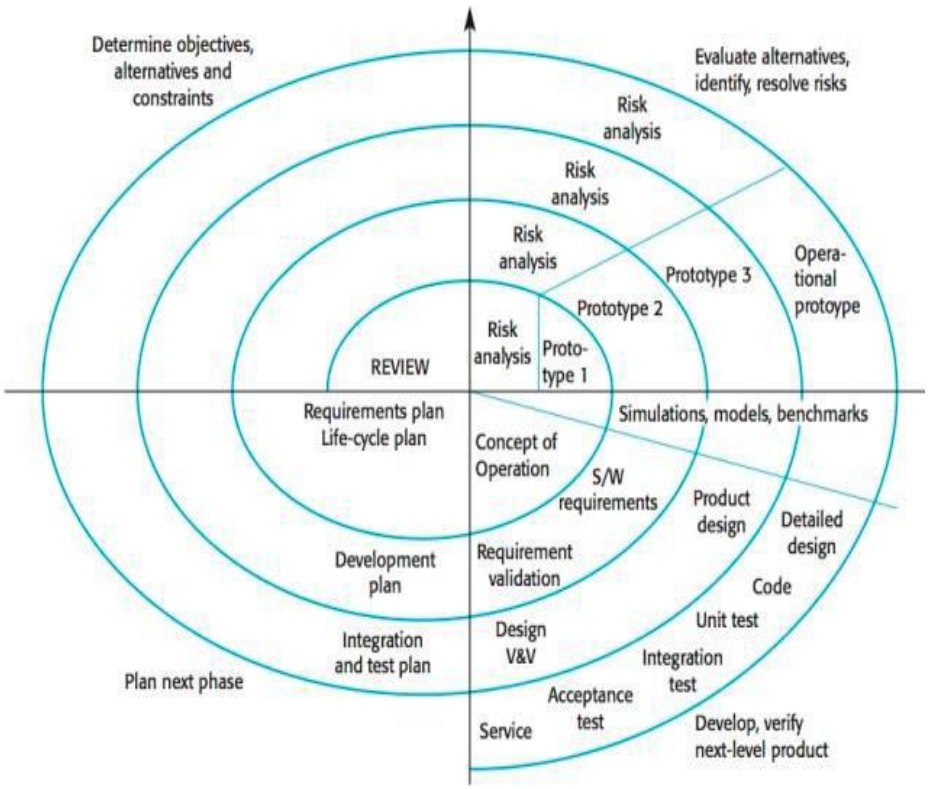

Fig 1-4: Spiral Model

Spiral model is used for big projects and when requirements are not stable.

4. V – Model: This is also known as Verification and Validation Model. The V-Model is an extension of the waterfall model and is based on the association of a testing phase for each corresponding development stage. This means that for every single phase in the development cycle, there is a directly associated testing phase. Like waterfall model here requirements are well defined and fixed and there will be no undefined or ambiguous requirements. This is mainly used for short projects**.**

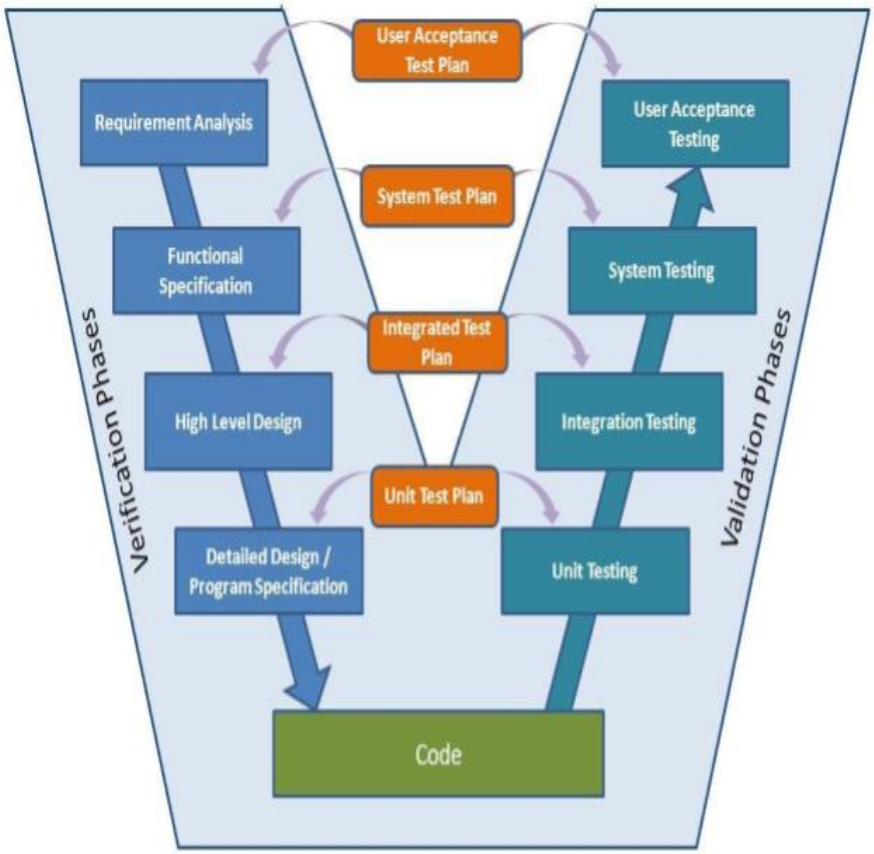

Fig 1-5: V-Model

5. Prototyping Model: This model is mainly used for understanding the user requirements clearly. This one helps developer to understand what functionality and system look customer is expecting to build. In simple words, the prototyping refers to building software application prototypes which displays the functionality of the product under development, but does not hold the exact logic of the original software. Iteration occurs as the prototype is tuned to satisfy the needs of the customer.

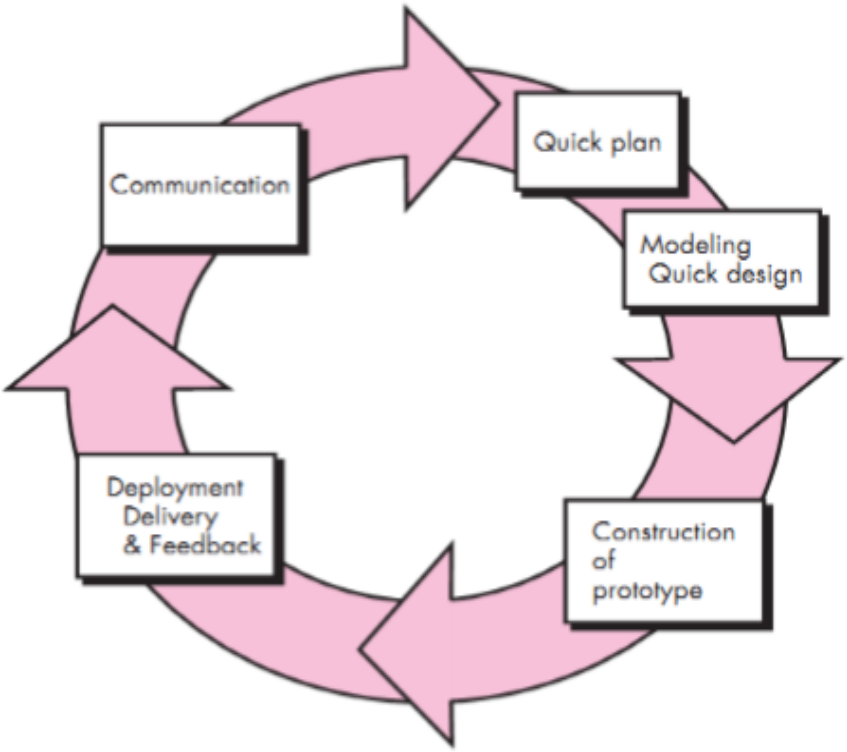

Fig 1-6: Prototyping Model

Prototyping model is used when the project is short.

Agile Methods

In Agile model, the tasks are divided to time boxes (small time frames) to deliver specific features for a release. These are done in iteration process. Each iteration process has time limit from 1 week to 4 weeks. Basically now-a-days this model is used in most of the projects. Mainly for big projects this one is used. This model gives flexibility to developers and here the resource requirements are minimum. But it will be hard to manage or processing the tasks if the project has complex dependencies.

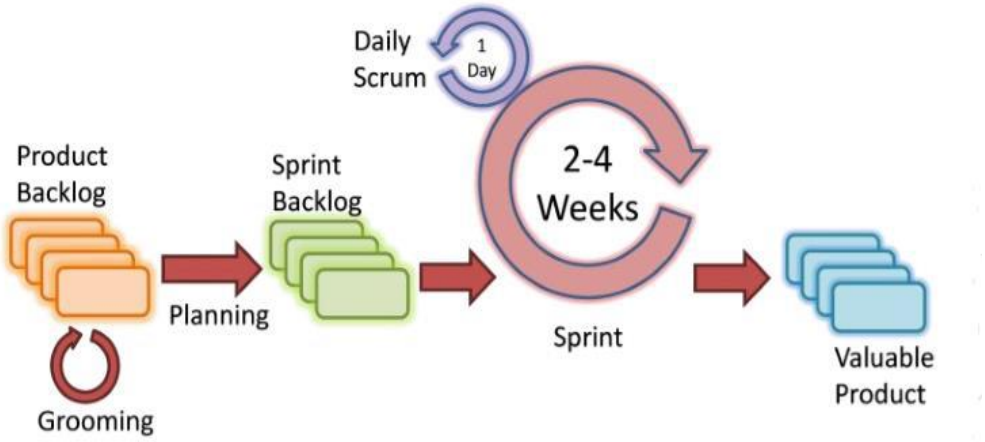

Fig 1-7: Agile

1. Scrum:

Scrums have three phases. These are:

1.1. Pre-game

1.2. Development

1.3. Post-game

In pre-game phase planning and design are happen. It includes requirements analysis, risk calculation and other documentation part. And in development phase, project is built. Postgame phase come when there is no more requirements. And then the project is being released.

