

Object Oriented Software Engineering

FINAL EXAM

Name: Alamgir Khan	Id: 13379
Course: OOSE	BS(SE) Section: (A)
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Question #1 (15 Marks)

You have to make a personalized software for a consultancy firm. Some components of the software are those for which you already have code. Some parts of the software are such that you can find ready-to-be-used code from internet. If you want to embed both types of code into your product, and complete the software by coding the remaining part, what can you expect during this whole process? Will it be easy or hard? What problems you might face and how will you overcome those problems?

Answer # 01:

First of all we will use the internet code which is suitable for our product. The requirements that our product needs must be fulfilled by that code.

It will be hard because the code that we have downloaded from the internet, we will try to understand the code first and make it suitable for our product. We must download that code whose requirements are according to our product. After this the next problem arises in embedding the code that we have downloaded with our code because of compatibility issues which can be solved by making both the code compatible.

We might face the following problems:

1. **Compatibility issues:** Sometimes there is a compatible error because the nature of both the embedded codes are different. The embedded code must be compatible with each other and must run parallel. This problem can be solved if the downloaded code and the code that we have written must be in the same programming language.
2. **Code not solving our problem statement:** That code should be downloaded which specifies and solve our product requirements. For this careful analysis and understating of product requirements should be studied.

3. Code showing unexpected error: Unexpected error arise due to calculation or compiler/interpreter error. This problem can be solved by writing code in professional way and carefully understanding the language code.
 4. Code directory error: Sometimes the code that we have downloaded is not in the right directory as our product code is which arises directory or location error. We must put both the code in same directory and then referring to the code.
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Question #2 (15 Marks)

You are working on coding of a software in which a lot of calculations are involved. The calculations are quite easy to be done, but you do expect some inconsistency in the calculations because of some inner problem with the software. Would you rather go for Fault Avoidance technique or Fault Detection technique in the Testing Phase? Explain your answer.

Answer # 02

Fault Avoidance: This requires taking steps to avoid faults during software Development, and to detect and correct those faults that do occur.

The following techniques should be considered when developing a fault avoidance strategy.

- 1) Inspections
- 2) Classification of Requirements
- 3) Checklists
- 4) Traceability Analysis
- 5) Requirements Inspection
- 6) Specification Notations
- 7) Structured Design
- 8) Prototyping

If the code that we have written for calculations are good from our side and the system is expected to show some calculation inconsistency than we will use Fault avoidance technique.

Explanation:

The code or program that we write do consists of many errors or bugs both due to the system error, unprofessional writing of code and because of compiler or interpreter. When the code for the software is written than comes the testing and validation phase. In testing phase we run the code against many possible errors or against different scenarios. If the software shows us any errors we try to change the code and achieve the same task by writing the same program with different approach towards the code. Now if the code that we have written is still incorrect than it must be either because of any system error or compiler/interpreter error. In this case we will try to avoid that calculation by different methodology. For example:

```
var x = 20;
```

```
var y = "40";
```

```
var result = x + y;
```

```
console.log(result)
```

```
// output
```

```
// 2040
```

Now it should not add var x and var y because they have different datatypes, but in javascript it will output as 2040

Question #3 (20 Marks)

