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MODULE: Bachelors {Software Engineering}

SUBJECT: Software Engineering

SEMESTER: 4

SECTION: B

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Q.1: The Pizza Ordering System

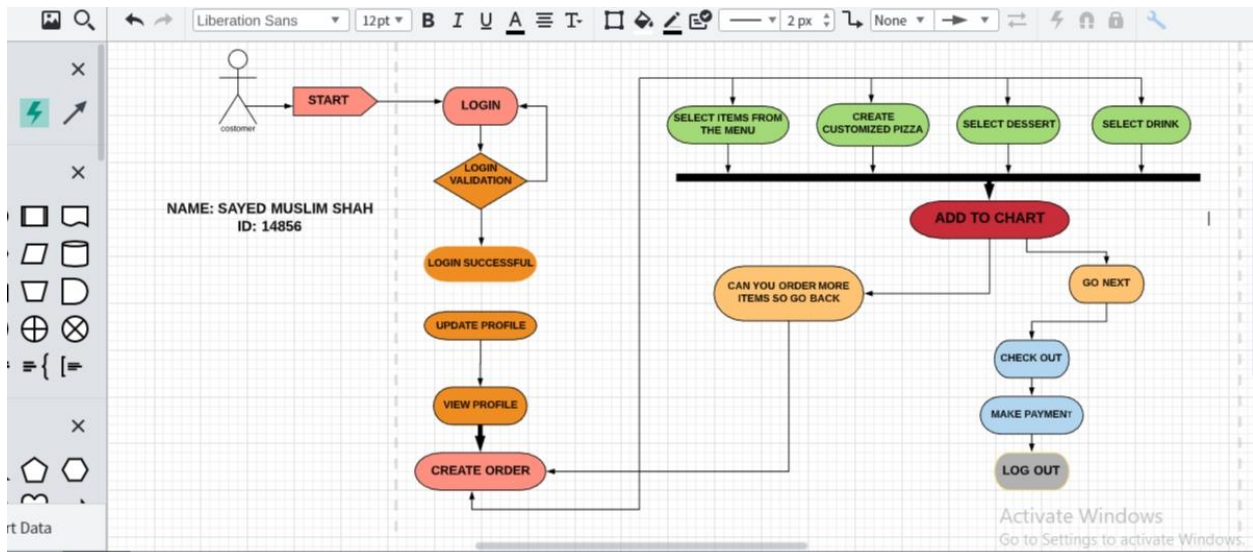
The Pizza Ordering System allows the user of a web browser to order pizza for home delivery. To place an order, a shopper searches to find items to purchase, adds items one at a time to a shopping cart, and possibly searches again for more items.

When all items have been chosen, the shopper provides a delivery address. If not paying with cash, the shopper also provides credit card information.

The system has an option for shoppers to register with the pizza shop. They can then save their name and address information, so that they do not have to enter this information every time that they place an order.

Develop a use case diagram, for a use case for placing an order, **Place Order**. The use case should show a relationship to two previously specified use cases, **Identify Customer**, which allows a user to register and log in, and **Pay by credit**, which models credit card payments.

ANSWER:



Q.2: Suggest how an engineer responsible for drawing up a system requirements specification might keep track of the relationships between functional and non-functional requirements.

ANSWER:

Engineer would have to make a Systems Requirements Document. An Engineer could provide documents for each functional and non-functional requirement. The Engineer should use natural language for non-functional requirements and structured language for functional requirements. The functional requirements are more for developer's eyes and to use. The non-functional requirements are what user wants and what they expect to get out of the software being developed. The engineer would also have to make sure that the non-functional requirements don't conflict with the functional requirements.

Q.3: To reduce costs and the environmental impact of commuting, your company decides to close a number of offices and to provide support for staff to work from home. However, the senior management who introduce the policy are unaware that software is developed using agile methods, which rely on close team working and pair programming. Discuss the difficulties that this new policy might cause and how you might get around these problems.

ANSWER:

If the company decided to close down a number of offices that were specialized in using agile methods they may face a multitude of difficulties. When a company is driven by a close team and is divided they will be unable to have daily meetings, which can cause issues with communication, programming in pairs would not be possible, a communication gap would be created, productivity will slow down due to communication issues, and detecting errors would be quite difficult. These problems can be avoided by creating merging offices together so pair programming and daily communication can be established. If that is not possible, a communication platform consisting of webcams, desktop viewing software, and microphones should be created to allow better communication.

Q.4: Discover difficulties/ ambiguities or omissions in the following statement of requirements for part of a ticket-issuing system:

An automated ticket-issuing system sells rail tickets. Users select their destination and input a credit card and a personal identification number. The rail ticket is issued and their credit card account charged. When the user presses the start button, a menu display of potential destinations is activated, along with a message to the user to select a destination. Once a destination has been selected, users are requested to input their credit card. Its validity is checked and the user is then requested to input a personal identifier. When the credit transaction has been validated, the ticket is issued.

ANSWER:

Ambiguities and omissions include:

- 1) Can a customer buy several tickets for the same destination together or must they be bought one at a time?
- 2) Can customers cancel a request if a mistake has been made?
- 3) How should the system respond if an invalid card is input?
- 4) What happens if customers try to put their card in before selecting a destination (as they would in ATM machines)?
- 5) Must the user press the start button again if they wish to buy another ticket to a different destination?
- 6) Should the system only sell tickets between the station where the machine is situated and direct connections or should it include all possible destinations?

Q.5: Using your knowledge of how an ATM is used, develop a set of use cases that could serve as a basis for understanding the requirements for an ATM system.

ANSWER:

The user inserts card into the reader. The ATM asks for PIN. User enters PIN correctly. The ATM displays user's bank information and user withdraws money. The ATM dispenses the money

The user inserts card into the reader. The card cannot be read. The ATM displays the error and ejects the card

The user inserts card into the reader. The ATM asks for PIN. User enters PIN incorrectly 5 times. The ATM alerts the bank of a possible stolen card.

