17SE02CE017
Dhruv Gandhi

Experiment 6 (Requirement Classification)

Objective: To Classify the requirement into functional and non-functional requirements.
Background: Functional requirements (FRs) specify the software functionality that the developer must build into the product to enable users accomplish their tasks, thereby satisfying the business requirements. Non-functional requirement as the name suggest, are those requirements which are not directly concerned with the specific functions delivered by the system. Many non-functional requirements (NFRs) related to the system as a whole rather than to individual functional requirements. While failure to meet an individual functional may degrade the system, failure to meet a non-functional system requirement may make whole system unusable. NFR's are of different types namely usability requirements, reliability requirements etc.

Assignment 6

Problem Description

Classify the following requirement by selecting the appropriate option.

1. ATM machine shall validate PIN of the user during login along with biometric verification.

2. "Peak transaction Volume(s) - 20,000 calls in a busy hour, average duration 20 Secs, grade of services 99.98%"

3. "Brahe System Shall sounds the alarm for 10 seconds at frequency of 100H when the brake is applied".

4. "Mean Time to failure (MTTF) -There should be no more than three Severity-1 outage per month".

With reason you have to specific: more scenarios should be add by student

Assignment 6 Solutions

ATM machine shall validate PIN of the user during login along with biometric verification.

- Functional

"Peak transaction Volume(s) - 20,000 calls in a busy hour, average duration 20 Secs, grade of services 99.98%"

- Non-Functional

"Brahe System Shall sounds the alarm for 10 seconds at frequency of 100H when the brake is applied".

- Functional

"Mean Time to failure (MTTF) -There should be no more than three Severity-1 outage per month".

- Non-Functional

17SE02CE017
Dhruv Gandhi

With reason you have to specific: more scenarios should be add by student

Functional Requirements

Registration

- **Add patients**
  The HMS shall allow front-desk staff to add new patients to the system.

- **Assign ID**
  The HMS shall allow front-desk staff to give each patient a ID and add it to the patient's record. This ID shall be used by the patient throughout his/her stay in hospital.

Check Out

- **Delete Patient ID**
  The administrative staff in the ward shall be allowed to delete the ID of the patient from the system when the patient checks out.

- **Add to beds-available list**
  The administrative staff in the ward shall be allowed to put the beds just evacuated in beds-available list.

Report Generation

- **Patient information**
  The HMS shall generate reports on patients about the following information: patient's PHN, patient's name, ward name, bed number and the doctor's name which was assigned.

- **Bed Availability**
  The HMS shall generate reports on bed availability about the following information: ward name, bed number, occupied/unoccupied.

Database

- **Patient Mandatory Information**
  Each patient shall have the following mandatory information: first name, last name, phone number, personal health number, address, postal code, city, country, patient identification number.

- **Update Patient Information**
  The HMS shall allow the user to update any of the patient's information as described in SRS.

17SE02CE017
Dhruv Gandhi

Design Constraints

- **Database**
  The system shall use the MySQL Database, which is open source and free.

- **Operating System**
  The Development environment shall be Windows 10.

- **Web-Based**
  The system shall be a Web-based application.

Non-Functional Requirements

Security

- **Patient Identification**
  The system requires the patient to identify himself /herself using Phone

- **Logon ID**
  Any user who uses the system shall have a Logon ID and Password.

- **Modification**
  Any modification (insert, delete, update) for the Database shall be synchronized and done only by the administrator in the ward.

- **Front Desk staff Rights**
  Front Desk staff shall be able to view all information in HPIMS, add new patients to HMS but shall not be able to modify any information in it.

- **Administrators' Rights**
  Administrators shall be able to view and modify all information in HMS.

Performance Requirements

- **Response Time**
  The system shall give responses in 1 second after checking the patient's information.

- **Capacity**
  The System must support 1000 people at a time.

- **User-interface**
  The user-interface screen shall respond within 5 seconds.

