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| Course Code: IT 320 | Final Exam | | |
| Course Title: Practical Software Engineering | | | |
| Semester: Second 1441 H/ Spring 2020 | | | |
| Answer Sheet | | | |
| Student Name: | | | |
| Student ID: | | | |
| Section No. | | | |
| Section Time: | | | |
| Student Serial No: | | | |
| | | | |
| Course Learning Outcomes | Question No | Points | Student's Points |
| Requirements Engineering | 1 | 5 | |
| Software Testing | 2 | 5 | |
| Architectural design | 3 | 5 | |
| Component-level design | 4 | 5 | |
| Total Points | | 20 | |

Choose any one of the Apps in the attached document (حول على التقنية) or any other software application you are familiar with, and answer the following questions based on your **chosen App**.

| | |
|------------------------------|--|
| Chosen App Name | |
| Description of the App | |
| Why did you choose this App? | |

Question-1

Write **three** functional requirements, and **two** non-functional requirements.

Functional Requirements

1.

2.

3.

Non-Functional Requirements

1.

2.

Question-2

Write 2 test cases for each of the functional requirements you have provided in Question-1.

Requirement 1:

| Test Case No. | Test Case Description | Test Case Data |
|---------------|-----------------------|----------------|
| 1 | | |
| 2 | | |

Requirement 2:

| Test Case No. | Test Case Description | Test Case Data |
|---------------|-----------------------|----------------|
| 1 | | |
| 2 | | |

Requirement 3:

| Test Case No. | Test Case Description | Test Case Data |
|---------------|-----------------------|----------------|
| 1 | | |
| 2 | | |

Question-3

- A. Draw an **architectural diagram** that best describes your system.
Use one of the architectural patterns we discussed in class to help you design your architecture.
Remember that more than one pattern can work well for a given system.

Your diagram needs to show each of the following elements:

- The main subsystems or components of your system and their interactions (*you can come up with any set of components*).
Do not forget to label each component (for example, client, server, presentation layer, ...).
- The system user (or users).
- Any external systems that your system may collaborate with.

- B. Which architectural pattern did you use to develop your architectural design in Question-3-A. Why?
- C. List one advantage and one disadvantage of the pattern you selected (as discussed in class).

Question-4

- A. Draw a UML class diagram that shows **three objects only** from your system. Your diagram needs to show:
- At least two attributes in each object.
 - At least two methods in each object.
 - The visibility of each attribute and method.
 - The relationships between the objects, their types, and multiplicities. Do not forget to label your relationship links.
- B. Choose **one method** in your class diagram above. Write a **pseudocode** **or** draw a **flowchart** that describes the method (no need to do both).

*** End of exam ***