Introduction to Software Engineering

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4263/FBAS/BSSE F21 (A)

Assignment: **Midterm Paper**

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Q no 1:

Waterfall Model

Waterfall is a classical model used in Software Development Life Cycle (SLDC) to create a system with linear and sequential approach. This model develops systematically from one phase to another in downward fashion. One phase must be completed before the next phase.

Phases of Waterfall Model

- ✓ Requirement Phase
- ✓ Analysis Phase
- ✓ Design Phase
- ✓ Coding Phase
- ✓ Testing Phase
- ✓ Deployment Phase

✓ Maintenance Phase

Advantages of Waterfall

✓ Enables structured and disciplined organization
✓ Clearly defines milestones and deadlines
✓ Simple to arrange and follow tasks

Disadvantages of Waterfall

➤ Does not consider error correction
➤ Delays testing until end of development
➤ Reduces efficiency by not allowing processes to overlap

Q no 2:

Following are the stages of **SLDC:**

Planning and Requirement Analysis

Requirement analysis is performed by senior members of team with inputs from customer, market surveys and domain experts in industry. Planning is done for quality assurance requirements and identification of risks.

Defining Requirements

Clearly define and document product requirements in SRS and get them approved from customer.

System Design: Based on requirements, desired features & operations are documented in DDS

Developing the Product

Here actual development starts and product is built.

Testing

Product's defects are reported, tracked, fixed and retested until defects are removed

Deployment

The tested and ready product is deployed in appropriate market.

Maintenance

Changes, corrections, addition and more

Q no 3:

