

SOFTWARE ENGINEERING LABORATORY

Total marks:20

To be completed in the lab and submitted for evaluation.

Question-1	To identify the role of software in today's world across a few significant domains.
<p>Problem Description: Software is part of our daily life, identify the areas (or application or systems) how software has been leveraged extensively in the following domains</p> <ol style="list-style-type: none">Health Care In the healthcare industry software can be used to store patient details, prescriptions, treatment details and also doctors details etc. They can keep track of patients admitted to the hospitals at that point of time and use such details for billing etc.Airlines In the Airline industry we can keep track of flights arrival times, departure times, bookings of tickets, customer details, used also for check in etc.Banking Insurance In banking insurance the customer details, the principal amount, time period, rates are stored to calculate total amount etc.Retail Industry In the retail industry it is extensively used to maintain and update inventory.Education In the education industry software is used to maintain various databases for keeping details of students, teachers, administrators. Software can be used to generate fee details of a student, salaries of teachers updates marks of students etc. <p>Specify any one application and its role for each of the above specified domain's</p> <p>Answer the following Questions:</p> <ol style="list-style-type: none">Define software. A software is a system or a product developed to cater to a clients need. It is developed to efficiently carry out tasks chalked out by the client.Give different example software's The example of software include gmail (mailing application), Library management systems and reservation systems.Give the Importance of software in human life Software is very essential for daily life in today's digital world. From taking attendance to bio metrics, checking for traffic updates, submitting assignments and attending classes software has become a part and parcel of our lives.List any future expected software's The digital era has been progressing at a rapid phase, at each stage the products released are a better version of the previous one. In the future we can expect software's such as a smart supermarket bucket- where once you pick an item from the shelf and place it in your bucket the total cost is automatically deducted from your linked account. This avoids the hassle of waiting in queues for billing, another example is a smart refrigerator that is automatically orders groceries from online stores such as big basket when the groceries are running low.	
Question-2	To identify the problem related to software crisis for a given scenario
<p>Problem Description: For each below mentioned scenarios, identify the most appropriate problem related to software crisis based on the given options (map the problems related to software crisis to the given scenarios)</p> <ol style="list-style-type: none">Time SlippageFailure at customer SiteCost SlippageIntractable Error after delivery	

Scenario A: Airline reservation software was delivered to the customer and was installed in one of the airports at 12.00 AM (mid-night) as per the plan. The system worked quite fine till the next day 12.00 PM (noon). The system crashed at 12.00 PM and the airport authorities could not continue using software for reservation till 02.00 PM. It took two hours to fix the defect in the software.

Scenario B: A polar satellite launch vehicle was scheduled for the launch on October 16th. The auto-pilot of the rocket to be delivered for integration of the rocket on July 16th. The design and development of the software for the auto-pilot more effort because of which the auto-pilot was delivered for the integration on August 16th (delayed by a month). The rocket was launched on November 16th (delayed by a month).

Scenario C: Software for financial systems was delivered to the customer. Customer informed the development team about a mal-function in the system. As the software was huge and complex, the development team could not identify the defect in the software.

Scenario D: Due to the defect in the software for the baggage handling system. There was a loss of 2M Dollars of revenues for the airport authorities.

Scenario	Software Crisis
A	Failure at customer site
B	Time Slippage
C	Intractable error after delivery
D	Cost Slippage

Answer the following Questions:

- What do you mean by software crisis
A software crisis is a critical error in the software that leads to failure to adhere to clients need or failure in proper execution of use cases.
- Give an example of an error in any software
An example of software error is network error, buffer overflow error
- List any software failure feature
- What do you mean by a project
A project includes a series of steps from the inception of the software development that is the requirements specification stage until the testing/debugging and implementation stage.
- Differentiate between a process and a project
A process is a single step out of many that is useful for final culmination of a project.
The project is a series of processes that is useful in delivering an end product to prospective clients.

Question-3

To identify the various requirements development activities viz. elicitation, analysis, specification and verification for the given scenarios

Background: Requirement engineering produces a specification of what a system should do. The intention of requirement engineering is to provide a clear definition of requirement of the systems. This phase is a very important phase because, if the customer requirements are not clearly understood, the ambiguity can get into the other phase of the development. To avoid such issues, requirement has to be elicited using the right elicitation techniques, to be analyzed effectively, specified clearly and verified thoroughly.

All activities are collectively termed as requirement development activities.

Problem Description: Identify the requirement engineering activities associated with each of the following scenarios.

- Akshay is creating an online survey questionnaire for inviting user feedback on the desired features of the application to be developed.
- Vipin is preparing a document which is formal to include all the desired features identified by the survey.
- Bob is identifying all scalability related requirement, security related requirements and performance related requirements from other requirements.
- Rama a team member is sent to client location to observe the business and collect specific requirements of the user.
- Mark as a team member is working on requirements elicited to ensure that they should not be vague

and unclear.

- f. Ana is conducting a facilitated meeting to prompt the requirements with the stakeholders.

Scenario	Requirement Development Activities
A	Analysis
B	specification
C	specification
D	analysis
E	verification
F	elicitation

Answer the following Questions:

1. Define a requirement.
A requirement is the specific need of the customer that needs to be satisfied.
2. Give an example for a requirement.
Example of requirement is Login when you want to access any software. You can login as admin, customer, service provider.
3. List the classifications of the requirements.
The two main categories are functional and non functional requirements.
4. Define non functional requirements
Non Functional requirements are requirements that are useful but not necessary.

Question-4

To exhibit skills on modeling concepts learnt using design tool – Use Case Diagram

Identify the use cases and actors for Supermarket System and depict it with a Use Case diagram:

Supermarket: A supermarket needs to develop the following software to encourage regular customers. For this, the customer needs to supply his/her residence address, telephone number, and the driving license number. Each customer who registers for this scheme is assigned a unique customer number (CN) by the computer. A customer can present his CN to the checkout staff when he makes any purchase. In this case, the value of his purchase is credited against his CN. At the end of each year, the supermarket intends to award surprise gifts to 10 customers who make the highest total purchase over the year. Also, it intends to award a 22 caret gold coin to every customer whose purchase exceeded Rs.10,000. The entries against the CN are the reset on the day of every year after the prize winners' lists are generated.

Actors:

- 1) Supermarket
- 2) Customer
- 3) Computer