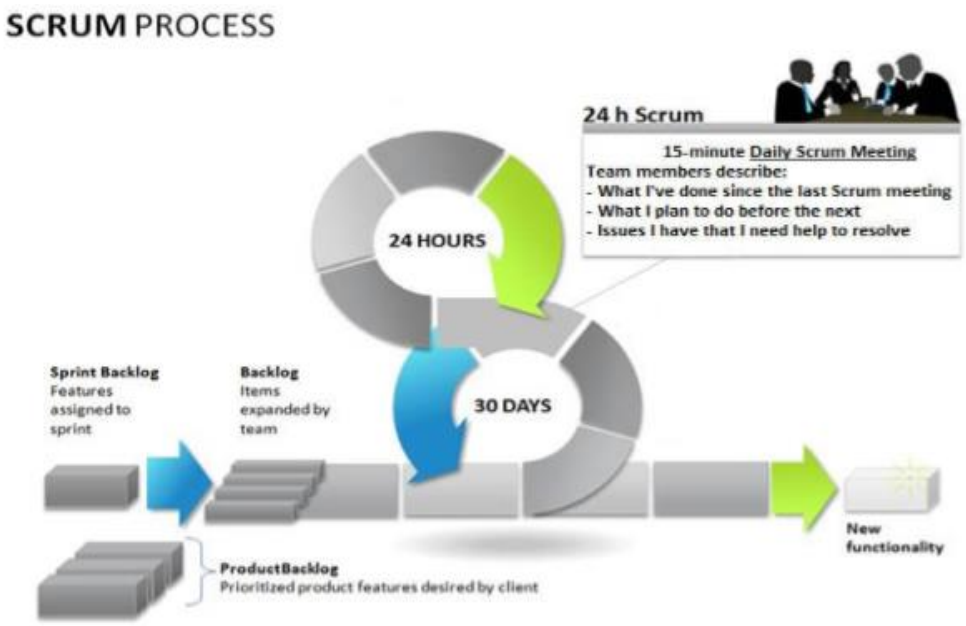

Fig 1-8: Scrum

Product backlog and sprint are special features of scrum. Product backlog is a list of priority based requirements. And sprint is iteration cycle.

2. Extreme Programming (XP): Agile Modelling (AM) is a practices-based software process. In XP method, software may release after every iteration.

Product backlog and sprint are special features of scrum. Product backlog is a list of priority based requirements. And sprint is iteration cycle.

Fig 1-9: Extreme Programming (XP)

3. Feature Driven Development (FDD): FDD is iterative and incremental software development process. FDD have short iteration process. FDD consist five basic activities.

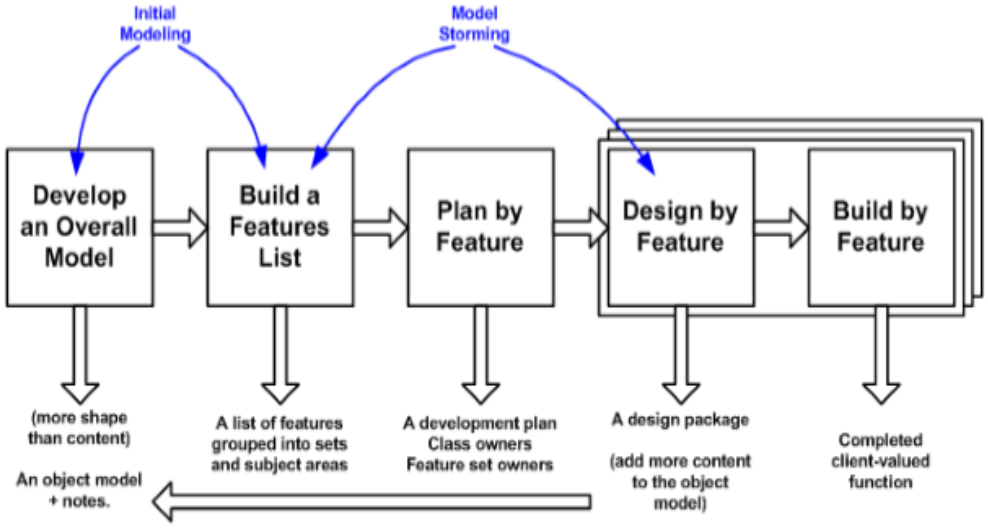

Fig 1-10: FDD

First two activities are the overall model of the project. The final three activities are iterated for each feature.

1.8 Propose Software Model

1.8.1 Software Model:

Rapid action development is a software development methodology that uses minimal planning in favour of rapid prototyping and RAD projects follow iterative and incremental model and have small teams comprising of developers, domain experts, customer representatives and other IT resources working progressively on their component or prototype.RAD refers to a development life cycle designed to give much faster development and higher quality systems than the traditional life cycle and it allows usable systems to be built in as little as 60-90 days, often with some compromises.

1.8.2 Justification:

- ✓ Fast application development and delivery
- ✓ Reducing costs on project whilst not compromising on quality
- ✓ Reducing the project time-frame and the number of people involved in such project

✓ Encourage the involvement of customers in the entire process of its development lifecycle
✓ Very flexible if any changes required
✓ Visualization of progress
✓ Effective for saving valuable resources
✓ Due to prototyping in nature, there is a possibility of lesser defects
✓ Constant integration isolate problems and encourage customer feedback ensures greater customer satisfaction

1.9 Related Work Study

There are some related works going on E-commerce platform in Bangladesh. A vendor or customer add their products or purchase products and admin are there to maintain the websites like managing vendor and products. In their websites they offer so many products with multiple brands. They are using individual database for maintaining their products where a customer or vendor has to be add their products individually. Here we have given some screenshots of their websites:

1.9.1 Kiksha.com:

Fig 1-11: kiksha.com

1.9.2 Daraz.com.bd:

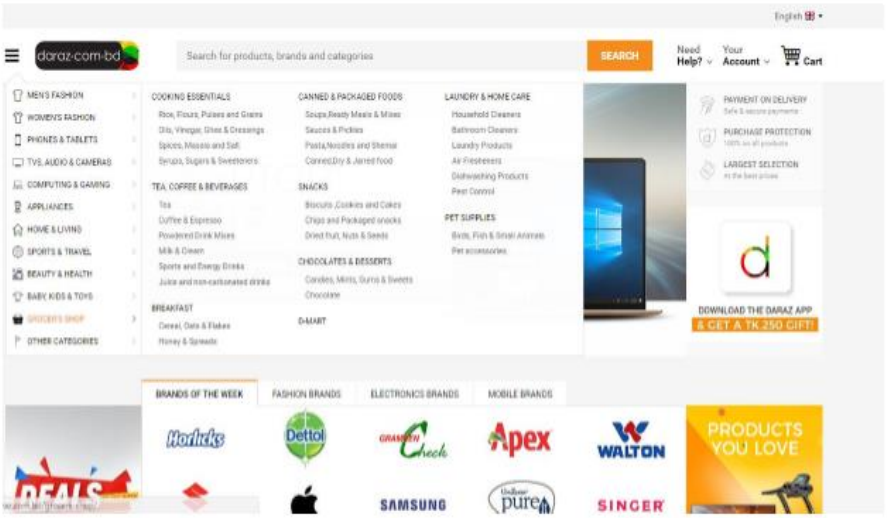

Fig 1-12: daraz.com.bd

1.9.3 Bikroy.com:

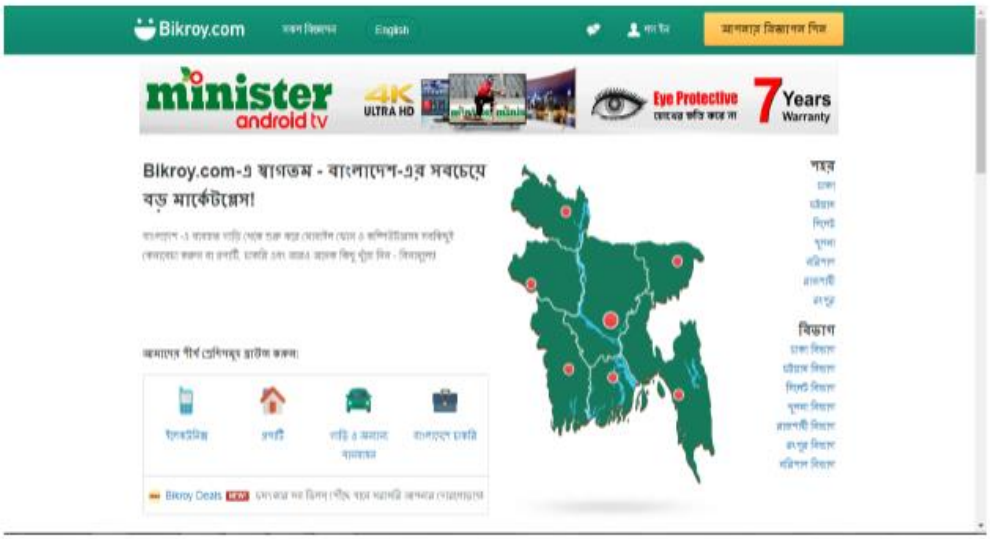

Fig 1-13: bikroy.com

Chapter 2: Software Requirement Specification

2.1 Project Summary

2.1.1 Field Study

We have chosen to develop software for Virtual Warehouse.

We went to visit some merchants and customers.

Merchants:

Ecstasy

Monthly Sale: 1 lakh (avg)

Type: Clothing Shop

Address: road-11, Banani, Dhaka, Bangladesh

Sailor

Monthly Sale: 80 thousands (avg)

Type: Clothing Shop

Address: Level-1,block-C, Shop no :223, Basundhara Shopping mall, Karwan Bazar, Dhaka, Bangladesh

Customers:

Sohel Imran

Regular Customer of Ecstasy

Interested in:Buying clothes

Address: Ta93/a, Baishakhi Sharani, Link Road, Dhaka, Bangladesh.

Riya

Regular Customer of

2.1.2 Problematic field:

Virtual Warehouse will be used by different website. But we had faced a major problem how to connect virtual warehouse to the e-commerce websites which will update products fast and more frequently .If products update slowly then there will collision between two orders from different websites. Suppose, virtual warehouse has five products and two customers orders same three products from different website at the same time and then there will be confliction between orders if it does not update fast. There was also a problem to give a percentage of the products to the virtual warehouse by per products or total sales of a vendor.

2.1.3 Background to the Problem:

By giving a percentage of the products will increase the price of the products from actual price or will decrease the sale of the vendor.