User level Requirement

The system shall allow librarian to record book loan, featuring ISBN num, book copy, due date and current borrower's id.
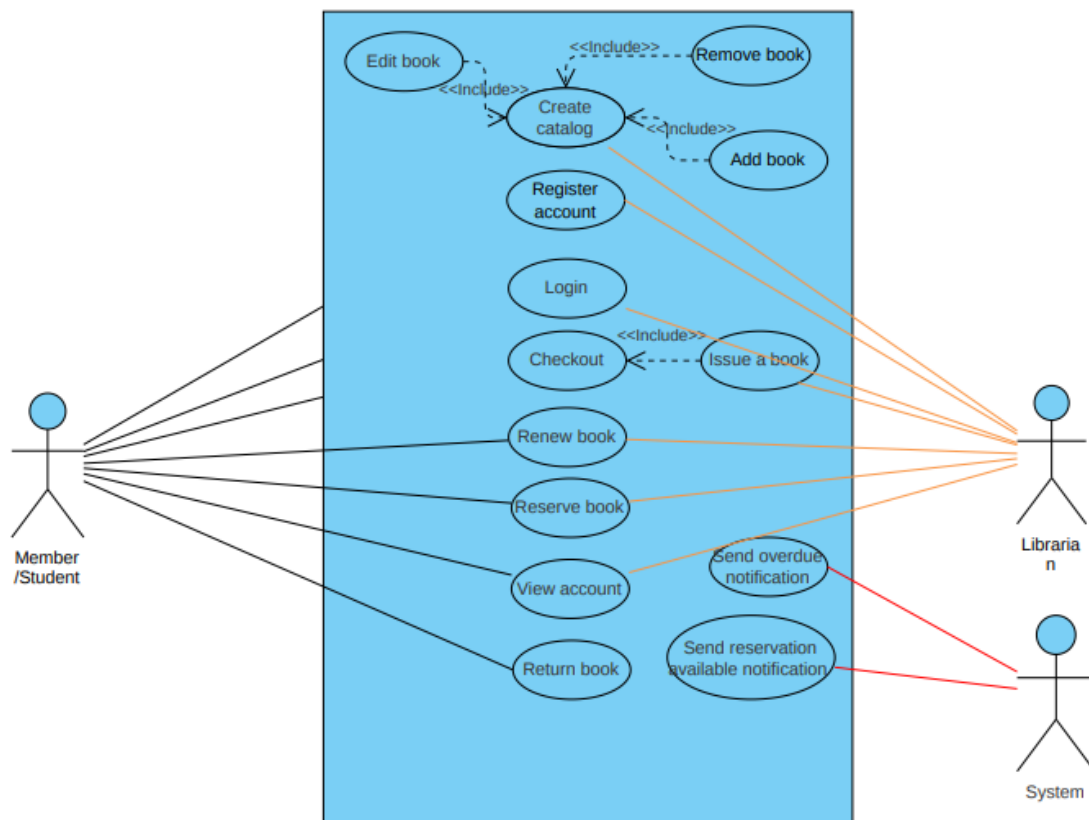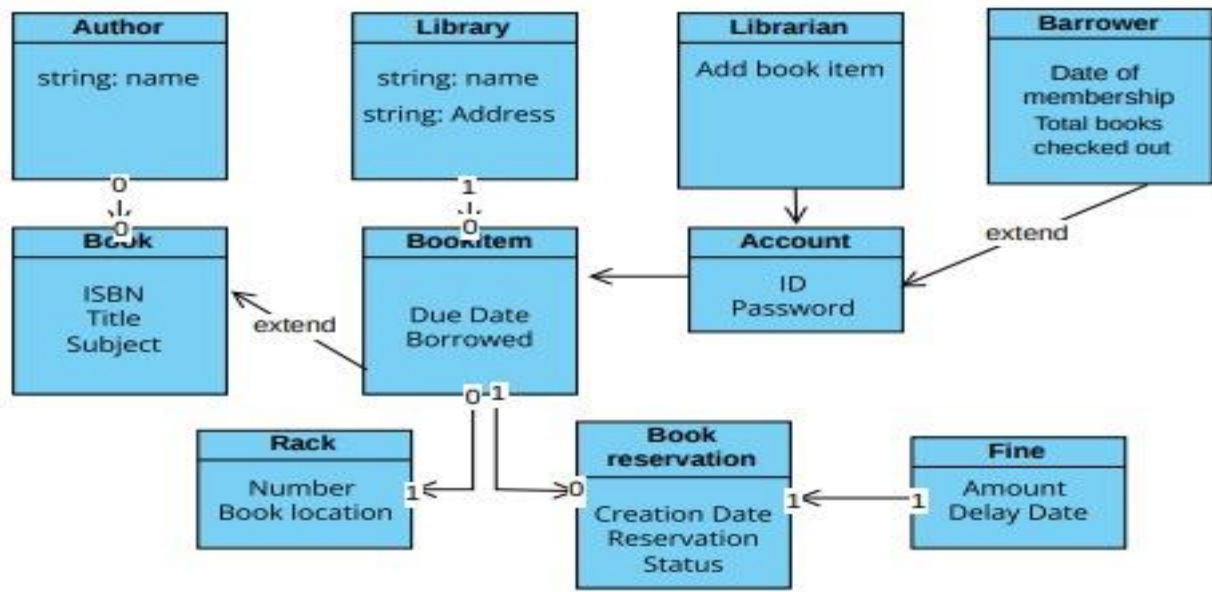
System Level Requirements

- System shall allow librarian to enter record of book loan.
- Librarian shall be logged in to enter the record.
- System shall have ISBN number.
- Multiple book copies shall be available.
- System shall have book copy number.
- System shall tell about availability of book or the due date.
- System shall take the borrower's ID number.
- A book shall be loaned for two weeks maximum.

- System must check all the requirements before telling about availability or due date.

Q no 4:

Use case and Domain model:

Q no 5:

Following are nonfunctional requirements for:

Bike Racing Game

- Game shall not crash.
- There should be no lag or buffer.
- Game shall be atmospheric
- Game shall consume minimum storage.
- Quick loading time.

Online Banking System

- Security
- Performance
- Usability
- Availability