



King Saud University
College of Computer and Information Sciences
Computer Science Department

	Course Code:	CSC 342	
	Course Title:	Software Engineering	
	Semester: 1	Fall 2015	
	Exercises Cover Sheet:	Solution Midterm 1	2 h
Student Name:		
Student ID:		
Student Section No.		
Tick the Relevant	Computer Science B.Sc. Program ABET Student Outcomes	Question No. Relevant Is Hyperlinked	Covering %
	a) Apply knowledge of computing and mathematics appropriate to the discipline;	-----	-----
√	b) Analyze a problem, and identify and define the computing requirements appropriate to its solution	2 – 3 - 4	80%
√	c) Design, implement and evaluate a computer-based system, process, component, or program to meet desired needs;	-----	-----
√	d) Function effectively on teams to accomplish a common goal;	-----	-----
√	e) Understanding of professional, ethical, legal, security, and social issues and responsibilities;	1	20%
	f) Communicate effectively with a range of audiences;	-----	-----
	g) Analyze the local and global impact of computing on individuals, organizations and society;	-----	-----
	h) Recognition of the need for, and an ability to engage in, continuing professional development;	-----	-----
√	i) Use current techniques, skills, and tools necessary for computing practices.	-----	-----
	j) Apply mathematical foundations, algorithmic principles, and computer science theory in the modeling and design of computer-based systems in a way that demonstrates comprehension of the tradeoffs involved in design choices;	-----	-----
√	k) Apply design and development principles in the construction of software systems of varying complexity;	-----	-----
√	General Question	-----	-----

Exercise 1: *Ethic and Professional Issues (3 points)*

1. Choose the correct option in terms of Issues related to professional responsibility
 - a) Confidentiality
 - b) Intellectual property rights
 - c) Managing Client Relationships
 - d) Both a & b
2. Identify an ethical dilemma from the situations mentioned below:
 - a) Your employer releases a safety-critical system without finishing the testing of the system.
 - b) Refusing to undertake a project.
 - c) Agreement in principle with the policies of senior management.
3. Identify the correct statement: "Software engineers shall"
 - a) act in a manner that is in the best interests of his expertise and favor."
 - b) act consistently with the public interest."
 - c) ensure that their products only meet the System Requirement Specification."
 - d) none
4. Select the incorrect statement: "Software engineers should"
 - a) not knowingly accept work that is outside your competence."
 - b) not use your technical skills to misuse other people's computers."
 - c) be dependent on their colleagues."
 - d) maintain integrity and independence in their professional judgment."

Answer:

1	2	3	4
d	a	b	c

Exercise 2: *Process Model (2.5 marks)*

1. Which one of the following models is not suitable for accommodating any change?
 - a) Spiral Model
 - b) Prototyping Model
 - c) Incremental Model
 - d) Waterfall Model
2. What is the major advantage of using Incremental Model?
 - a) Customer can respond to each increment

- b) Easier to test and debug
 - c) It is used when there is a need to get a product to the market early
 - d) Both b & c
3. Risk assessment is considered in which of the following software process models?
- a. Spiral model
 - b. Rational Unified Process
 - c. Incremental development
 - d. Waterfall model

Answer:

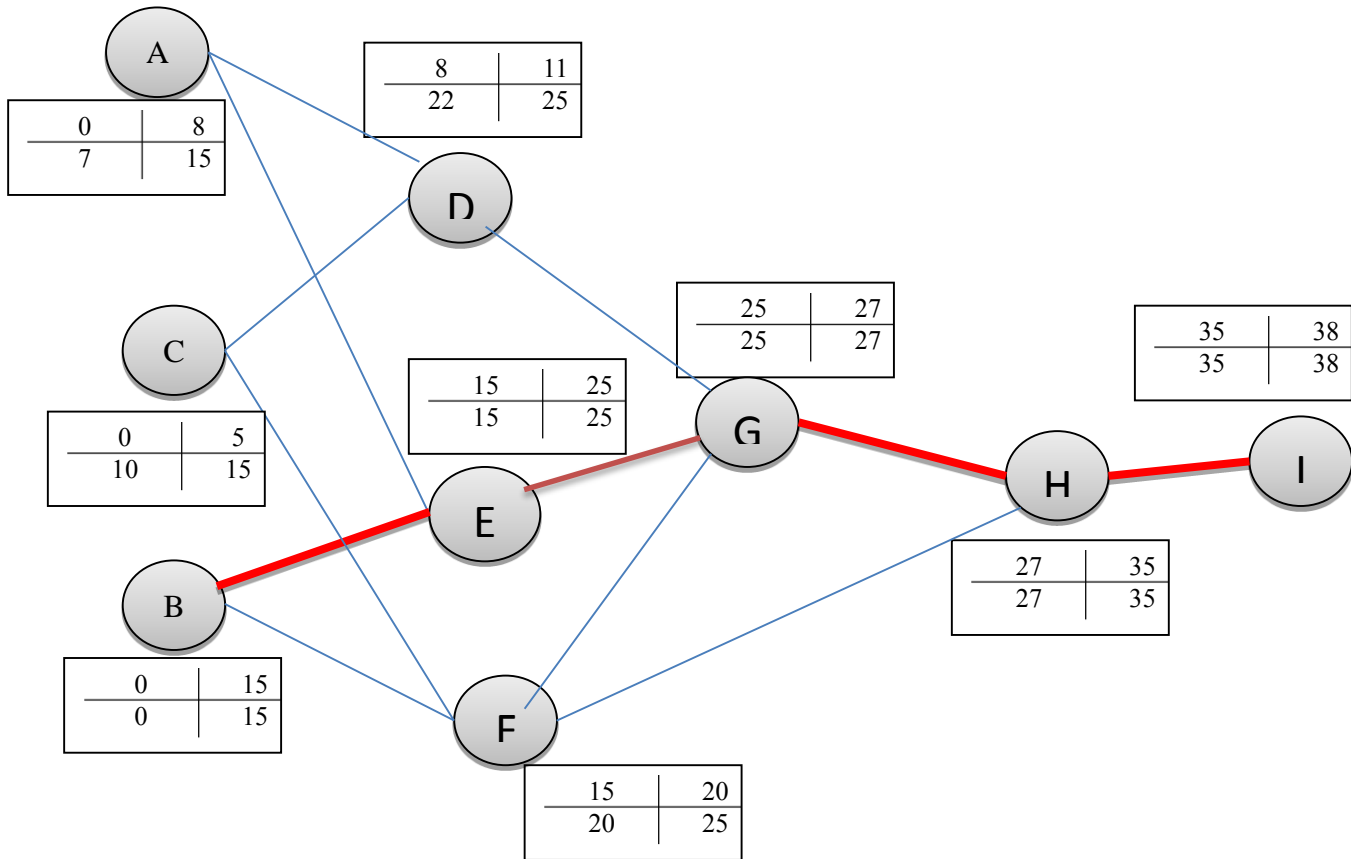
1	2	3
d	d	a

Exercise 3: *Software Project Management (3.5 points)*

The following table shows the estimated activity duration and pre-requisites for a project development.

Task	Duration (Week)	Precedence
A	8	-
B	15	-
C	5	-
D	3	A,C
E	10	A,B,C
F	5	B,C
G	2	D,E,F
H	8	F,G
I	3	H

1. Draw the network activity diagram and find the earliest and the latest start/finish time for each activity?



2. If activity F is delayed by 3 weeks, will the project completion time be affected? Justify your answer.

No. F is not a critical task, and we can delayed this task 5 weeks.

3. If activity E is delayed by 2 weeks, will the project completion time be affected? Justify your answer.

E is a critical task.