2.1.4 User Story:

Table 2-A: User Story

Sample case	**Actor**	**Corresponding user stories**
Register account	Admin/ vendor	As a user, I want to register with my details in the system so that I can get use it
Login into account	Admin/ vendor	*As a user, I want to login into my registered account so that make my business post or get notifications and n*
View Profile	Admin/ vendor	*As a user, I want to view my profile so that my selected interested categories or my profile info can*

		be checked.
Update Profile	Admin/ vendor	As a user, I want to update my profile so that my selected interested categories or my profile info can be changed.
Search seller's page/post	Admin/ vendor	As a user, I want to search vendor's page based on my interested by providing keyword and locations so that I can save time.
Make reviews on seller's service	Admin	As a user, I want to make reviews on vendor's page on their services so that other users or the page owner can see my comments
Report seller's page	Admin	As a user, I want to report annoying vendor's page from my account to admin so that I can report the problems of the page to admin
Select Category	Admin/ vendor	As a user, I want to select categories so that I get news of pages or post belonging to these categories.

Manage product	Admin/ vendor	As a vendor, I want to make posts with or without uploading pictures so that I get more interactions of customers
Delete post	Admin/ vendor	As a vendor or admin, I can to delete any previous post without any problems so that I can delete less viewed posts
Delete seller's account	Admin	As an admin, I want to delete Merchant account or page so that I can ensure the owner cannot use his account
Delete admin account	Admin	As an admin, I want to delete customer account or page so that I can ensure the owner cannot use his account.
View any account info	Admin	As an admin, I want to view any account info so that I can verify any account's info.

2.2 Project Scope in Scope:

✓ User (Admin/Vendor) Registration

✓ Log in

✓ Add product (Admin/Vendor)

✓ Update/Delete Product (Admin/Vendor)

✓ Update Profile (Admin)

✓ View product

✓ Search Product

✓ Make Report (Admin)

✓ Add Category (Admin)

✓ Update/Delete Category (Admin)

✓ Transaction (Vendor)

2.3 Overall Description

2.3.1 Product Perspective

"Virtual Warehouse "is mainly a stock management system .The Purpose of this system is to minimize the difficulties for vendors who add their same products in many websites at many times. But now they add their products in this warehouse and it add all the websites who have connected to us. And it is time consuming and helpful.

2.3.2 Project Feature

✓ Login system for different kinds of users.

✓ Registration for the new Vendors & Admins.

✓ Maintain product database.

✓ Particular control panel for particular user.

✓ One for Vendor and Another for Admin.

✓ Editing data.

✓ Add, Update, Delete Data.

✓ Accessing data level according to the user.

✓ Creating Reports & Reviews.

✓ View Transaction.

2.3.3 Operating Environment

The software will run in a hosting service named Xampp with the system named Virtual Warehouse and this domain can be accessed via any windows or android platform through any browser like Google Chrome, Mozilla, Microsoft Edge etc. And this system accessed only Admins and Vendors or Server site.

2.3.4 Design & Implementation Constraints

"Virtual Warehouse" can be run in any processing system like dual-core, quad-core, hexa-core, octa-core etc. Much higher configured system and well developed operating system will help to run this system more smoothly.

2.3.5 Assumption and Dependencies

There is a dependency of the software and it is,

✓ A good structured and secured hosting service to store the data & files.

✓ Good internet connection

2.4 System Features

2.4.1 User Option

There are multiple login systems in the software. Every user (Admin/Vendor) has a particular homepage. To access the system they need to login through email and password.

2.4.2 Stimulus/Response Sequence

User (Admin/Vendor) can login through the id and password or log out. For login, when users give email id and password, the software will verify them. If it is allowed it will give access to the user and then they can see their homepage.

2.4.3 Interface Requirement

Graphical User Inter will be used which will demonstrate the page. GUI will contain all the pages or forms which will be used by users.

2.4.4 User Interface

User interface will be designed based on the users which will contain lots of features. There are two types of users who will use this system. There features will be appear based on their access to the system. They have to login 1st with valid credentials if they want to make any change in the website like admin wants to update the products information and vendor wants to add their products etc.

2.4.5 Login Page:

The login page will containing valid credentials option to log into the websites including an email box and password box to enter into the websites. There will be another option for new users who want to create there account.

2.4.6 Hardware Interfaces

Server Side:

- ✓ OS: Windows/Linux Server
- ✓ CPU: Minimum Inter Xenon or higher
- ✓ RAM: 4GB or higher
- ✓ Hard Disk: 1TB or more

Client Side:

- ✓ OS (PC): Any operating system with web browsing accessibilities
- ✓ CPU (PC): Minimum Inter Pentium or higher
- ✓ OS (Android): Any operating system with web browsing accessibilities
- ✓ CPU (Android): Adreno 220 or higher
- ✓ RAM: 1GB or higher

2.4.7 Software Interfaces

- ✓ Database: MySQL
- ✓ Programming Language: PHP
- ✓ Design: HTML 5, CSS
- ✓ Framework: Laravel
- ✓ Development Tool: Notepad++

2.4.8 Communication Interface:

- ✓ Internet connection

CHAPTER 3: Software Design Specification Plan

3.1 Documentation History & Distribution

Table 3-A: Revision History

Revision	Revision Date	Change	Author
1.0A	---	N/A	1)Moinuddin Imran 2)Ahmed Md. Fahim 3) Chowdhury Humaira 4) Emran Khan

Table 3-B: Distribution

Recipient Name	Recipient Organization	Distribution Method
Md.Shamsur Rahim	AIUB	Hard Copy

3.2 Introduction

In software design specification plan there will be some system diagrams , some software UI screenshots, architecture plan, test plan and system overview.

