



# الجامعة الإسلامية العالمية

## International Islamic University, Islamabad

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**Subject:** Introduction to Software Engineering  
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**Question No: 1**

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**Describe the Waterfall Model and list the stages of water fall model also list three advantages and disadvantages of this model?**

**Solution:**

The water fall model was the first process model to be introduced. It is very simple to understand and use. In a water fall model each phase must be completed before the next phase can begin and there is overlapping in the phase. The water fall model is a sequential design process in which process is seen as flowing steadily downward (like water fall).

The stages of water fall model are given below:

- Requirements
- System design
- Implementation
- Integration and Testing
- Deployment of system
- Maintenance

Advantages	Dis-advantages
Simple, easy to understand and use.	No working software is produced until late during the life cycle
Well understood milestones	High number of risks and uncertainty
Process and results are well documented	Poor model for long projects

**Question No: 2**

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**List the stages of the software development lifecycle (SDLC). Describe each case in 1 phrase each?**

**Solution:**

The following are stages of software development lifecycle:

1. Ideation:  
Brainstorming ideas that solve a particular problem faced by target users.
2. Requirements:  
Interacting with stakeholders and users to collect and document project requirement.
3. Design:  
Creating the architecture of a software system and its elements.

4. Development:  
Building the software using a programming language by the development team.
5. Testing:  
Evaluating the quality of a software with the aim of finding and fixing defects.
6. Deployment:  
Preparing the software to run and operate in a specific environment.
7. Maintenance:  
Updating and supporting the software after it has been delivered to the market.

### **Question No: 3**

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**Using natural language.....or changed?**

#### **Solution:**

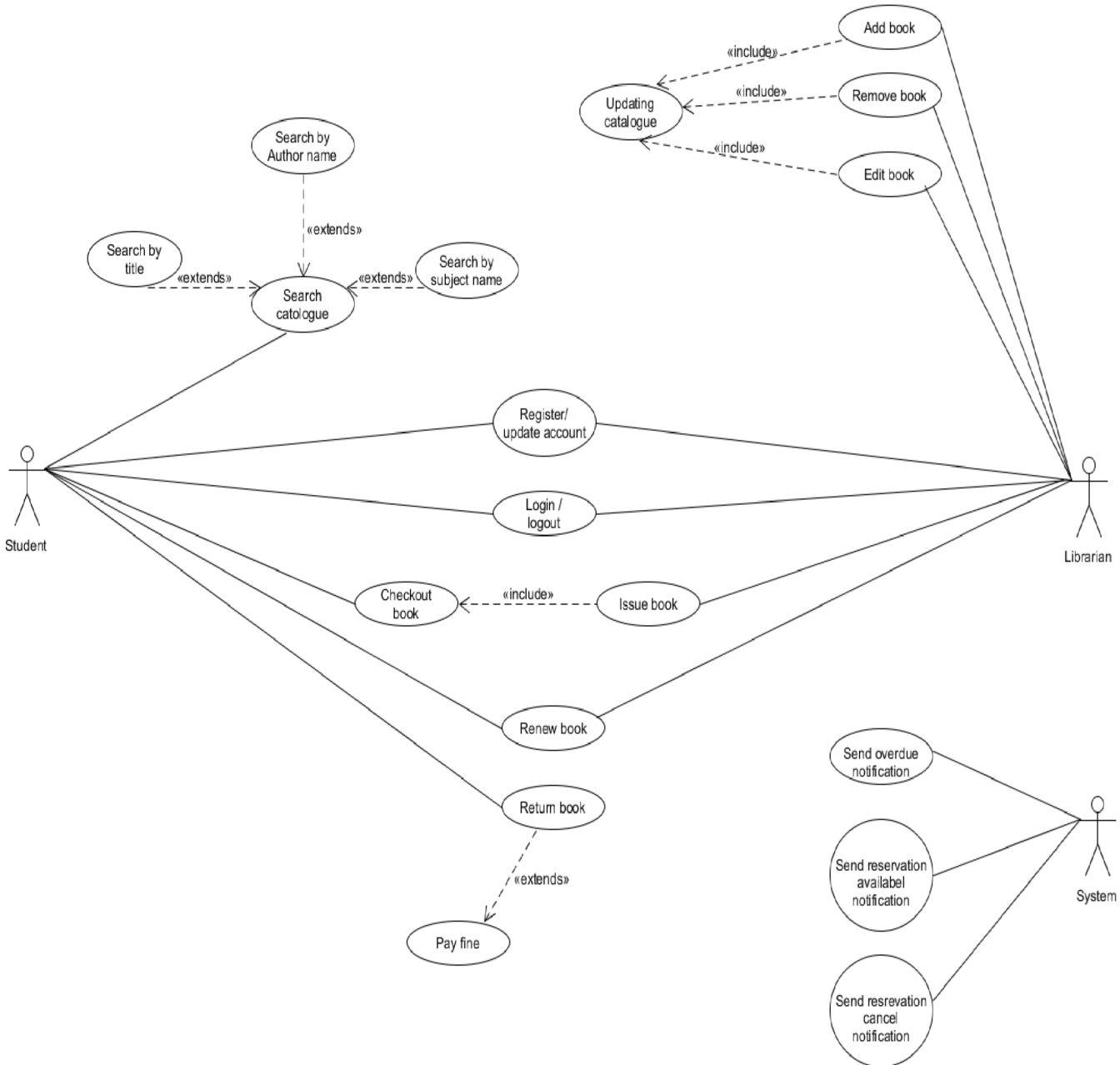
1. Any library member should be able to search books by their title, author, subject category as well by the publication date.
2. Each book will have a unique identification number and other details including a rack number which will help to physically locate the book.
3. There could be more than one copy of a book, and library members should be able to check-out and reserve any copy. We will call each copy of a book, a book item.
4. The system should be able to retrieve information like who took a particular book or what are the books checked-out by a specific library member.
5. There should be a maximum limit (5) on how many books a member can check-out.
6. There should be a maximum limit (14) on how many days a member can keep a book.
7. The system should be able to collect fines for books returned after the due date.
8. Members should be able to reserve books that are not currently available.

### **Question No: 4**

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**Solution:**

**(a)**



**Question No: 5**

**Write the non-functional requirement for the following 2 projects?**

1. An online banking system:

- Security
- Performance
- Usability
- Availability

2. Bike racing game:

1. Secure the users achievements.
2. Secure platform for in game transaction.
3. Ease of use.
4. Good frame rate for every possible low end platform.
5. Performance.
6. Frequent updates to enhance user experience.