- **Conformity**
  The systems must conform to the Microsoft Accessibility guidelines

17SE02CE017
Dhruv Gandhi

Maintainability

- **Back Up**
  The system shall provide the capability to back-up the Data

- **Errors**
  The system shall keep a log of all the errors.

Reliability

- **Availability**
  The system shall be available all the time

17SE02CE017
Dhruv Gandhi

Experiment 7 (Requirements)

Objective: Identify the elements in software Requirements Specification document.

Background: The output of requirement analysis place is the Software requirements Specification it should specify what a system should do. Atypical SRS usually consists of the system overview (both current and proposed). Objectives of the proposed system such that it is proven to be significant development over the existing system, business analysis of the client functional and non-functional requirement, glossary, etc.

Assignment 7

Problem Description

Article Systems (AS), a giant books franchise has approached IT company ABCLtd. To help them automate their business processes and shift them online so all of its outlets across the globe would be under one portal. AMC Ltd. , agrees to take on the project and both the companies sit down and strike a deal. After detailed discussion and analysis, ABC Ltd. decides to follows the waterfall model for development of the project. This discussion covered topics such as the business analysis and operations of AS, The expectations of the client (AS) from ABC Ltd, their needs and requirements from the software, their current existing system including its limitations and what the proposed system would do to address these issues. Taking into account all the input, the concerned team at ABC designed and developed the SRS.

Which of the following are typically expected to be found in the SRS created by ABC Ltd. Towards the AS Project

System Overview	
Class Diagram	
source Code	
Use Cases	
Flow Charts for algorithms realizing the functionality of the system	
Code review Comments	
test results	
The Difference in the scope of the current system to be proposed system.	
Non-Functional requirements	
Features of new portal to be developed	

17SE02CE017
Dhruv Gandhi

Assignment 7 Solutions

Overall Description This section includes details about what is and is not expected of the system in addition to which cases are intentionally unsupported and assumptions that will be used in the creation of the Article system (AS).

Product Perspective BECS is an online bookstore website which supports a number of functions for both the consumer and store's management.

The website must be available to anyone using the Computer engineering Department's provided computer resources in the School of Engineering Building and as such must work correctly in both Internet Explorer and Mozilla Firefox. As stated by the customer, there are no hardware or software requirements beyond these including, but not limited to, memory or specific software packages that need to be utilized nor software packages that need not be utilized.

Product Functions

AS will provide a number of functions; each is listed below.

Maintain data associated with the inventory (a collection of books)

- A book has a title, author and price
- The inventory also keep track of the stock/quantity of each book

Maintain records for many customers

- A customer can be either a member or non-member.
- A customer has a username (unique across all users), password (no restrictions), email address (no restrictions), and postal address (unverified.)
- Anyone may sign up for a customer account.

• Allow any customer to become a member.

• Show a listing of available books

- Books are to be displayed in ascending alphabetical order by title.
- Each book will list the following from left to right
- Title
- Author
- Price

• Allow customers and managers to log in and out of the system.

- Users (both customers and the manager) will be logged out if inactive for 30 minutes.

• Shopping cart

- Anyone is able to add one or more books to the shopping cart.
- The shopping cart does not need to allow multiple copies of any book.

17SE02CE017
Dhruv Gandhi

- **Checkout**
  - Checkout is only available to logged-in customers. A user that is not logged in as a customer is given a chance to log in.
  - Member customers may enter a promotion code.
  - Only one promotion code may be used per purchase
  - The promotion is a fixed percentage discount that is to be applied to an entire order.
  - The discount is specified by the manager at the time of the promotion's creation or most recent update/edit.
  - Collect a 16-digit credit card number from the customer
  - Log/record the transaction

- **Allow manager to specify a stop-order for a book**
  - Each book has its own stop-order status – either on or off. Details of its use are involved in the following feature.

