Consumable Management System

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Challenge

While working at Indian Oil Corporation Ltd, I realized that employees were maintaining records of various commonly used consumables like floppies, cartridges, CDs, pen drives, etc. **manually**. As a result, they were more susceptible to making mistakes. These small mistakes result in huge loss to the company. Sometimes the vendors deliver more consumables than required and charge extra money, or deliver wrong products.
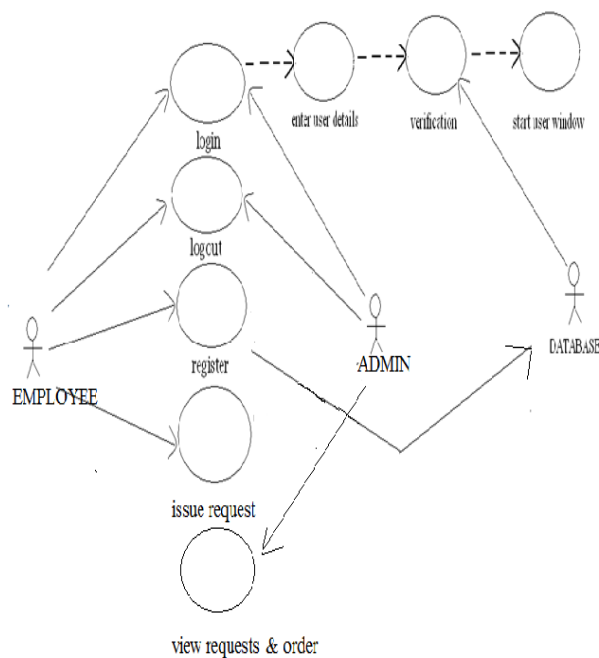
So, I intended to make 'Consumable Management System', a system which would maintain the records of these consumables **electronically**. The consumables are very large in number, so there was a need to maintain the records of these items in a systematic way. Since everything has been computerized, the need for such consumables has increased and hence the need to manage these items.

Process:

I interviewed employees at distinct designations and across various branches of the company to understand their process and how errors used to creep in. Employees used to go to the issue officer for the consumables required by them. The officer then checked the existing supplies by looking into the records. All the records were updated manually, which was a tedious job. In case the supplies were limited, the officer ordered the vendors for the required consumables. After the vendors gave their rates, the contract was given to the vendor, who gave the best offers. The vendors brought the required consumables and records were updated manually. Consumables were then given to respective employee as per his/her requirement.

I got to understand the flow of information and made several prototypes for the same. The product was viewed with a sense of providing better, efficient and less time-consuming system for maintaining the consumables in the various branches of Indian oils

1. Use Case Diagram

Description of the Use Case diagram:
Actors:
Employee: Employee is the user that makes requests for the consumables.
Admin: Admin is the central controller of entire system. It keeps a check on the requests of the employees and orders the consumables to the vendors.
Database: It is the storage of the entire system, stores all the information about users.

Use cases:
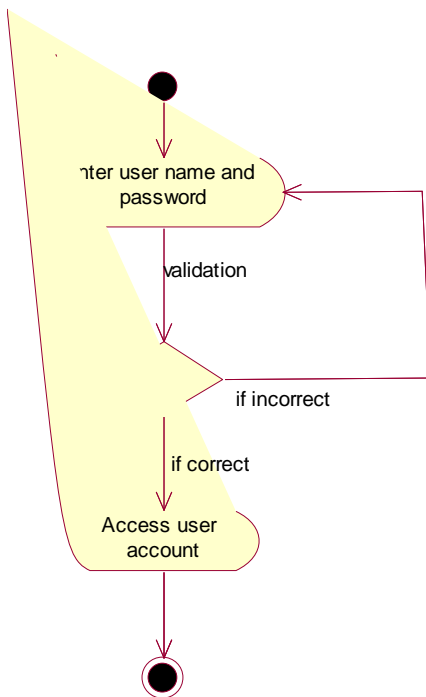Login: User enters user id and password for logging into the system.
Logout: User logs out from the system.
Register: A new user enters his/her account details for registration using this feature.
Issue requests: An employee makes requests for the consumables he needs.
View requests and order: Admin uses this feature to view all the requests of the employees and for ordering the consumables to the vendors.