3.3 System Overview

3.3.1 Use Case

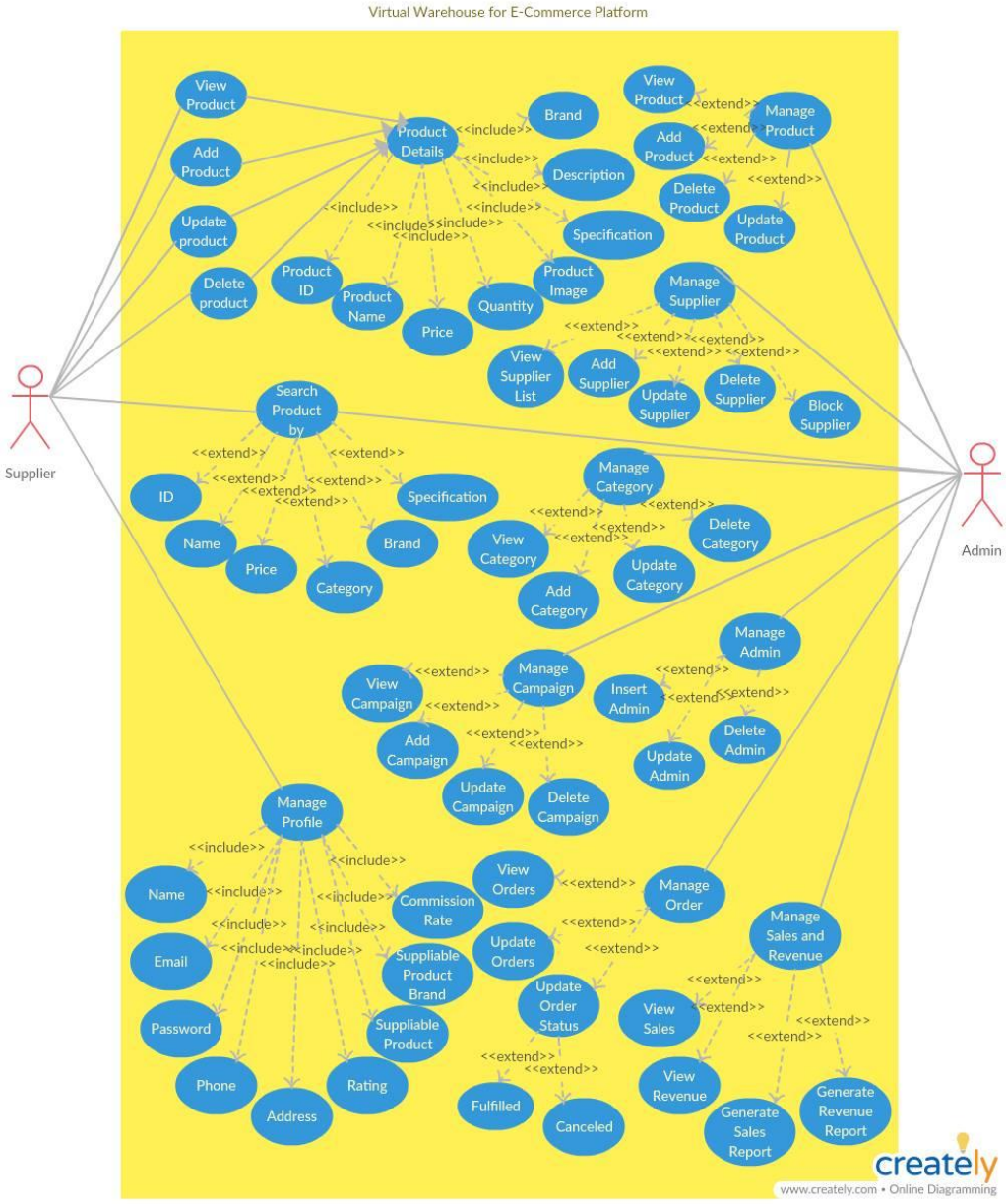

Fig 3-1: Use Case Diagram

3.4 System Architecture

3.4.1 Activity Diagram

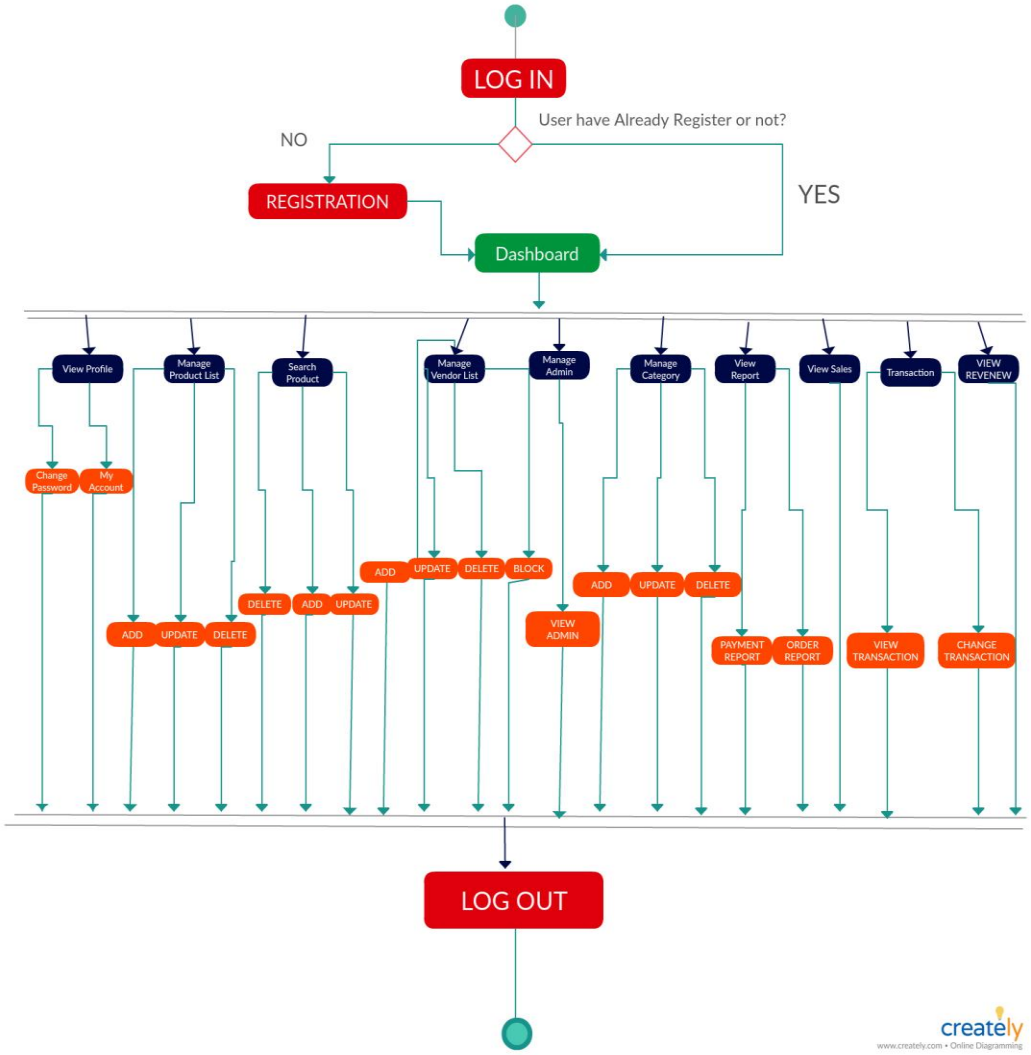

Fig 3-2: Activity Diagram For Admin of the system

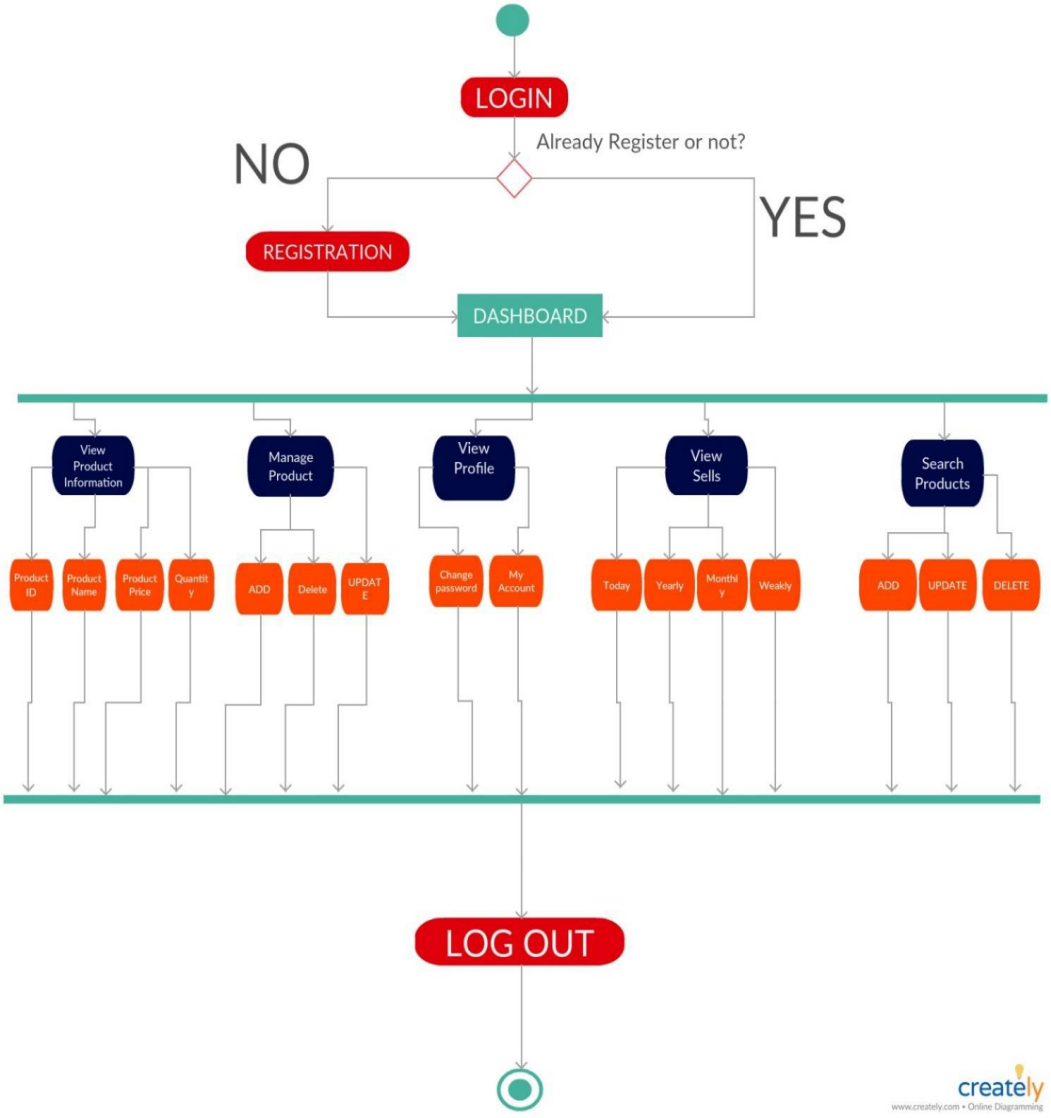

Fig 3-3: Activity Diagram for Vendor of the system

3.4.2 ER Diagram

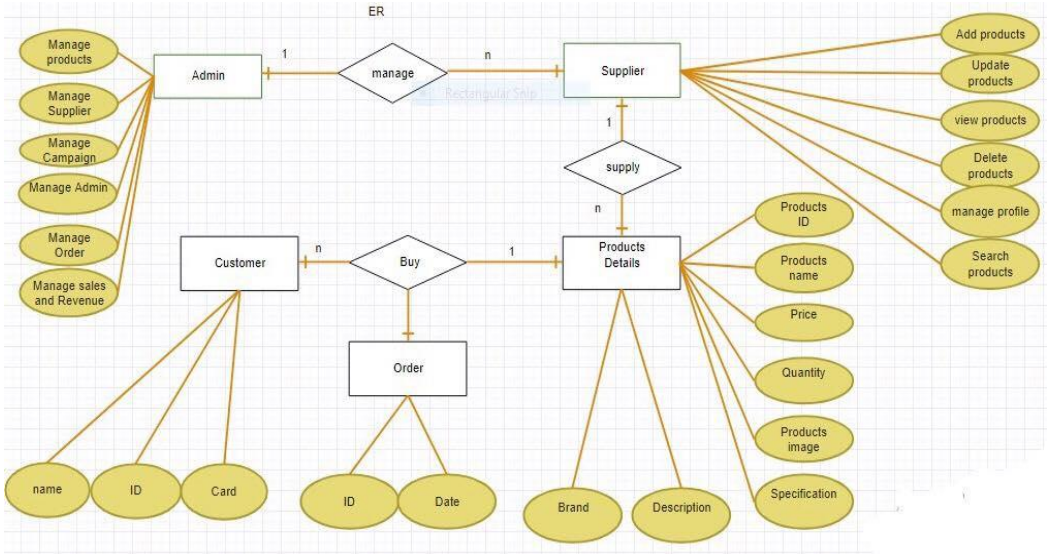

Fig 3-4: ER Diagram of the system

3.4.3 Class Diagram

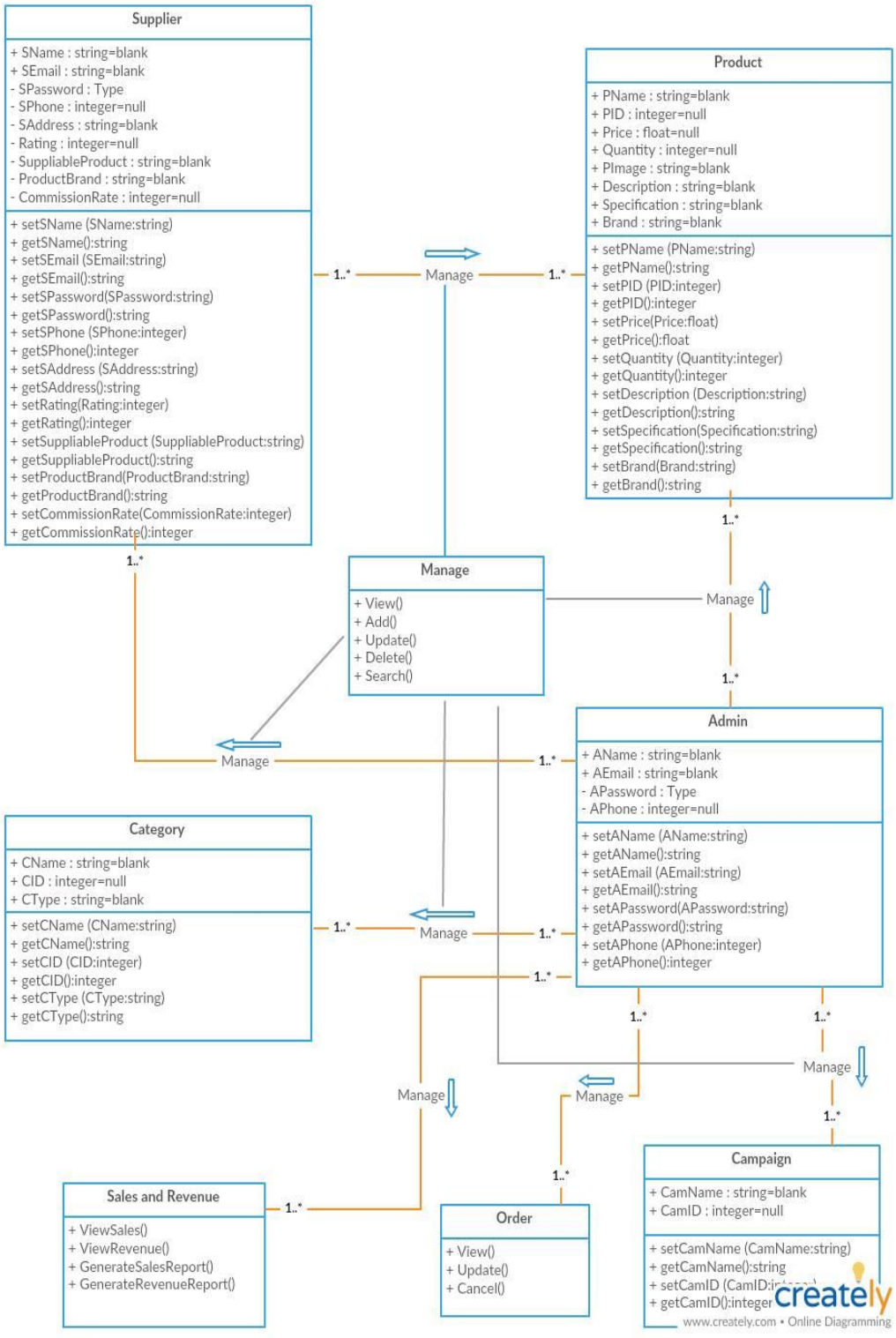

Fig 3-5: Class Diagram of the system

3.5 User Interface Design

3.5.1 Home Page

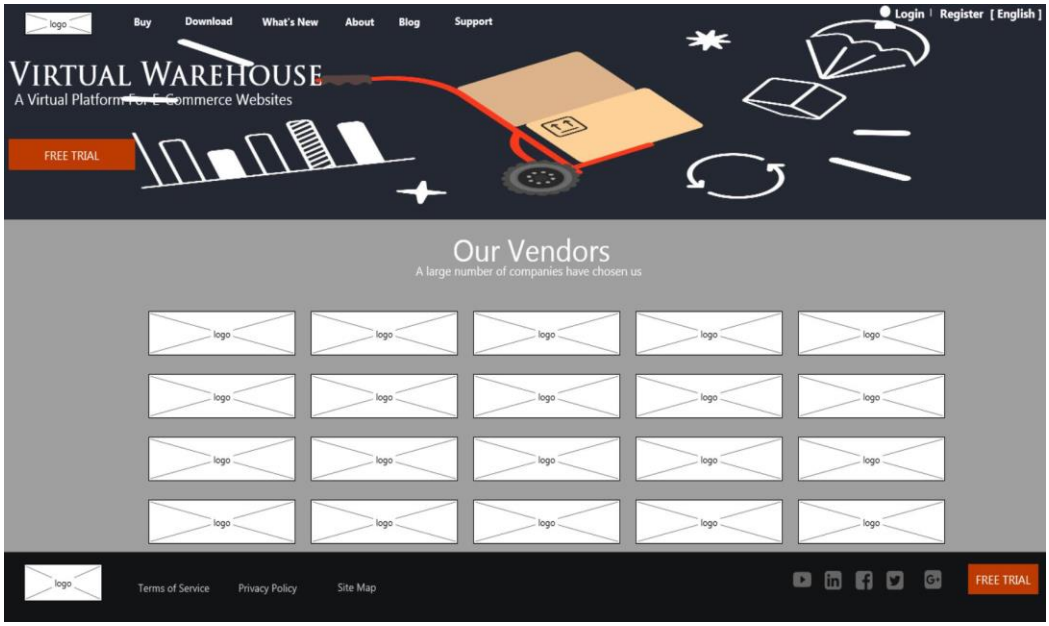

Fig 3-6: Home Page

3.5.2 Login Page

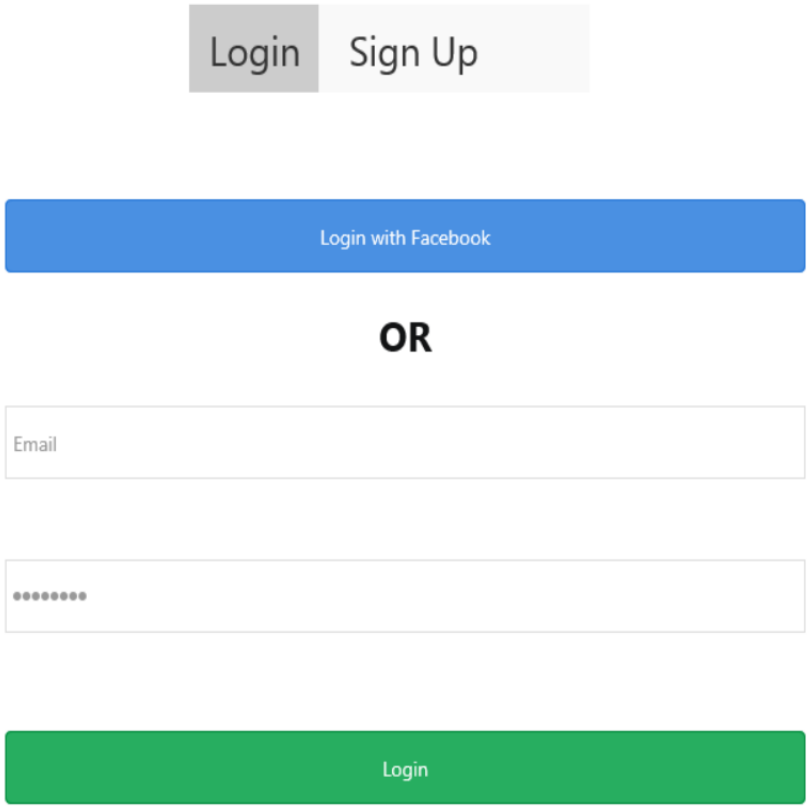

Fig 3-7: Login Page of the system

3.5.3 Registration Page

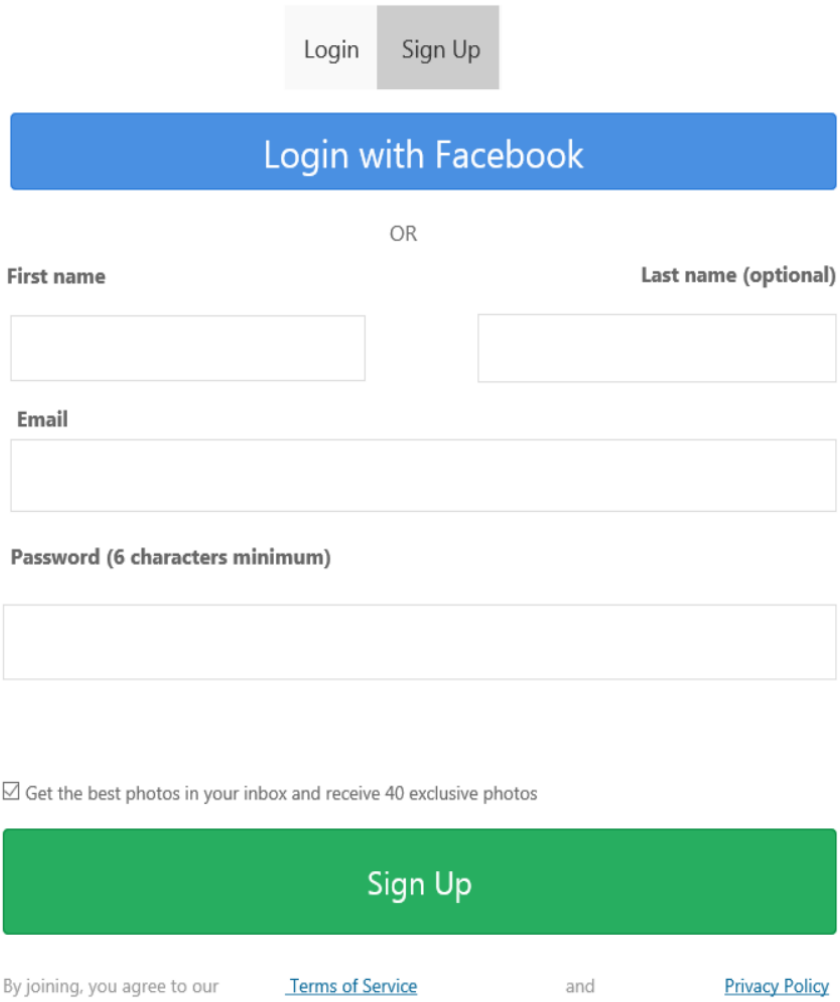

Fig 3-8: Registration page of the system

3.5.4 Admin Dashboard

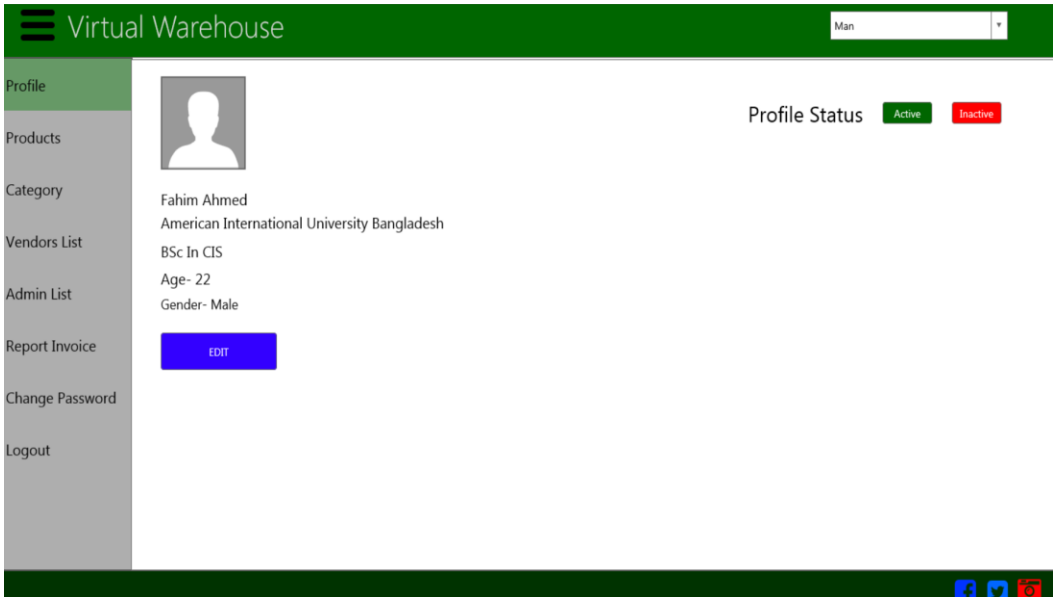

Fig 3-9: Admin Dashboard of the system

3.5.5 Vendor Dashboard

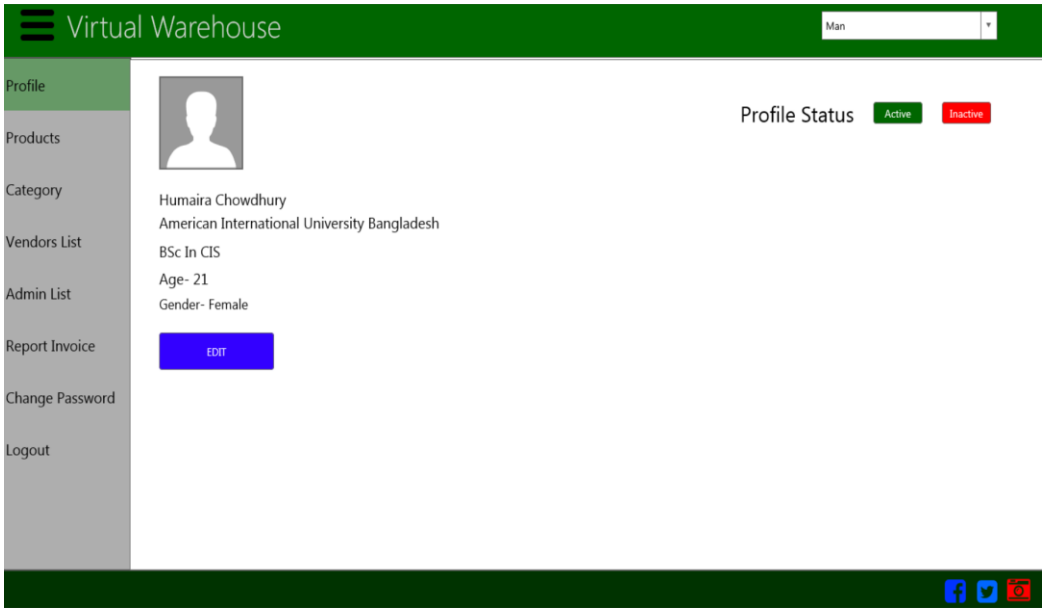

Fig 3-10: Vendor Dashboard of the system

3.5.6 Manage Product

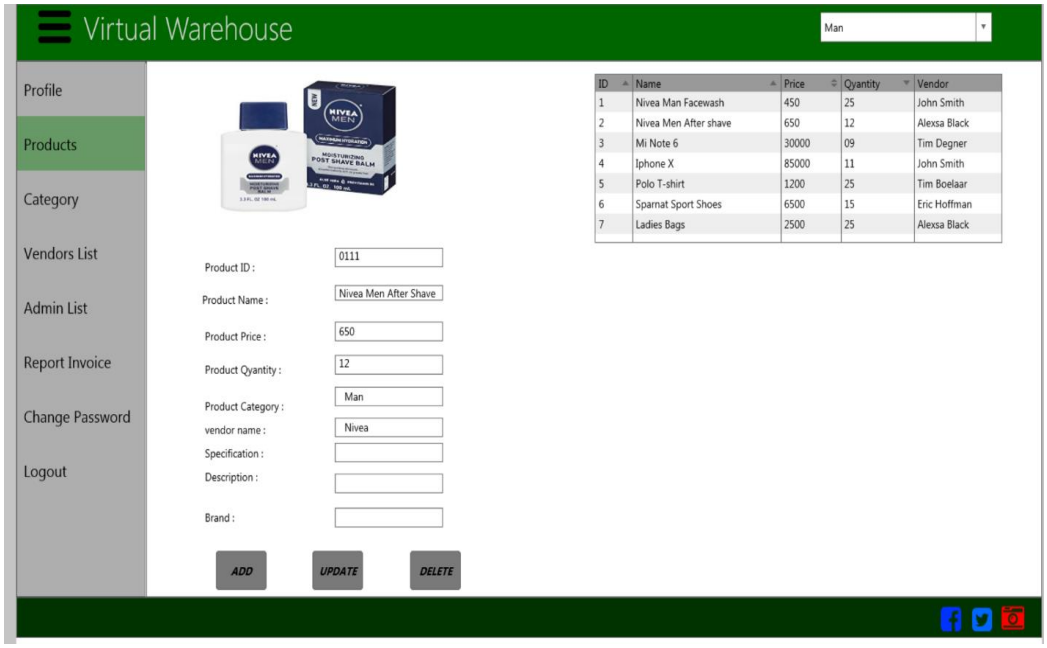

Fig 3-11: Manage Product of the system

3.5.7 Manage vendors

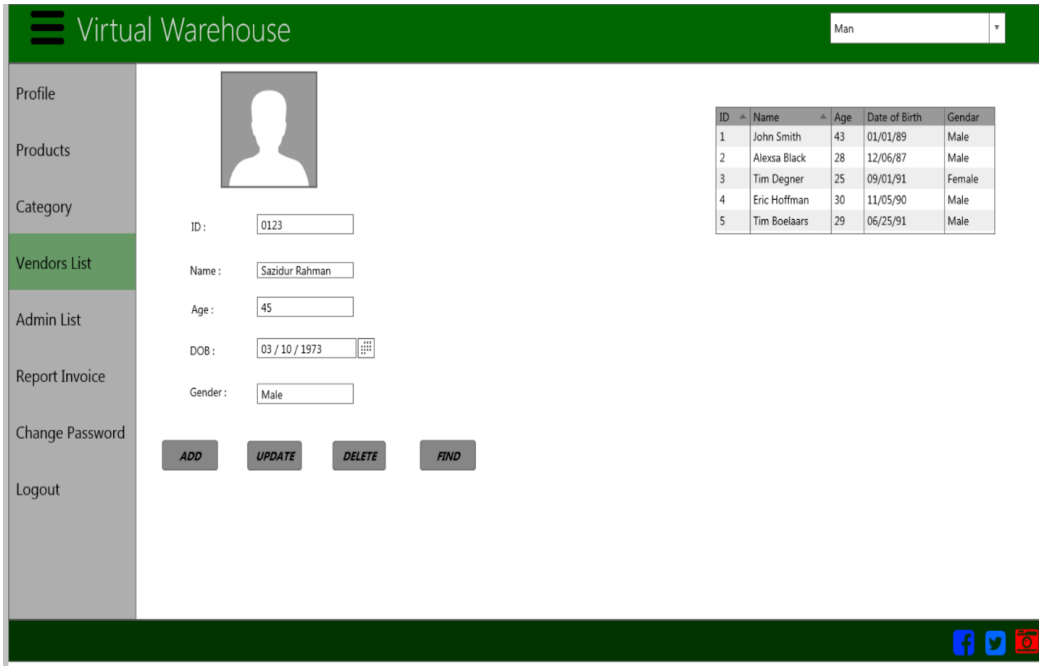

Fig 3-12: Manage Vendors of the system

3.5.8 Manage Admins

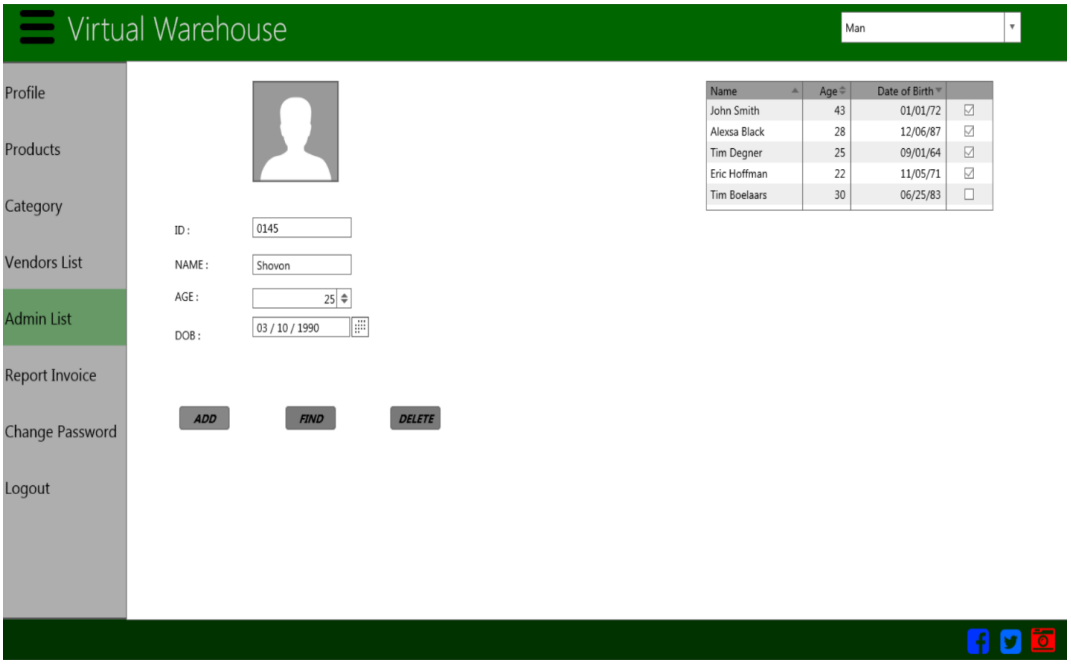

Fig 3-13: Manage Admins of the system

3.5.9 Manage category

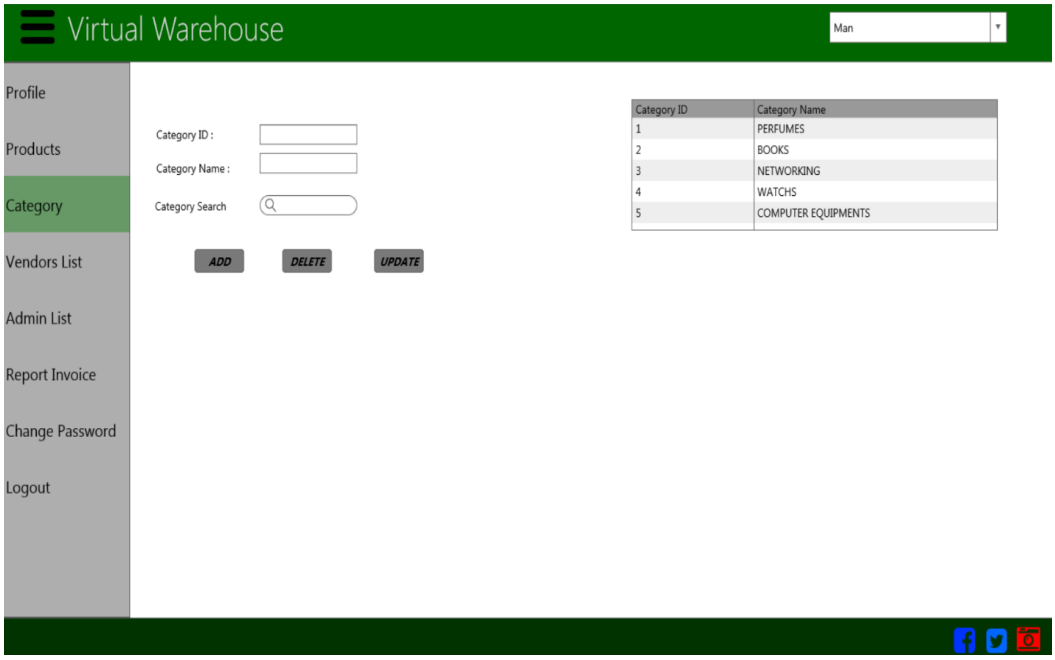

Fig 3-14: Manage category of the system

3.5.10 Changing password

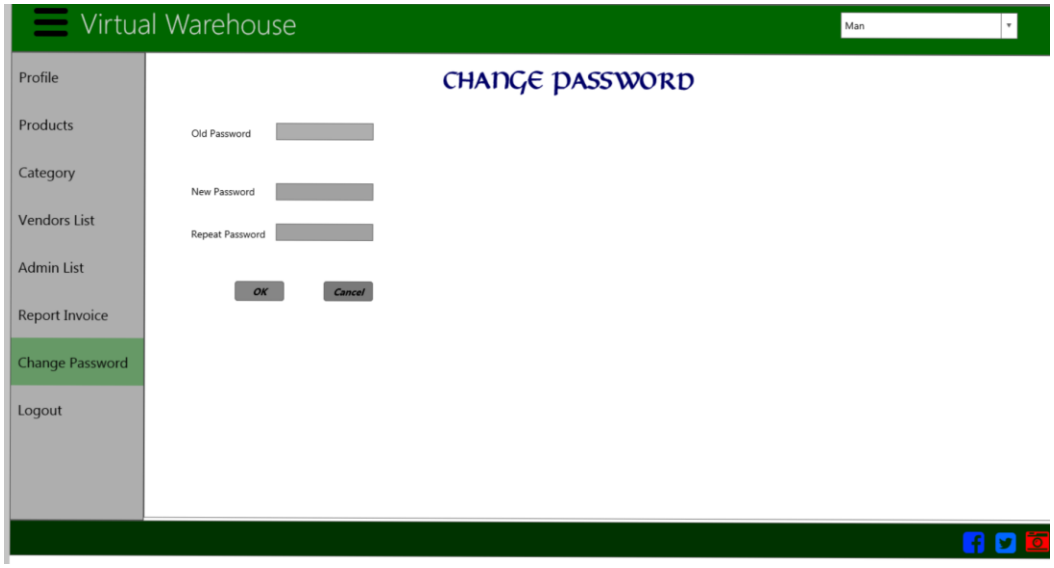

