Name of Subject	Business Enterprise Application	Subject Code	IT-14701
Batch	2014 and onwards	Class	D4IT A and B

Section-A (2 Marks)

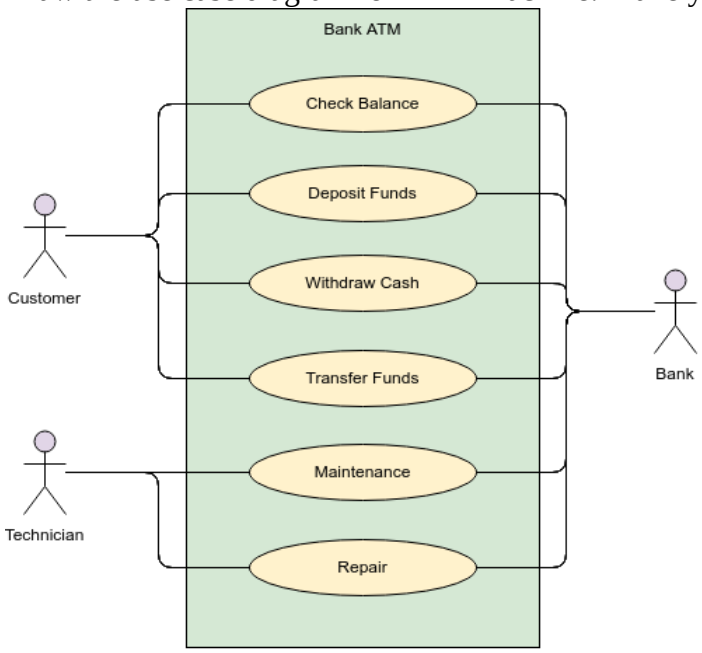
1. Define an Enterprise Application?
2. What are Software Engineering methodologies?
3. Who are Enterprise Applications Stakeholders?
4. Identify Ingredients of Enterprise Application?
5. Define term relational design.
6. Describe the role of actor in use case model.
7. How requirements validation is done?
8. What is ERP?
9. How communication protocols work?
10. Outline different technical layers in a business application.
11. What is user acceptance testing?
12. What is code coverage?
13. How Success of Enterprise Applications is measured?
14. Outline knowledge and skill areas required to raise enterprise applications
15. What do you mean by Requirement Elicitation and Analysis?
16. Name different tools to create use case diagrams?
17. Differentiate Functional and Non Functional Requirements?
18. Describe TOGAF framework?
19. Illustrate design Elements in Architecture?
20. Define a construction plan?
21. Differentiate Service Choreography and Orchestration
22. Eleborate SOA?
23. Define XML?
24. Role of Middleware
25. Define the term Skill requirement?
26. Define Enterprise Reporting?
27. What is Meta model?
28. Purpose of use case modeling?
29. Discuss software construction maps.
30. How usability testing is done?
31. Differentiate the term BPMN and BPEL in Business Enterprise Application?
32. How code analysis is different from code profiling?
33. Analyze the role of ETL and ELT in Enterprise Application?
34. What does Enterprise Application Integration (EAI) mean?
35. List challenges met by EAI?
36. What is a deployment strategy?
37. Differentiate Static and dynamic Web services.
38. What is the benefit of integration of legacy system with enterprise application?
39. Discuss the tools required for use case modeling.

40. Explain the use of XML in application development.
41. What is the role of communication protocol in networking and internetworking.
42. Define version control in software configuration management.
43. Discuss the role of user acceptance testing towards the quality of an application.
44. Briefly discuss the different methods of requirement elicitation.
45. What is BPMN?

46. Point out the key activities that constitute an enterprise analysis.
47. Indicate the various difficulties with use cases.
48. What is the significance of non-functional requirements of an enterprise application?
49. Compare view with view point with reference to architecture description.
50. Specify the various elements that constitute building block of infrastructure architecture.
51. Define Construction of an enterprise application.
52. What is meant by logging?
53. Orchestration is all about recursive composition of services .comment.