Figure 1. Use Case Diagram

2. Activity Diagram of login:

An Activity Diagram is essentially a flow chart showing flow of control from activity to activity. They are used to model the dynamic aspects of as system. They can also be used to model the flow of an object as it moves from state to state at different points in the flow of control.
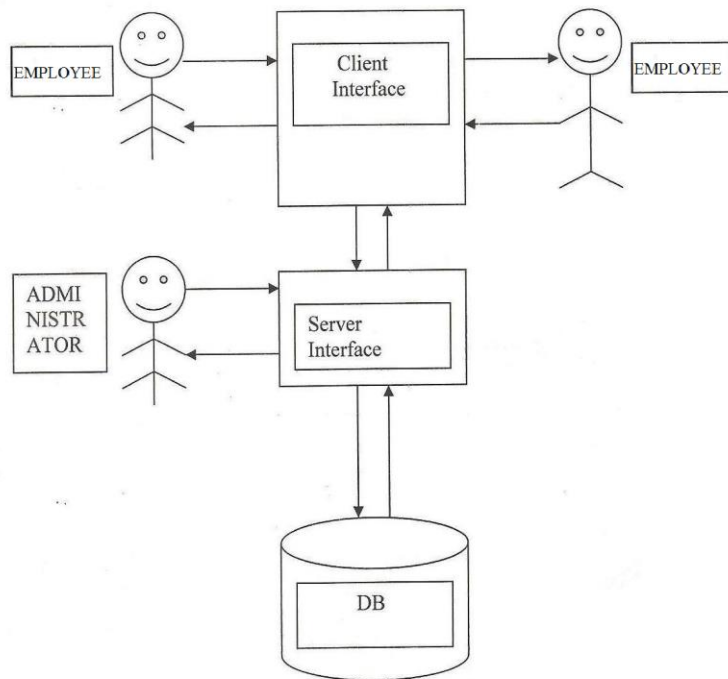
Figure 3. Activity Diagram

3. System Interface

Figure 3. System Interface

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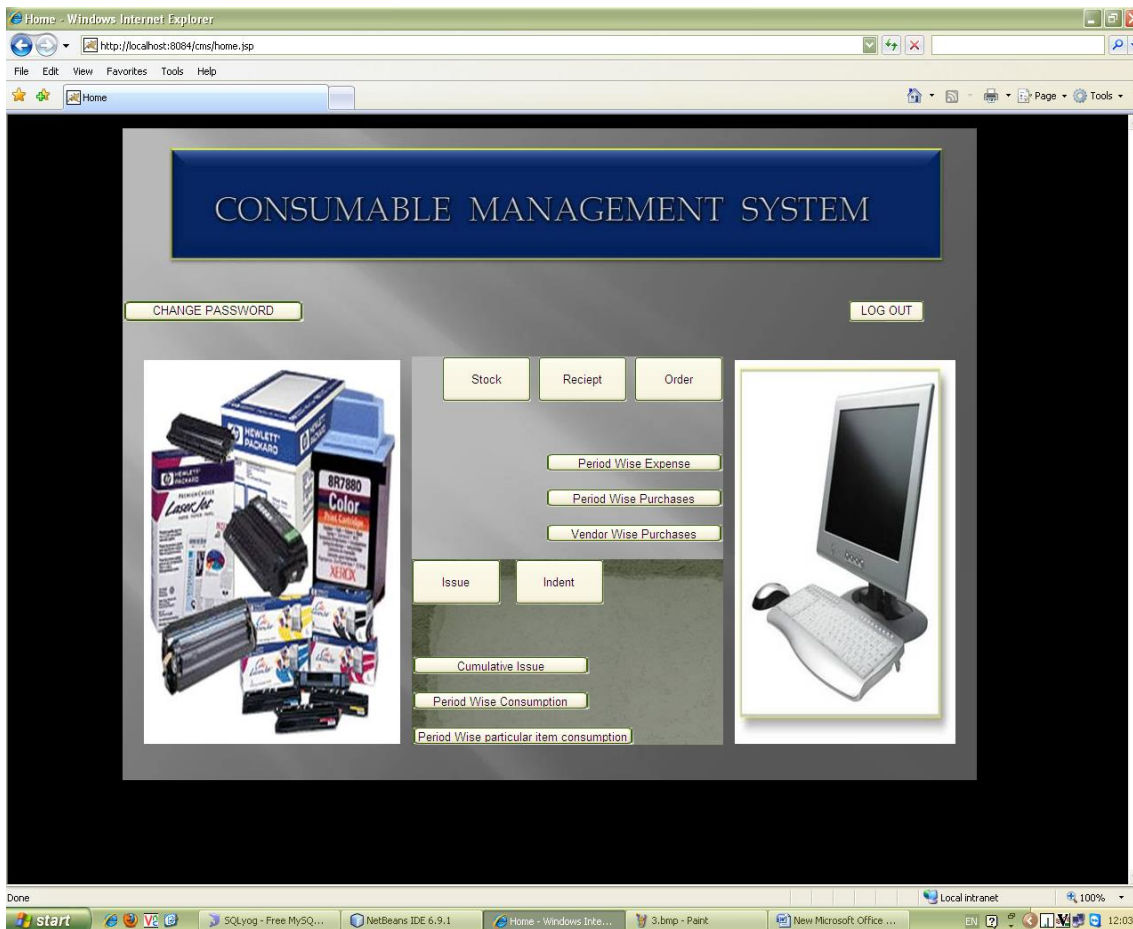**Tools and Technologies used**

