


## Solution Midterm 1:

		<h1>King Saud University</h1> <p>College of Computer and Information Sciences Computer Science Department</p>		
		Course Code:	CSC 342	
		Course Title:	Software Engineering	
		Semester:	Spring 2016	
		Exercises Cover Sheet:	Solution Midterm 1	1hour 30 mn
Student Name:	.....			
Student ID:	.....			
Department Name:	.....			
Tick the Relevant	Computer Science B.Sc. Program ABET Student Outcomes	NCAAA Outcomes	Question No. Relevant Is Hyperlinked	Covering %
	a) Apply knowledge of computing and mathematics appropriate to the discipline;	1.1	-----	-----
√	b) Analyze a problem, and identify and define the computing requirements appropriate to its solution	2.1	Ex. 2-3	50%
√	c) Design, implement and evaluate a computer-based system, process, component, or program to meet desired needs;	2.2	-----	-----
√	d) Function effectively on teams to accomplish a common goal;	3.1	-----	-----
√	e) Understanding of professional, ethical, legal, security, and social issues and responsibilities;	1.2	4	33.5%
	f) Communicate effectively with a range of audiences;	4.1	-----	-----
	g) Analyze the local and global impact of computing on individuals, organizations and society;	2.3	-----	-----
	h) Recognition of the need for, and an ability to engage in, continuing professional development;	2.4	-----	---

√	i) Use current techniques, skills, and tools necessary for computing practices.	1.3	-----	----
	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;	1.4	-----	-----
√	k) Apply design and development principles in the construction of software systems of varying complexity;	1.5	-----	-----
√	General Question	-----	1	16.5%

*This exam comprises 4 exercises. Make sure you read each exercise carefully before attempting an answer. Be sure to clearly indicate your final answer for each exercise. Also, be sure to state any assumptions that you are making in your answers.*

Good luck!

### **Exercise 1: (General) (2.5 points)**

Answer with True (T) or False (F)

- Design is often referred to as the “what” of the system and requirements as the “how”.
- One of the goals of specifying requirements is to be able to control the production and development of a system.
- The project planning is not a static document, it is frequently adjusted to make the project appear on track to meet all deadlines and quality targets.
- The Spiral model of software development is of iterative nature.
- Validation is often referred to ask “are we building the right product” and the Verification “are we building the product right”.

**Answer:**

a	b	c	d	e
False	True	True	True	True

### **Exercise 2: (Functional and Non Functional requirement) (2.5 points)**

*For the five requirement statements below, indicate what type of requirement it is, Functional (F), or Non Functional (NF).*

- A user shall be able to search the appointments lists for all clinics.

- b. The system shall generate each day, for each clinic, a list of patients who are expected to attend appointments that day.
- c. Each staff member using the system shall be uniquely identified by his or her 8-digit employee number.
- d. Customer can transfer money throw the website of bank.
- e. The system shall be developed for PC and Macintosh platforms.

**Answer:**

a	b	c	d	e
F	F	F	F	NF

**Exercise 3: (Process Model) (5 points)**

A software engineer is assigned to a new client who needs software application for GPS enabled Nokia mobiles. The basic functionality of the application is to inform the user about its current location with voice and text. For an example if user is in “Olaya” Street and he wants to get the information about his current location. This application will give this information by displaying text “You are in Olaya Street” and by pronouncing this text. After analyzing the requirements, Software Engineer comes to know that library (component) that accesses the GPS receiver to get the position coordinates is provided by Nokia. Also the component that receives coordinates and gives the location information in text form, is available for free by some third party. Moreover, a library that coverts text to speech is also available for developers.

*Which process model is the appropriate one to choose in above situation? Justify your answer by giving the reason.*

**Answer:**

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## Component-Based Software Engineering

### **Exercise 4:** (*Ethic*) (5 points)

A computer company is working on an integrated control system for a national medicine manufacturer. The system will gather sales information daily from drugstores nationwide. This information will be used by the accounting, shipping, and ordering departments to control all of the functions of this large corporation. A quality assurance software engineer suspects that the auditing functions of the system are not sufficiently tested, although they have passed all its contracted test suites. He is being pressured by his employers to sign off on the software. His employers say they will go out of business if they do not deliver the software on time. He signs off.

1. Is there a violation of the software code of ethics?
2. If yes, give the Code of Ethics that justifies your answer.

### **Answer:**

**1.03, 3.10**