


Course No: SWE4414
Course Title: Object Oriented
analysis and Design
Date: 11/1/2014
No. of Questions: (4)
Time: 120 Minutes
Total Grade:

University of Palestine

Final Exam
First Semester 2013/2014

Instructor Name: Najwa Baraka
College Name: Faculty of Applied
Engineering and Urban Planning
Dep. / Specialist: Software
Engineering Department
Student No.:
Student Name:

Question One:

(10 Points)

▪ **Mark each statement True (T) or False (F), as appropriate:**

1. Not every class require a state chart
2. An entity object in the presentation layer models the system's user interface
3. A poor software development process is one possible cause of project failure
4. A model gives an detailed view of a system, highlighting certain important aspects of its design
5. Different use cases can overlap
6. The exact multiplicity of an association may need to be checked at compile-time
7. Summarize the behaviour of instances of a single class
8. Relationships in component diagram are shown as associations
9. Domain model shows operations
10. The use of three tier architecture is the core of a distributed application.


Question Two:

(15 Points)

▪ **Write the appropriate term for the following definitions**

1. The process of converting design models into executable code
2. Represent real-world entities
3. Objects manage use case behaviour
4. Show the components making up a system and the relationships between them
5. The different tasks that users can perform while interacting with the system
6. The roles users play when interacting with a system
7. All the possible interactions that a user can have when performing a given task
8. Represent relationships between the entities
9. Show how components are mapped to processors, or network nodes
10. Situations where a mistake has been made
11. Used when a use case conditionally adds steps to another first class use case
12. Represent the data held about entities
13. Objects interact with outside actors
14. A high level view of software, described as a number of distinct components or subsystems

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together with their relationships and interaction

15. Focuses on centralized persistent data e.g. data base

Question Three:

(25 Points)

- What are the components of a state chart diagrams

- Compare between:
 - ✓ structural and behavioral diagrams

 - ✓ Sequence diagrams and communication diagrams

- List and explain all the possible sceneries that a use case can describe

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- What we mean by “Shared Functionality” in Use Case , How it can be modeled, Give an example

- How do we know when a domain model is complete? Explain

- List four types of software architecture

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- Explain the three tier architecture?

- What is the benefit of Observer pattern


Question Four:

(50 Points)

SuperVision is an Indian company located in Dubai since 2004 and specialized in civil and infrastructure projects. It has three major departments which are: project and services, finance and employee affairs department.

In order to ensure the best performance of its employees and maintain the high quality of its work, SuperVision adopts a complex hiring process. It has a separate hiring portal which require any job applicant to create an account where he can fill his personal information, academic levels, training courses and past work experience, after completing filling the form the portal sends him a confirmation email contain the login username and password, after five working days the employee affairs secretary call him for hiring interview. Based on the filled C.V and the interview

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results the department classifies the applicant in one of five categories which are: trainer, part time employee, full time employee, consultant or rejected.


A trainer has a poor C.V and an average interview result, his salary paid hourly (\$13 per hour). A part time employee has a good C.V and good interview result; his salary paid monthly without intensives. A full time employee has an excellent C.V and high interview result, his salary paid monthly with intensive. A consultant has an outstanding C.V and super interview result and has a more than 7 years work experience; his salary paid as a special contract. A rejected applicant has poor C.V and low interview result.

The classified applicants are then assigned to projects and services department which deals with local and governmental customers. The department involves three types of projects which are: enterprise projects, mid-size projects, small-size projects. Every project has manager and four members, a manager can be a manger for only one project and a member in more than one project. The small-size project consists of: full time employee as project manager, one part time employee as project member and three trainers as project members. The mid-size project consists of: full time employee as project manager, two full time employee as project members and one part time employee as project member and one trainer as project members. The enterprise project consists of: consultant as project manager, three full time employees as project members and one part time employee as project members.

Every six months the employees' affairs department grants an award of achievement for high performance employee. If a trainer granted this award and has been worked in three projects then he will be upgraded to be a part time employee. If a part time employee granted this award and has been worked in five projects then he will be upgraded to be a full time employee. If a full time employee granted this award and has been worked in ten projects then he will be upgraded to be a consultant. Any employee except trainer can be retired at age 60

(To answer the following questions, ***add any needed requirements***)

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1. Draw the domain model of SuperVision
2. Draw a class diagram for SuperVision
3. Draw an object diagram for SuperVision
4. Draw a use case for employee affairs
5. Draw a sequence diagram for assigning job to an applicant
6. Draw a communication diagram for assigning job to an applicant
7. Draw a complete activity diagram for classifying applicants
8. Draw a state chart diagram for SuperVision employee
9. Draw a component diagram for SuperVision
10. Draw a deployment diagram for Supervision
11. Draw ER diagram for SuperVision
12. Implement classifying applicant method in java
13. Implement the relation between project, project manager, project member in java

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Midterm Exam

(20 Points)

- List and explain the activity , input and output of the seven phases of the systems development life cycle

Best of Luck

"النجاح فى الحياة لا يأتى مصادفة... ولكنه نتيجة تخطيط وجهد، فإن اردت ان تتنبأ بمستقبلك فقم ببنائه الآن... وكل نجاح عظيم بدأت شرارته الأولى بقرار" د.ابراهيم الفقي