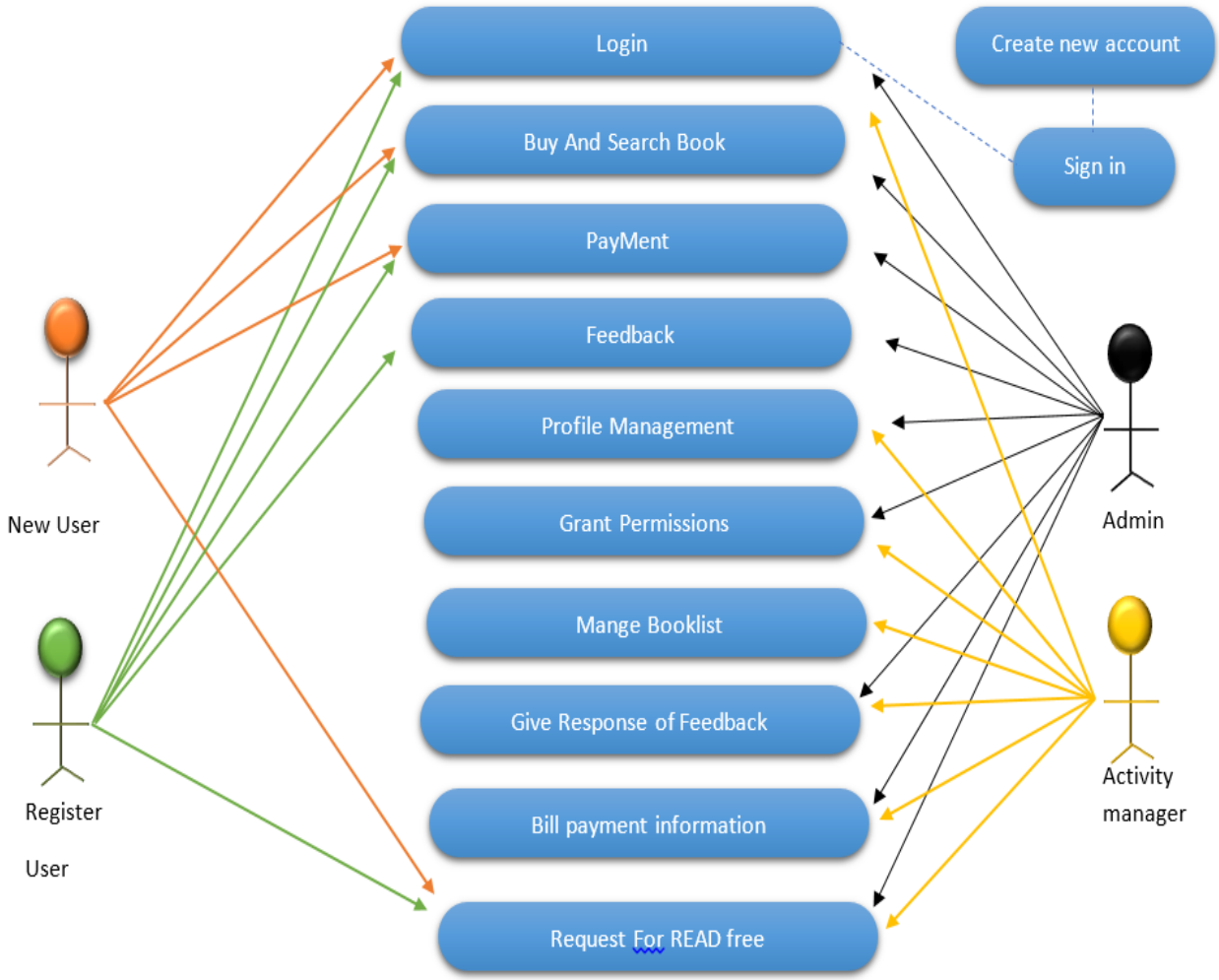
- **Notify manager when books need to be reordered**
  - When the quantity a book falls below a threshold, the manager is notified that the book needs to be reordered.
  - One exception is if the manager has already specified a stop-order for this book.
  - Every book must either have stop-order enabled or disabled