Fig 3-15: Changing password of the system

3.5.11 Report Invoice

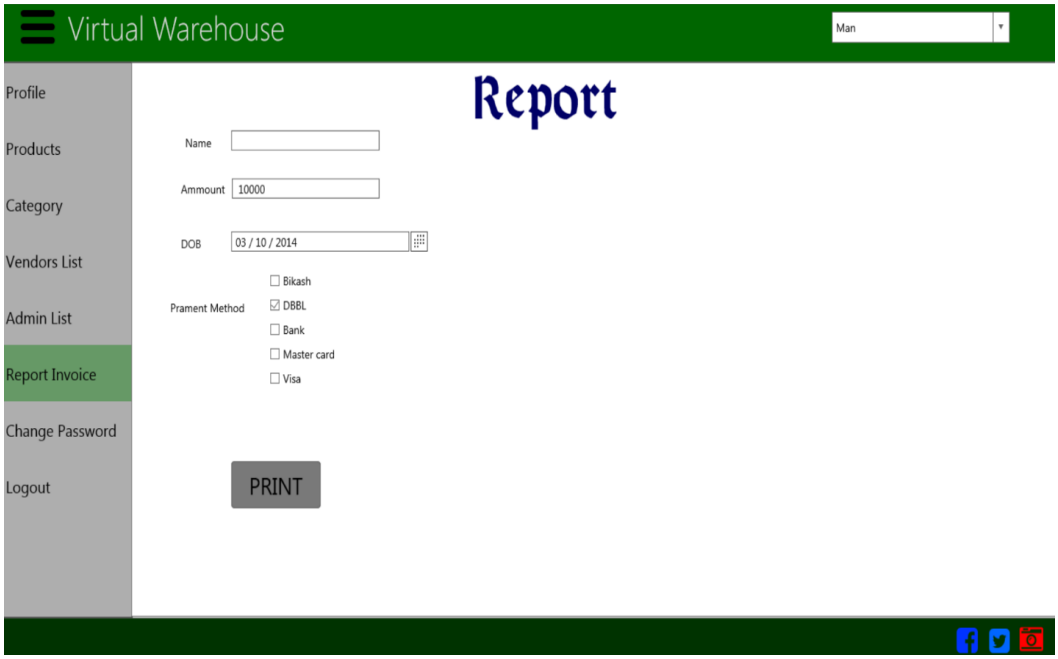

Fig 3-16: Report Invoice of the system

3.6 Test Plan

Table 3-C: Test Plan

No.	Test	Case	Coverage
1	**Login**	**Check the all text box that accepts texts and numbers**	Check the boxes with valid and invalid input
			Login with valid credentials successfully
			Required valid data for Login
2		**Check the buttons**	Check the Login button
			Check the SignUp button
			Check buttons colors and placeholders
3	**Register**	**Check the all text box that accepts texts and numbers**	Check the boxes with valid and invalid input
			Store data with successful registration
4		**Check the buttons**	Check the register button
			Check the reset button
5	**Dashboard**	**Vendor dashboard**	Check all the buttons
			Check all the buttons color
			Check the vendor dashboard without login
6		**Admin dashboard**	Check all the buttons
			Check all the buttons color
			Check the admin dashboard without login
7	**Add/Update/Delete Products**	**Check all the text box that accepts text and numbers**	Check the add products option

	option of Vendor page	**individually**	Check the update product option
			Check the delete product option
8		**Check the Add/Update/Delete options and drop down boxes**	Check the buttons color
			Check the buttons works successfully
			Check the drop down box show properly
9	**Manage Products option of Admin page**	**Check all the text box that accepts text and numbers individually**	Check the add products option