Section-B (5 Marks)

1. Categorize messaging based integration and discuss message structure.
2. Explain in detail about Enterprise service bus-routing.
3. Illustrate the concept of construction of enterprise applications in detail.
4. Differentiate the term Choreography and Orchestration? How they are associated with web services?
5. Draw the use case diagram for ATM machine. Make your own assumptions.



6. Identify primary goals for architectural documentation?
7. Discuss different tools for documentation.
8. What are different types and methods of testing an enterprise application,

9. How functional and non-functional requirements for enterprise applications are analyzed?
10. What are different stages in raising an enterprise application? Explain.
11. Draw a use case diagram of University registration System? Appropriate assumptions may be taken.
12. Key Characteristics & Applicability of Software Engineering Methodologies
13. What are Challenges in Business Enterprise Applications?
14. Discuss Life Cycle of Business Enterprise Application?
15. Discuss skill requirements to build an Enterprise Application
16. Explain the concept of Software Construction Maps.
17. Design a use case model for an inventory control of an industry of an industry /organization.
18. Explain different types of testing methods for testing an enterprise application.
19. What is the need of different technical layers to design an enterprise application?
20. How planning is different from the estimation?
21. Elaborate the loan management process of easy money bank as a case study.
22. Draw and explain theological architecture of an enterprises application.
23. Explain the steps involved in translation of design to code.
24. Discuss the various enterprise application environments and their purpose.
25. What are different methodologies of code review?
26. Differentiate static code analysis and dynamic code analysis?
27. Explain code profiling and code coverage.
28. What are different types and methods for testing an enterprise application?
29. Define Integration Testing, Performance Testing, Interface Testing, usability testing?
30. Discuss Advantages of Enterprise Application Testing?
31. Discuss different testing approaches?
32. Discuss different Integration Patterns?
33. Give situations where it would be sensical to use these constructs to structure your use case (take any example)
    <<include>>
    <<Extend>>
    specialization
34. What is an Enterprise Architecture Roadmap? What kind of information does it contain?
35. Give Architectural description of an enterprise.
36. Difference in Logical and Technical Architecture?
37. Discuss the role of Middleware in Enterprise Application Architecture?
38. What are phases of Inception of enterprise application?
39. What is Business Modelling? What are tools used for this?
40. Explain Java Messaging Service.
41. Explain Different technical layers in architecture.
42. Explain web service architecture in detail.
43. Requirement Analysis of ATM Machine Software.

Answer: *The software to be designed will control a simulated automated teller machine (ATM) having a magnetic stripe reader for reading an ATM card, a keyboard and display for*

interaction with the customer, a slot for depositing envelopes, a dispenser for cash (in multiples of $20), a printer for printing customer receipts, and a key-operated switch to allow an operator to start or stop the machine. The ATM will communicate with the bank's computer over an appropriate communication link.

The ATM will service one customer at a time. A customer will be required to insert an ATM card and enter a personal identification number (PIN) - both of which will be sent to the bank for validation as part of each transaction. The customer will then be able to perform one or more transactions. The card will be retained in the machine until the customer indicates that he/she desires no further transactions, at which point it will be returned - except as noted below.

The ATM must be able to provide the following services to the customer:

1. *A customer must be able to make a cash withdrawl from any suitable account linked to the card, in multiples of $20.00. Approval must be obtained from the bank before cash is dispensed.*
2. *A customer must be able to make a deposit to any account linked to the card, consisting of cash and/or checks in an envelope. The customer will enter the amount of the deposit into the ATM, subject to manual verification when the envelope is removed from the machine by an operator. Approval must be obtained from the bank before physically accepting the envelope.*
3. *A customer must be able to make a transfer of money between any two accounts linked to the card.*
4. *A customer must be able to make a balance inquiry of any account linked to the card.*

The ATM will communicate each transaction to the bank and obtain verification that it was allowed by the bank. In the case of a cash withdrawl or deposit, a second message will be sent after the transaction has been physically completed (cash dispensed or envelope accepted).

