United International University (UIU)

Dept. of Computer Science & Engineering (CSE)

Mid Term Exam Trimester: Spring 2023 Marks: 30 Time: 1 Hr 45 mins

Code: CSE 3411 Course Title: System Analysis & Design

"Any examinee found adopting unfair means will be expelled from the trimester / program as per UIU disciplinary rules."

Answer the following questions:

1. a) Define a System with respect to software development perspective. Depict a typical system to show the major components, usually expected features/areas, for proposed **"UIU Online Exam Management System - eExam**". 3

   b) Prototyping SDLC could be helpful for small and evolving software project development – justify it. 3

   [CO1]

2. Suppose you are working in a software development company and your company has decided to develop a **Software Application – eExam,** mentioned in question 1(a). Answer the followings:

   a) Mention the major sources of information you should explore from an information gathering perspective. Justify the purposes/objectives for selecting the different sources of information gathering. 4

   b) Shortly brief on the major steps needed to follow for finalizing the feature list of **eExam** software. Mention the purposes/objectives of different steps. 4

   [CO2]

3. Mention the purposes of different types (at least three) of Feasibility Analysis required before developing any software product, for commercial purposes, like **eExam**. 4

   [CO4]

4. Consider the following scenario and write down the answers of the questions mentioned as follows:

   A pharmaceutical company is looking to create a system to manage their drug development process. When a researcher logs in, they are prompted to choose which project they are working on. If they are new to the project, they must create a new profile and provide information such as their name, position, and areas of expertise. All information on researchers and their experiments should be stored in a data table. Once a researcher has logged in, they can create or edit drug development protocols, which should also be stored in a data table. Once a protocol is created, the system generates a unique identifier for the drug development project and prompts the researcher to input data. The data is stored in a separate data table and linked to the project identifier. The

system should be able to display the progress of experiments, showing which experiments are ongoing and which have been completed.

The drug development process involves multiple stages and each stage may require multiple experiments. To handle this, the system prompts the researcher to enter data for each experiment in a given stage until all the required experiments have been completed. Then the system should automatically move to the next stage of the development process. Once a stage of **drug development is complete**, the researcher should be able to generate a report on the results of the experiments for that stage. The report should be stored in a data table and linked to the project identifier. The system should also be able to generate reports on the progress of drug development projects, showing which stages have been completed and what the results were. The progress reports are then presented to the project manager of the project. The project manager analyzes the reports with the stakeholders, business team and the drug safety committee of the company and then forwards the development reports to FDA for approval. If the approval is not met, then the researcher has to redesign and experiment certain stages of the experiment for the drug to work.

a) Draw the Use case diagram for the above scenario (show at least **one extend or one include** relationship in the diagram). 4

b) Write down the descriptive form of **a major use case** shown in the use case diagram for the above scenario. 4

c) Draw a DFD diagram for the approval process of FDA **after drug development process** completed. 4

[CO3]