			Check the update product option
			Check the delete product option
10		**Check the Add/Update/Delete options and drop down boxes**	Check the buttons color
			Check the buttons works successfully
			Check the drop down box show properly
11	**Manage Profile option of Vendor page**	**Check the information**	Check the information properly shown
12		**Check the Edit button**	Check the information can be edited successfully
13	**Search Product**	**Check the text box of search option**	Check the box with valid text
14		**Check the search button**	Check the button works properly after clicked by showing information
15		**Check the products**	By search with Name
			By search with Category
			By search with ID

			By search with Brand
16	**Manage Category option of Admin page**	**Check all the text box that accepts text and numbers individually**	Check the add category option
			Check the update category option
			Check the delete category option
17		**Check the Add/Update/Delete options and drop down boxes**	Check the buttons color
			Check the buttons works successfully
			Check the drop down box show properly
18	**Manage Campaign option of Admin page**	**Check the Add/Update/Delete options and drop down boxes**	Check the buttons color
			Check the buttons works successfully
			Check the drop down box show properly
19		**Check all the text box that accepts text and numbers individually**	Check the add campaign option
			Check the update campaign option
			Check the delete campaign option
20	**Manage Admin option of admin page**	**Check the Insert/Update/Delete options and drop down boxes**	Check the buttons color
			Check the buttons works properly
21		**Check all the text box that accepts text and numbers individually**	Check the insert Admin option
			Check the update Admin option
			Check the delete Admin option

22	**Manage Orders of Admin page**	**Check the view order option**	Check the view orders option display all the orders after clicking
23		**Check the update order option**	Check the all the text box accepts text and number
			Check the order can be update by clicking update button
24		**Check order status**	Check the status fulfilled or not
			Check the cancel order button works
25	**Manage Sales and Revenue of Admin page**	**Check the View Sales**	Check the view sales show the sales of the total properly
26		**Check the Revenue**	Check the view Revenue show the revenue properly
27		**Check the sales report and revenue report generate**	Check the report generates successfully

Chapter 4: Project Management

4.1 Project Scheduling:

Table 4-A: Project Schedule

No.	Task	Time(Week)
1	Field Study	0-1
2	Study on SDLC	1-2
3	Prepare User Story	2-3
4	Identify User Requirements	3-5
5	Develop Use Case Diagram	5-7
6	Develop Class Diagram	7-8
7	Develop Activity Diagram	7-8
8	Develop ER Diagram	7-8
9	Prototyping	8-10
10	Create Database	10-11
11	Create User Interface	10-11
12	Software Development	10-18
13	Prepare Test Plan	10-13
14	Software Testing	14-18
15	Documentation	18-20