- **Allow manager to update stock quantities**
  - Allow manager to change any book's price
  - Allow manager to view transaction logs

- **Allow manager to create promotions**
  - A promotion is a percentage discount that can be applied to an entire order
  - Promotions may only be used by member customers
  - A promotion has an expiration date specified by the manager When a promotion is created, it is emailed to all member customers via the email address on record

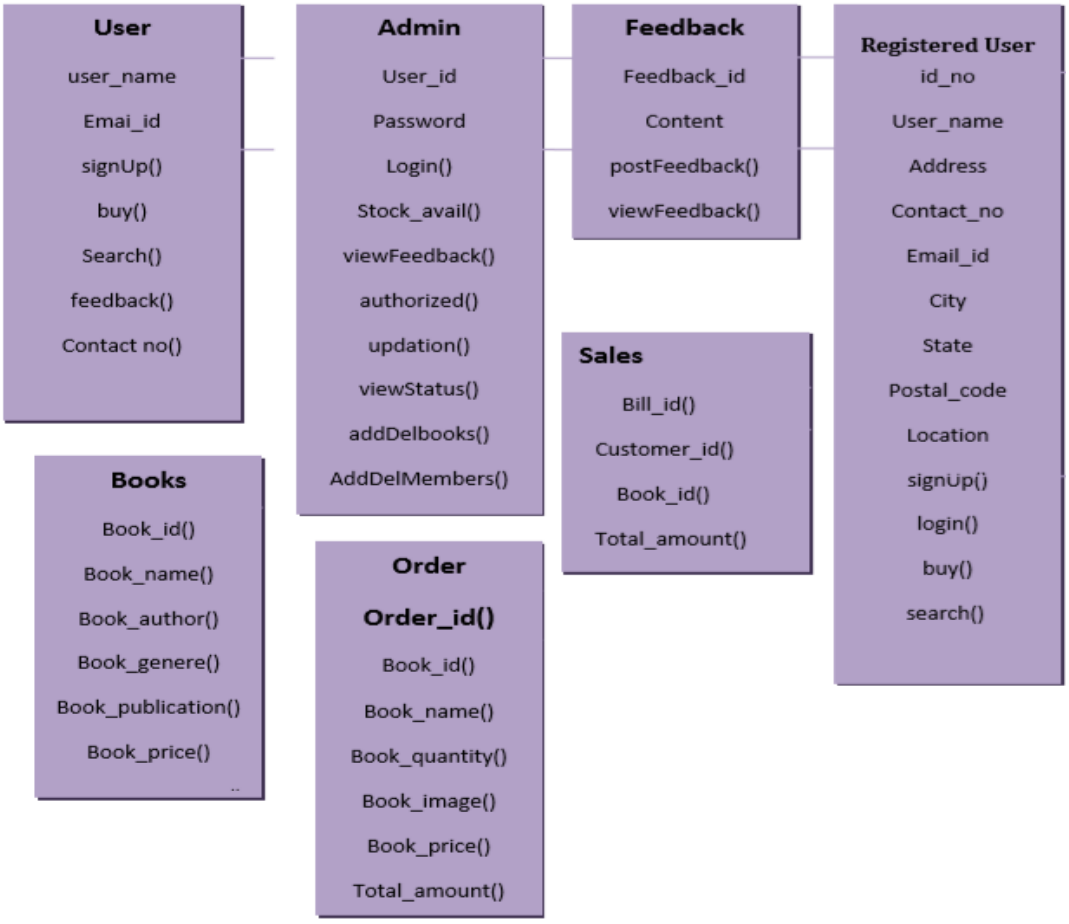
17SE02CE017
Dhruv Gandhi

Uses Case Diagram



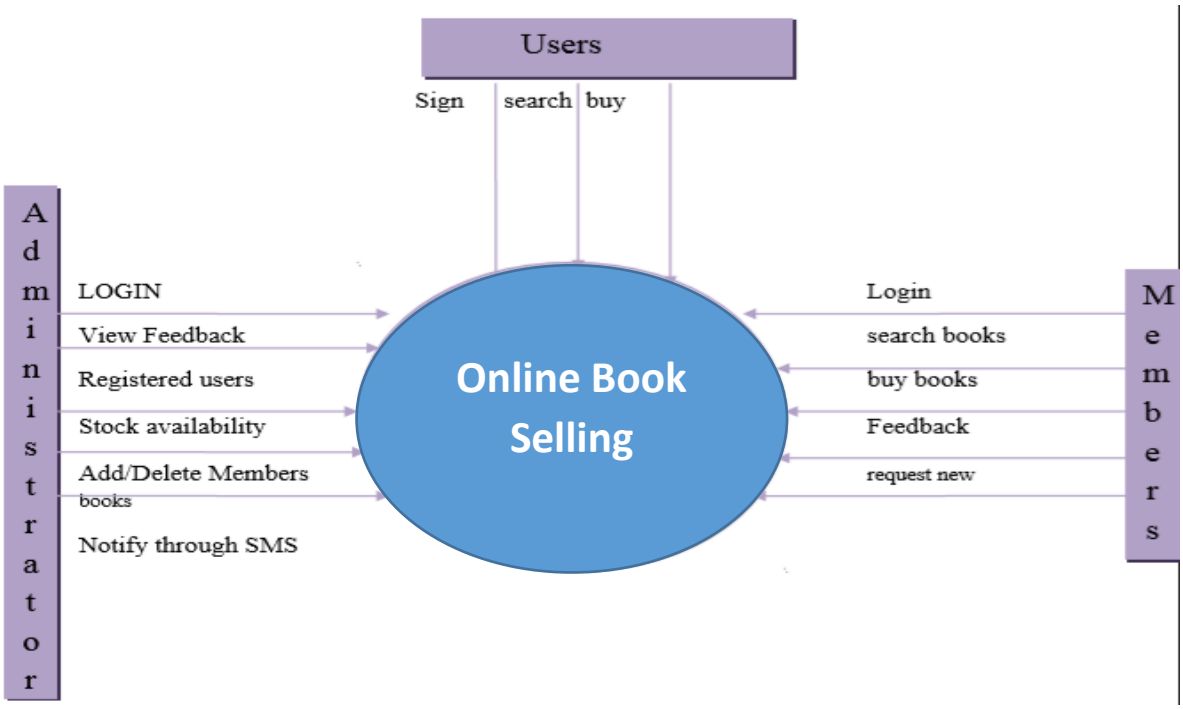
17SE02CE017
Dhruv Gandhi

Class Diagram



17SE02CE017
Dhruv Gandhi

Data-Flow Chart Diagrams



17SE02CE017
Dhruv Gandhi

Experiment 8 (Requirement Verification)

Objective: to verify the requirements against the quality attributes.

Background: Software requirements specification formally captures the requirements of the software to be developed. Hence it is important that requirements are free from defects like incorrect or conflicting requirements.

Assignment 8

Problem Description

Identify the requirements in the given SRS (Premium University Placement Portal) for following issues,

1. Incorrect requirements

2. Ambiguous requirements

3. Missing requirements

4. Conflicting requirements

5. Incomplete requirements

Assignment 8 Solutions

In my SRS report of hospital management system I identify some requirement for following issues

1. **Incorrect requirements**
    - **Comprehensive Appointments**
        - Multi View Calendar to view Appointments for single doctor, for entire hospital and for multi-location appointments. Online portal for patients to book appointments directly.
    - **Ward Request**
        - Medications can be ordered for IP patients from ward itself. Eliminates paperwork and manual tracking.
    - **Role Based Access**
        - Option to use default and custom roles for users. Users would have restricted access based on the roles and privileges. Users can be allocated to single or multiple locations.
    - **Email Reports**
        - View all referred out tests with current status. Date wise trend can be seen from the report.
    - **Discharge Summary**
        - Template based Discharge Summary. ICD10 integration. Option to prevent discharge summary till IP bill is closed. Avoids revenue leakage.