If the bank determines that the customer's PIN is invalid, the customer will be required to re-enter the PIN before a transaction can proceed. If the customer is unable to successfully enter the PIN after three tries, the card will be permanently retained by the machine, and the customer will have to contact the bank to get it back.

If a transaction fails for any reason other than an invalid PIN, the ATM will display an explanation of the problem, and will then ask the customer whether he/she wants to do another transaction.

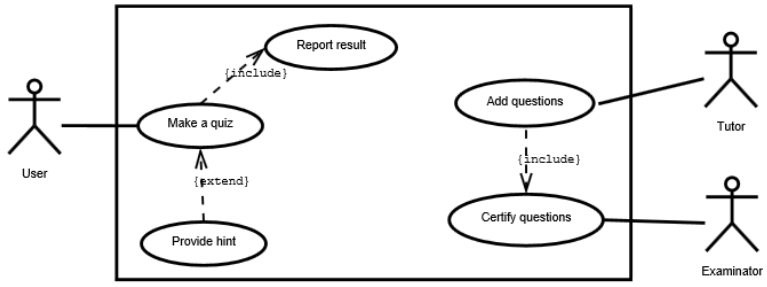
The ATM will provide the customer with a printed receipt for each successful transaction, showing the date, time, machine location, type of transaction, account(s), amount, and ending and available balance(s) of the affected account ("to" account for tranfers).

The ATM will have a an operator panel with a key-operated switch (located on the "inside the bank" side) that will allow an operator to start and stop the servicing of customers. When the switch is moved to the "off" position, the machine will shut down, so that the operator may remove deposit envelopes and reload the machine with cash, blank receipts, etc. The operator

will be required to verify and enter the total cash on hand before starting the system from this panel.

44. What are different viewpoints in blueprint of an Enterprise application? Draw the diagram for Logical viewpoint.
45. While developing an Enterprise Application, It goes through how many stages?
46. What are different viewpoints in blueprint of an Enterprise application? Draw the diagram for Logical viewpoint.
47. Do you know that it costs a lot of money to get a 'Certified Java Programmer' certificate? It could cost you thousands of euros. Let's imagine we will develop a browser-based training system to help people prepare for such a certification exam.
    A user can request a quiz for the system. The system picks a set of questions from its database, and compose them together to make a quiz. It rates the user's answers, and gives hints if the user requests it.
    In addition to users, we also have tutors who provide questions and hints. And also examinator's who must certify questions to make sure they are not too trivial, and that they are sensical. Make a use case diagram to model this system. Work out some of your use cases. Since we don't have real stake holders here, you are free to fill in details you think is sensical for this example.

Answer:



We'll assume multiple choice quiz.

Use case: Make quiz.
Primary actor: User
Secondary actors: -
Pre-condition: The system has at least 10 questions.
Post-condition: -
Main flow:
1. The use-case is activated when the user requests it.
2. The user specifies the difficulty level.
3. The system selects 10 questions, and offers them as a quiz to the user.
4. The system starts a timer.
5. For every question:
   5a. The user selects an answer, or skip. [Extension point]
6. If the user is done with the quiz, or the timer runs out, the quiz is concluded, and [include use case 'Report result'].

Use case: Provide hint
Primary actor: User
Secondary actors: -
Pre-condition: The user requests for a hint.
Post-condition: -
Main flow:
1. The system provides a hint. The verbosity of the hint is determined by the difficulty level set previously by the user.
2. Return to to Make quiz' main flow.