4.2 Project Organization

4.2.1 Work Breakdown Structure

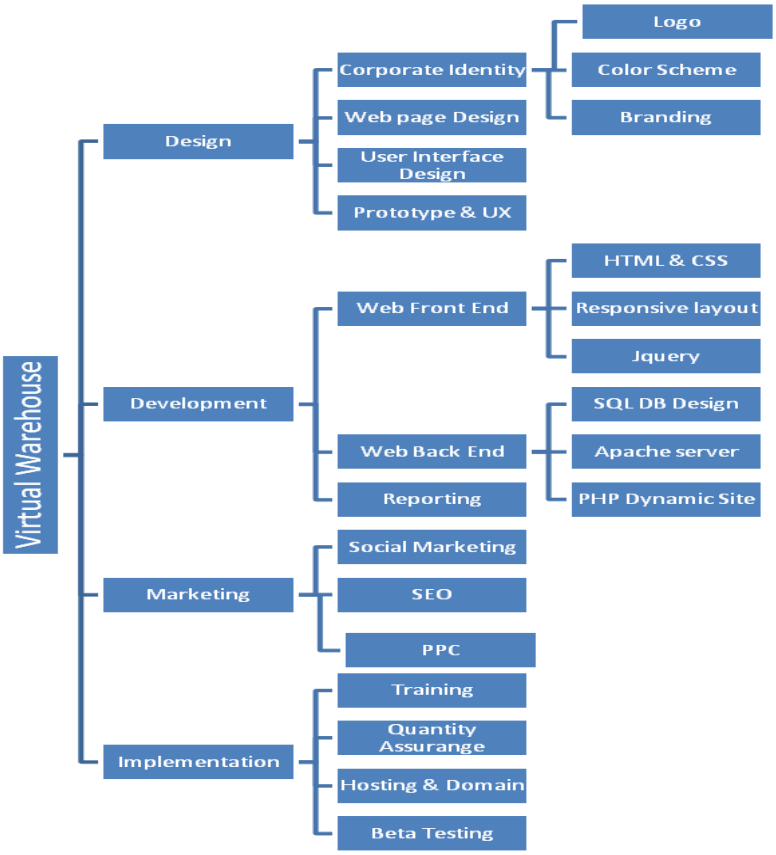

Fig 4-1: WBS

4.2.2 Activity Plan

Table 4-B: Activity Plan

Activity Label	Activity Description	Time (week)	Predecessor
A	Registration system	2	
B	Login	1	A
C	Admin	2	B
D	Vendor	2	B
E	Manage product	3	C, D
F	Manage Category	3	C
G	Vendor list	1	C, D
H	Admin list	1	C
I	Report Invoice	2	C
J	Changing password	1	C, D
K	Logout	1	C, D

4.3 Repositories:

We used GitHub as our online repository. By using GitHub everyone easily downloaded and uploaded their files and folders. Here we have given some screenshots of our works:

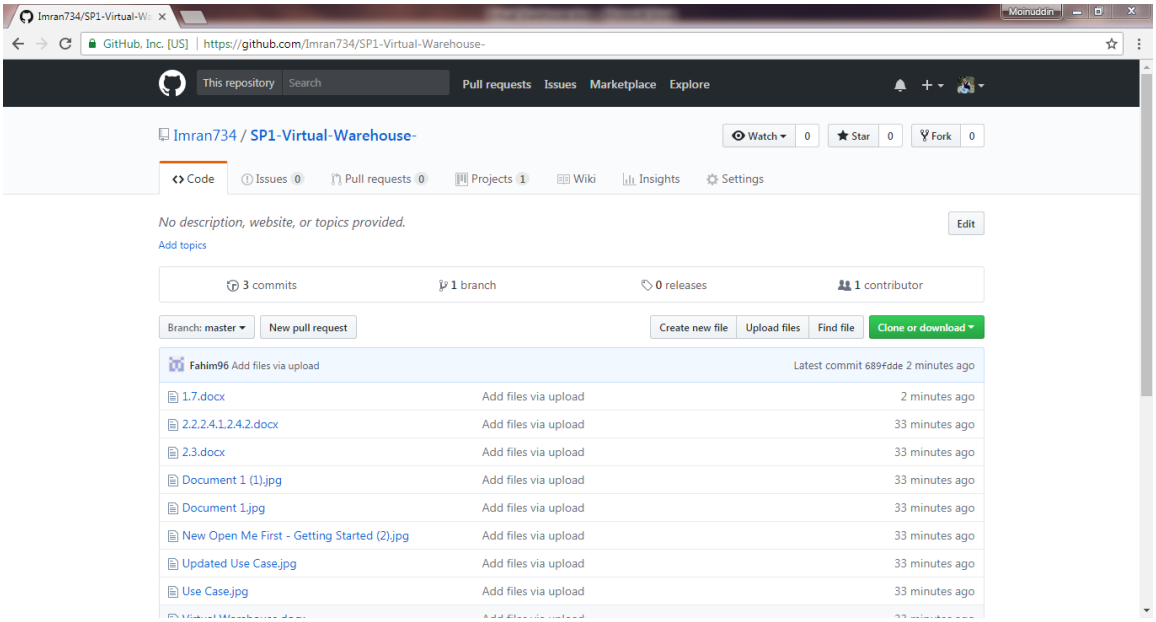

Fig 4-2: github.com

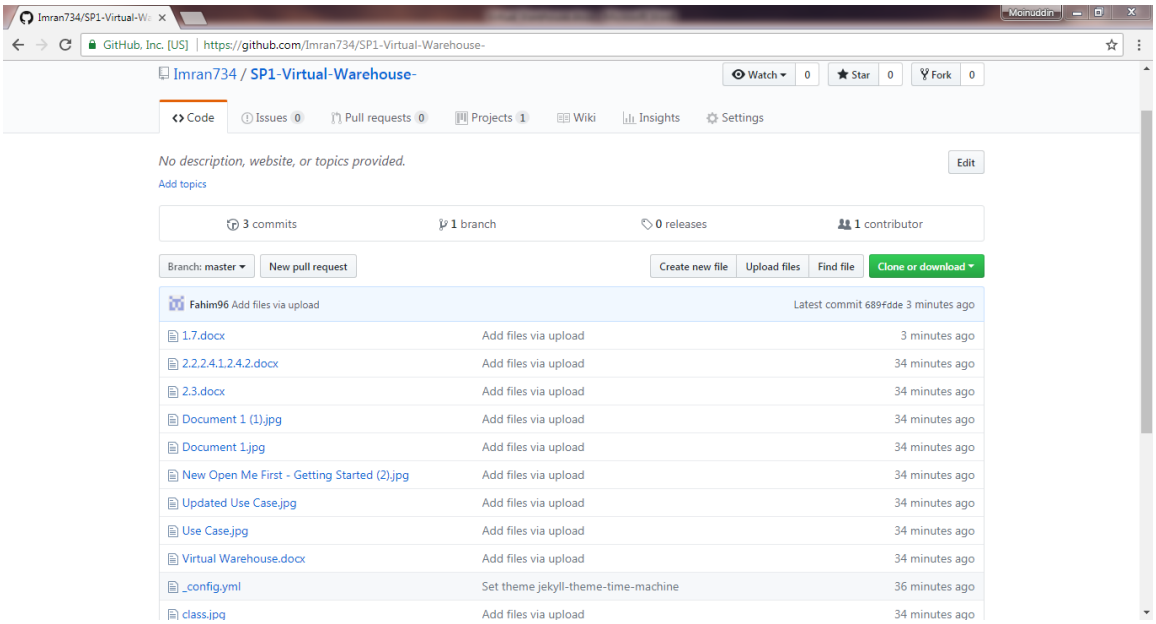

Fig 4-3: Github project resources

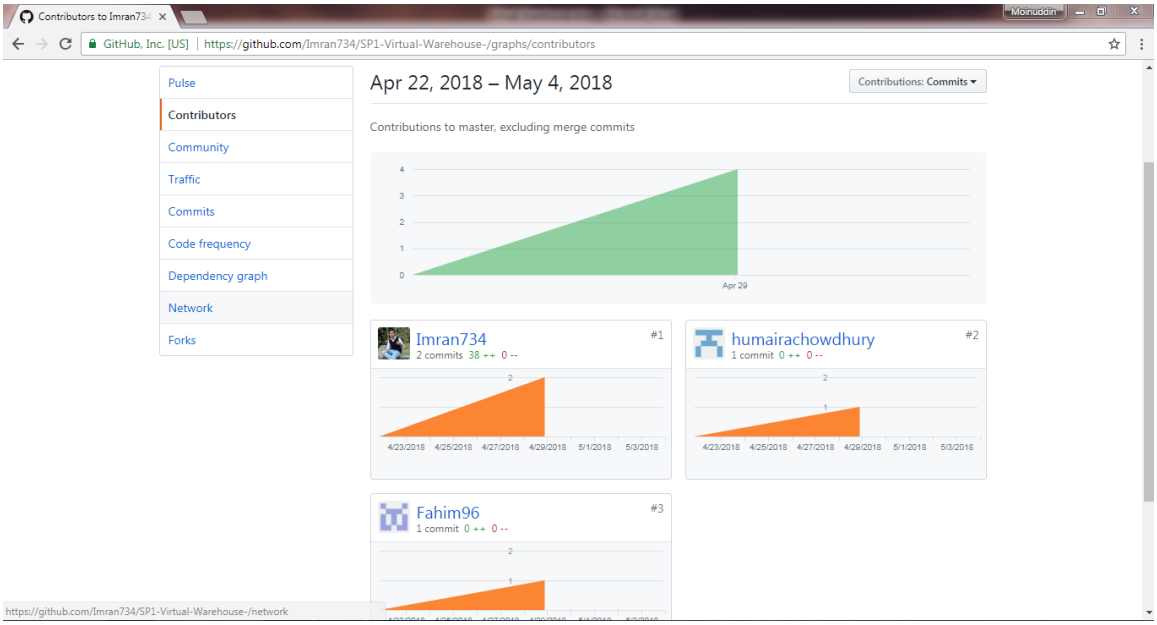

Fig 4-4: Project contributors

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