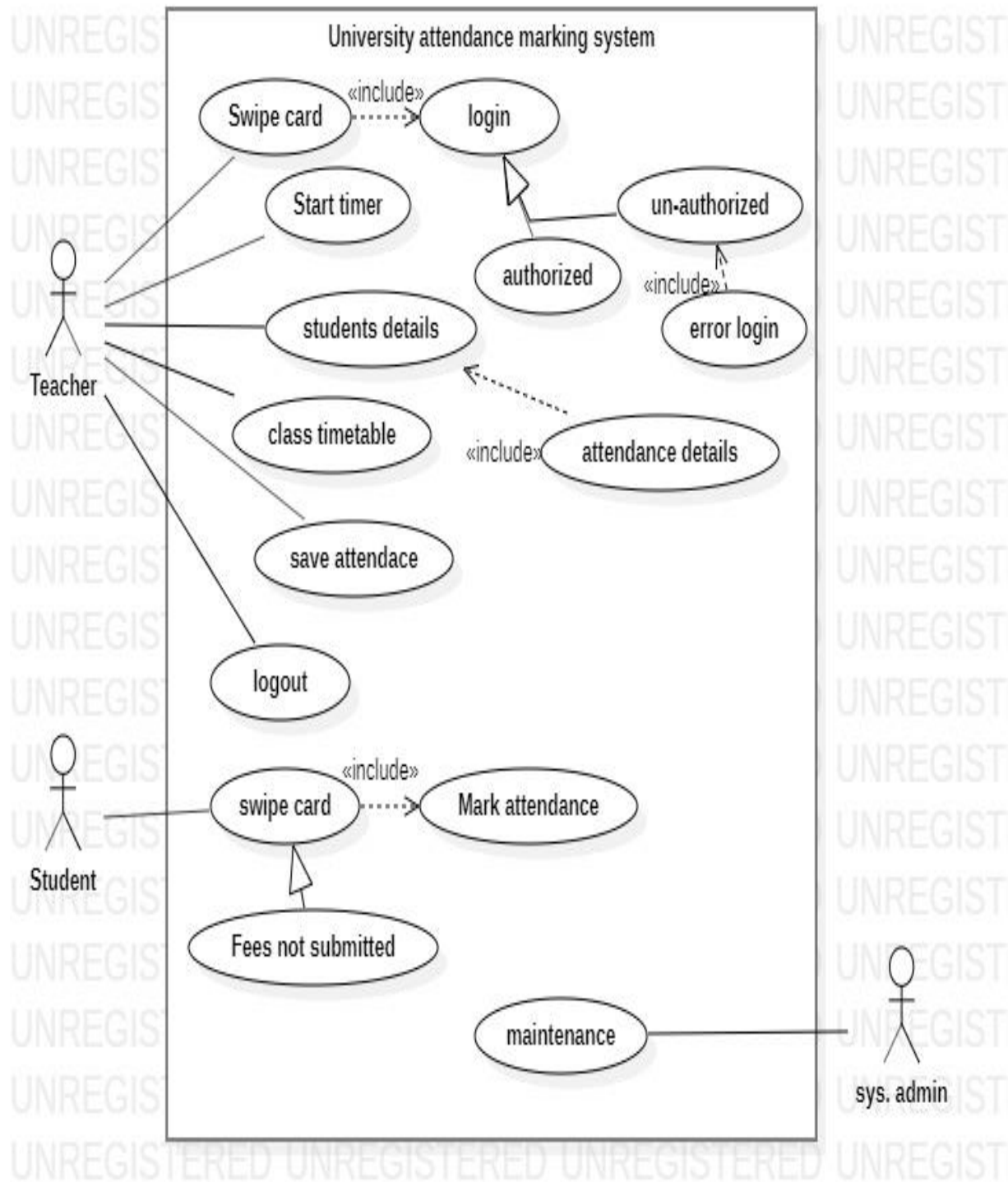
Consider your University Attendance Marking System in a class. Keeping in mind all the activities, both the start and end of the class, come up with the following:

1. A Use Case Diagram
2. A Textual Use Case Diagram

Answer # 03:

Part (1)

1. A Use Case Diagram



2. A Textual Use Case Diagram:

Use Case Name:	University Attendance Marking System:
Actor(s):	Teacher and Student (Primary), System Admin(Secondary)
Summary Description:	Allow any student to marking our attendance
Priority:	Student must have attendance card
Pre-Condition:	The student has a card to swipe on the system
Post-Condition(s):	The system mark the students attendance and also record details of the students attendance
Basic Path:	The teacher swipe their card to login the attendance system. The system verify the card is valid card. The teacher choose class attendance. Student swipe the card to mark their attendance.
Alternative Paths:	Invalid card. Fees not submitted.
Non-Functional Requirements:	Time for complete Marking attendance. Time to allow collection of card.

Instructions for Assignment Submission

1. Write your names and Ids at the top of each paper of answer sheet.
2. Scan using simple scanner or the CamScanner of any android phone / Take Photo of each paper and save each photo with a number. E.g. photo of page 1 of answer sheet be saved with name 1.jpg, then 2.jpg and so on.
3. Make a PDF file of all the pictures and name it with your Roll Number, Name and Subject Name, e.g. "11512 - Sanaa Jeehan - OOSE".
4. Upload the file as it is or zipped.
5. Don't forget to check that the correct document is properly uploaded.