4. Identify critical path(s).

B E G H I

Exercise 4: Object Oriented Analysis (6 points)

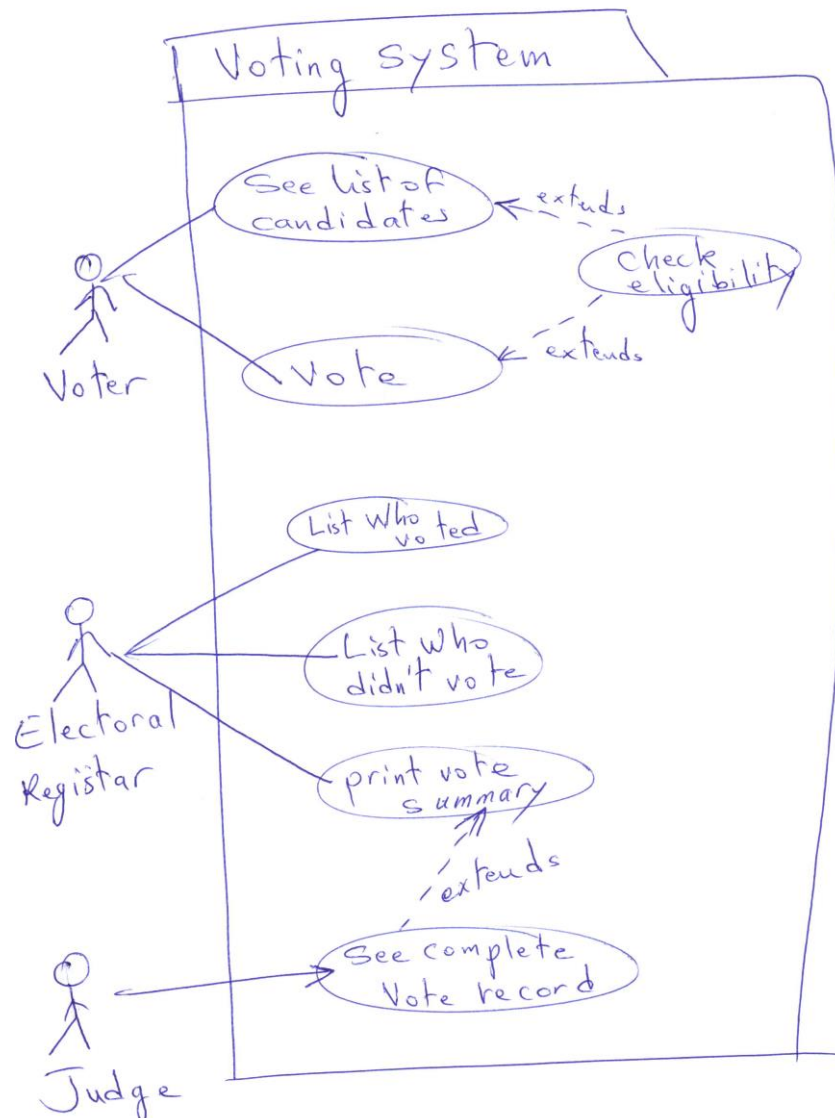
- What are the two main goals of OO analysis?
- Which of the following statement is FALSE about use cases?
 - Use case can be used for product testing.
 - A use case is an interaction between a user and a system.
 - Use cases describe the structure of the system.
 - Use cases provide the basis of communication between clients and developers in early phase.

3. What is a use case description?

Answer:

1. - Understand the customer's requirements
- Describe problem domain as a set of classes and relationships
 2. a and c
 3. Use case text provides the detailed description of a particular use case
4. **Draw a Use Case Diagram for a voting machine**, on which voters can see a list of candidates and select one to vote for. The machine should check that each voter is eligible to vote. The electoral registrar will also want to print a summary of the total votes for each candidate, and (separately) a list of the voters who have voted, and a list of those who haven't. In case of a dispute, the machine should also list a complete record of who voted for whom, but only a judge can use this function.

Answer:



Result					
Question No.	Relevant Student Outcome	SO is Covered by %	Full Mark	Student Mark	Assessor's Feedback
1	e	20%	3		
2	b	16.5%	2.5		
3		23.5%	3.5		
4		40%	6		
Totals		100%	15		
<p>I certify that the work contained within this assignment is all my own work and referenced where required.</p> <p>Student Signature: _____ Date: _____</p>					<p>Feedback Received:</p> <p>Student Signature: _____ Date: _____</p>