2. **Ambiguous requirements**
    - **Visual EMR [Electronic Medical Record]**
        - Specialty wise EMR and Visual Case sheet. Option to create follow up visits while retaining the previous visit data. Auto fills to add commonly used case sheet data. Saves time and eliminates paper.
    - **IP Management**
        - Comprehensive IP Management handles corporate and insurance patients, reduces pilferage, and eliminates paper work.
    - **Many More Features**
        - Comprehensive Pharmacy Management handles stock, Prescription Integration, Ward Request, Stock Management, Stock Moment and intelligent reports
    - **Invoice Generation**
        - Generate Invoice for Franchise, Outsourcing Lab as per Rate Plan. Have complete control on expense. Hard limit can set at system level to restrict orders beyond threshold. Supports both pre-paid and postpaid payment. Compute Referral Payout as per the rate plan.
    - **MIS[Monthly Income Scheme]**
        - Detailed reports on Current Stock, Product based Margins, Manual Stock Adjustments, Edited Sale Bills, Created Indents, Discounted Bills, Pharmacy Net collection and more.
3. **Missing requirements**
    - **Hospital Management**
        - Comprehensive hospital Management from Doctor Discovery, Appointments, Check In, Billing, EMR, Prescription to mobile apps.
    - **E-Prescription**
        - Manage commonly and recently used medicines. Option to show medicines available in pharmacy. SMS prescriptions to Patients.
    - **Dashboard**
        - Dashboard shows a snapshot information of current revenue, expense, Lab, Pharmacy data. Let's you set and monitor Targets for departments. Provides important analytics information and trends.
    - **Order Management**
        - Place orders for samples directly from app, register your sample containers, Print barcodes, record sample data, assign sample locations, assigns collection agents and integrates with your lab machines for complete automation in your lab.
    - **Lab Management**
        - Comprehensive Lab Management handles complete order management, Custom Reports, Smart Notifications, Credit Settlement, detailed MIS Reports, Analytics and App for Phlebotomist.

4. **Conflicting requirements**
    - **Integrate Hospital Billing**
        - Integrated Billing with treatments, Lab and Radiology. Discount Authorization alerts. Automatic Due capture. Option to bill before and after consultation.
    - **Appointment Widgets**
        - For hospitals having their own site, widgets are integrated. Patients visiting the hospital's website can book online appointments without moving out of their site.
    - **Insurance Management**
        - Single Click Invoice generation for Insurance Providers for pending payment. Option to set Pre Authorization amount.
    - **Smart Notification**
        - Automatic notification can be sent to customers on test results. Lab notifications like email, sms of the test reports sent from from the Automated Lab notification module.
    - **Surgery Notes**
        - Option to add and manage notes from Surgeons and physicains.
5. **Incomplete requirements**
    - **Flexible Queue Management**
        - Flexible Option to use Appointment based Checking and Token based Checking. Token can be displayed on big screen.
    - **Visual Bed Management**
        - User friendly interface to manage beds. Automatic movement to maintenance after discharge. Multiple rate plans for same room based on amenities.
    - **Micro Website**
        - A micro website is provided automatically along with Modoc Accounts. This is SEO optimized and provides good visibility to the hospitals. Patients visiting the portal can book appointments online or can call the hospital number.
    - **Custom Reports**
        - Reports with configurable templates based on Gender and Age. Doctor Specific Templates would be picked automatically. Auto abnormal alerts, Formula based result values and Historical Chart.
    - **Stock Management**
        - Configure Multiple Stores and Sale Counters. Track and Monitor stock movement Stores and Pharmacy. Option to Raise and Issue Indents. Reorder level configuration.