BIRLA INSTITUTE OF TECHNOLOGY AND SCIENCE, PILANI
FIRST SEMESTER 2022-23
CS/SS G514 OBJECT ORIENTED ANALYSIS AND DESIGN
MID SEM TEST (CLOSED BOOK)

DATE : 02-11-22 **TIME : 04:00-05:30PM** **MARKS:25**

Instructions : 1. Write precise and to the point answers.

1. State the key ideas and best practices that manifests in the elaboration phase of Unified Development Process Model. Mention the artifacts refined during this phase. [4]

[Estimated Time : 05-10 mins]

2. What do you mean by a valid use case? How do you test it? Discuss all different techniques with a valid example. [3]

[Estimated Time : 05-10 mins]

3. Consider the following scenario from a Use Case:

Consider the Indian Scenario for elections, where a voter is going to cast his vote to a particular candidate belong to a particular party. There are a number of parties participating in the election. Electronic voting machine is being used for the elections. There are a number of users of the voting machine (super user, voter, constituency in charge). Your system is in district head quarter. You have to control the elections from here. There are a number of constituencies in a district. Only one voter may cast at a time, only if no other voter is waiting ahead of him to cast a vote; otherwise the voter waits. Each vote must result in a confirmation from the system. At the end of the session, the system creates a log entry and issues an informative statement.

(A) Derive all Customer and Developer requirements for the above scenario using Use –Case Technique. Present them in proper format (Text, Diagrams). [*5*]

(B) Draw a neat, labeled System Sequence Diagram (SSD) for the above scenario. Clearly indicates all the system responses. [*3*]

[Estimated Time : 25-30 mins]

4. Draw a complete activity diagram for the below use case. [10]

In this use case three actors are involved: customer, developer, and analyst. The use case is subdivided into four phases: inception, elaboration, construction, and transition. In the inception phase the customer establishes the business rationale for the project and decides on the scope of the project. If the risks for the project are too high and the benefits seems to be too low, the project is canceled.
Elaboration is the phase where the analyst collects more detailed requirements in use case diagrams, does a high-level analysis using activity diagrams, class diagrams, and interaction diagrams, and designs a baseline architecture using advanced class diagrams and state diagrams, and create the plan for construction. Therefore, he asks the customer for his requirements, and the customer responds. The analyst captures the requirements in requirements documents, which have to be reviewed by the customer. This questionnaire is repeated until all requirements are captured and reviewed.
Construction is an iterative and incremental process. In each iteration the developer builds production-quality software prototypes, tested and integrated as subset of the requirements (captured as use cases) of the project. Note that certain prototypes may be built in parallel and integrated later on - depending on the requirements (overlapping use cases block the parallel build process).
Transition contains beta testing by the customer, giving feedback to the developer, performance tuning by the developer (done in parallel to beta testing), and user training from the developer for the customer (also done in parallel). If the tests reveal no more errors, the performance is sufficient, and all users have reached a certain skill level, the software development process ends - and gives way for our second use case: Software maintenance!

[Estimated Time : 20-25 mins]

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