- The following tools are used while developing the project.
- Front End Technologies: HTML, CSS, JSP, Java Script
- Back End Technologies: Mysql
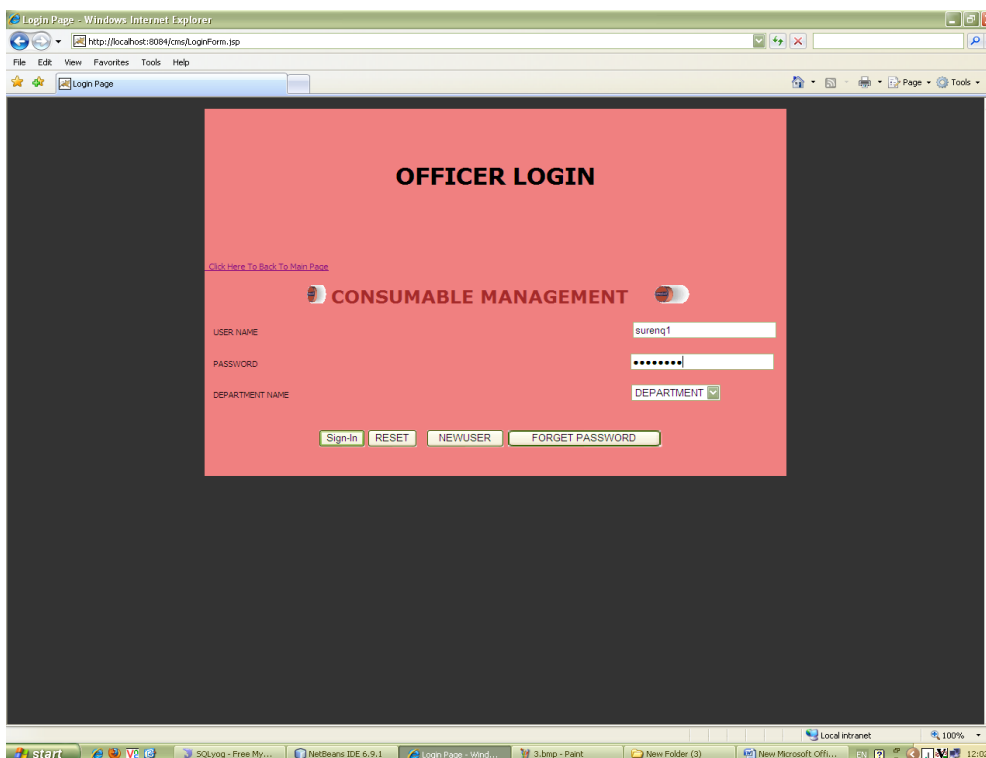- IDE and Server: NetBeans IDE (ver. 5.5), Apache Tomcat Web Server

Product:

 I made a website wherein each employee could make an account by connecting to the server. Once the account is made, he/she could login into the system by entering the user name and password. The employee then made request for the consumables he/she needs. The admin could login into the system by entering the unique password and access the indent page which contains information of all consumables required by all the employees. The admin could also access the records like period-wise purchase, period wise expenses etc

This is how the product looked like:

1. Home page

2. login

3. Order page

4. Indent by employee

Impact

25 out of 30 Employees benefited from the website. The website helped the employees in maintaining all the records of consumables used and the expenses of Indian Oil Corporation Ltd. in purchasing these items. **Backup of the entire database** of the system could be taken from time to time.

It **saved the time** of officers of Indian oils in maintaining the records of consumables manually. The employees were able to make requests for the consumables they require by simply logging into the system and filling the issue form. The admin was able to view issued items easily. Data was updated automatically. Therefore, admin was able to manage the consumables in a proper way. The biggest benefit was that the admin was able to order the items which are running out of stock to the vendor **in advance**.

Reflections:

I realized that implementations of all features is tough. It is important to select 3-4 important features and stick to these to make a minimum viable product. It is hard to make a system that catered to the needs of all the personas. More time should be spent on making the affinity diagram to understand the user requirements.