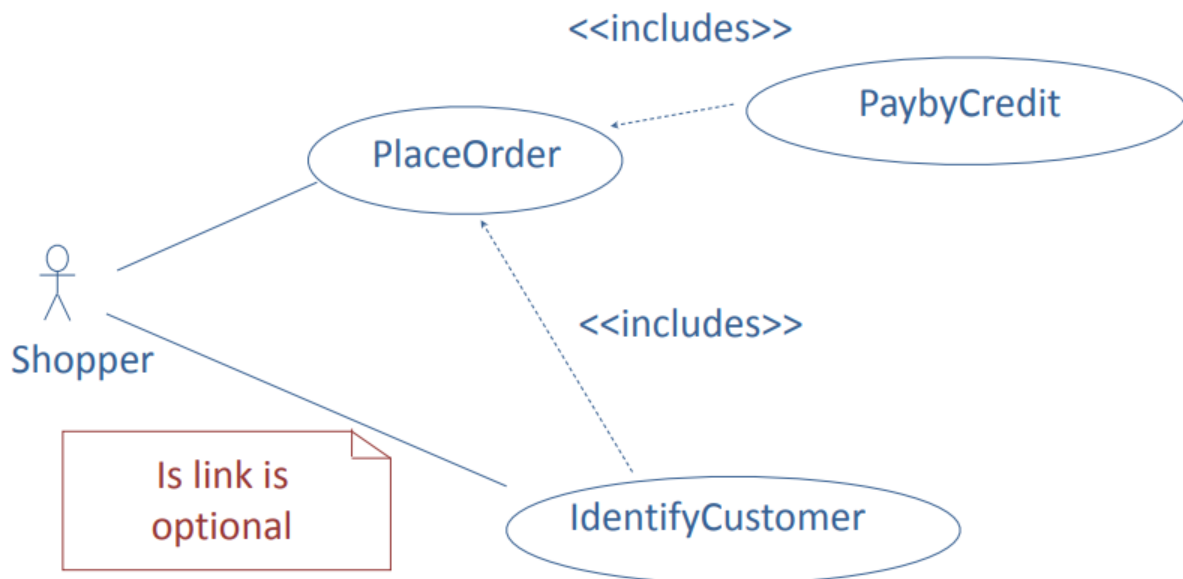


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ID	14994
Section	B
Program	BS SE
Class Timing	Mon 11:00 to 2:00
Subject	Software Engineering
Instructor	Eng.Ghassan Husnain

Question No 1: The pizza ordering system



Question No 2: Suggest how an engineer responsible

Answer:

Keeping track of the relationships between functional and non-functional requirements is difficult because non-functional requirements are sometimes system level requirements rather than requirements which are specific to a single function or group of functions.

One approach that can be used is to explicitly identify system-level non-functional requirements that are associated with a functional requirement and list them separately. All system requirements that are relevant for each functional requirement should be listed. They can also be related by including them in a table to explicitly identify the relationship

The engineer might make a list or draw a graph of some sort linking each functional requirement to one of more non-functional requirements necessary to implement the functional requirement, or vice versa. For example, if a system involved user logins and sessions, the engineer might draw a line between the functional requirement "A user shall be able to login to the system by entering his/her username and password" and the non-functional requirements "A particular user session should not last more than five hours" and "User password should be reset

every 150 days to ensure security,” to indicate that the two system requirements will have a direct effect on the user requirement.

Question No 3: To reduce costs and the environmental impact of commuting

Answer:

The **difficulties that may arise** with this policy if making employees work from home are:

- The benefits obtained through agile methods will be less effective.
- Communication gap between the members of a team The benefit of error detection and evaluation through pair programming is lost.
- Pair programming is not possible.
- Due to sudden changes in the teams, the project development may be slowed down.

The **measures that can be taken** to get around such difficulties are:

- Rather than completely closing some offices and asking people to work from home, employees can be moved to some offices and accommodated
Communication within the members of the team must be improved and must communicate regularly.

- Information regarding project should be shared and communicated.
- You could host group video meetings using software like Skype or Polycon to hold the daily stand up
- You could host group communication using software like Slack to hold the daily stand up meetings.
- Use software like JIRA for issue tracking and ticketing

Question No 4: Discover ambiguities or omissions ...

Answer:

Ambiguities and omissions include:

- Can a customer buy several tickets for the same destination together or must they be bought one at a time?
- Can customers cancel a request if a mistake has been made?
- How should the system respond if an invalid card is input?
- What happens if customers try to put their card in before selecting a destination (as they would in ATM machines)?
- Must the user press the start button again if they wish to buy another ticket to a different destination?

- Should the system only sell tickets between the station where the machine is situated and direct connections or should it include all possible destinations?

Question No 5: Using your knowledge of how an ATM is used

Answer:

There are a variety of different types of ATM so, obviously, there is not a definitive set of use cases that could be produced. However, I would expect to see use cases covering the principal functions such as withdraw cash, display balance, print statement, change PIN and deposit cash. The use case description should describe the actors involved, the inputs and outputs, normal operation and exceptions.

Withdraw cash:

- Actors: Customer, ATM, Accounting system
- Inputs: Customer's card, PIN, Bank Account details
- Outputs: Customer's card, Receipt, Bank account details

Normal operation:

The customer inputs his/her card into the machine. He/she is prompted for a PIN which is entered on the

keypad. If correct, he/she is presented with a menu of options. The Withdraw cash option is selected. The customer is prompted with a request for the amount of cash required and inputs the amount. If there are sufficient funds in his/her account, the cash is dispensed, a receipt is printed and the account balance is updated. Before the cash is dispensed, the card is returned to the customer who is prompted by the machine to take their card.

Exception:

- Invalid card. Card is retained by machine; Customer advised to seek advice.
- Incorrect PIN. Customer is request to rekey PIN. If incorrect after 3 attempts, card is retained by machine and customer advised to seek advice.
- Insufficient balance Transaction terminated. Card returned to customer.