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48. Identify the Functional and Nonfunctional requirements for online fashion store.
49. What are key features of Web services

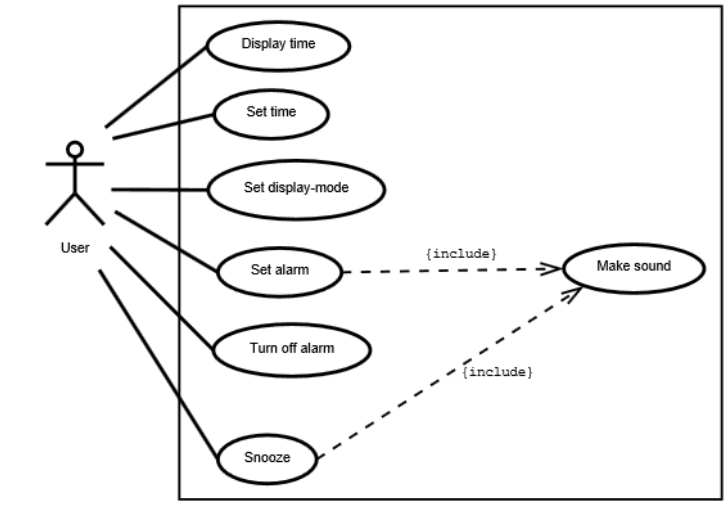
Section-C (10 Marks)

1. Discuss a case study of a small scale industry?
2. What are different components of Enterprise Architecture Framework? Explain Technical architecture.
3. What are various types of testing? Explain.
4. Discuss Synchronous and Asynchronous based Message integration.
5. Discuss the Case Study of EM Bank.
6. Discuss different Service oriented integration-Web services
7. What is the deployment strategy and documentation of application architecture?
8. Differentiate the term Choreography and Orchestration? How they are associated with web services?
9. What are the key determinants of successful enterprise applications?
10. Discuss Service Choreography and Orchestration
11. Why testing is used? Discuss various types and methods for testing an enterprise application.
12. a) Differentiate cohesion and coupling.
    b) Explain software engineering methodologies.
13. What is requirement elicitation? What are its steps? Also write various challenges faced during requirement elicitation.

14. Explain multilayer application architecture design in detail. What is the role of documentation in this?
15. Discuss in detail about various skills to build an enterprise application.
16. Discuss in detail Enterprise Service Bus.
17. Explain the concept of construction of enterprise applications in detail.
18. Explain various types of enterprise Applications and the methodologies used to develop them.
19. Explain how use cases are used for functional specification. Give example.
20. Make a use case diagram considering following statement

    Suppose we want to develop software for an alarm clock. The clock shows the time of day. Using buttons, the user can set the hours and minutes fields individually, and choose between 12 and 24-hour display. It is possible to set one or two alarms. When an alarm fires, it will sound some noise. The user can turn it off, or choose to 'snooze'. If the user does not respond at all, the alarm will turn off itself after 2 minutes. 'Snoozing' means to turn off the sound, but the alarm will fire again after some minutes of delay. This 'snoozing time' is pre-adjustable

Answer:



In this model 'make sound' is made as a separate use case. It does not have to.

- I assume that 'snooze' would be one of your use cases. Work it out to the fully dressed level.

Answer:

Use case: Snooze.
Primary actor: User
Secondary actors: -
Pre-condition: An alarm is firing.
Post-condition: -
Main flow:
1. The use-case is activated when the user hits the snooze button.
2. The alarm is turned off.
3. Wait for snooze time.
4. Include use case 'Make sound'

Use case: Make sound
Primary actor: System
Secondary actors: -
Pre-condition: -

Post-condition: -
Main flow:
The use case starts when it is called. What it does is to just make some noisy sound.

21. Write a short note on infrastructure architecture.
22. Explain the concept of software construction map.
23. a) Compare and contrast synchronous and asynchronous integration.
    (b) Explain service oriented architecture(SOA).
24. Explain the following:
    a) Blueprint of enterprise application
    b) Service Choreography and Orchestration.