SWE 434
Software Testing and Validation

Assignment

(*10% of the Total Course Mark*)

Deadline: Thursday, 29th May 2023@12:00 PM.

Instructions:

- *It is a group assignment (4 students per group).*
- *A **softcopy** must be submitted through the **LMS***
- *Handwritten assignments will not be accepted.*
- *No late delivery of the assignment.*
- *Beware of Plagiarism: copying and handing in for credit someone else's work*
    - *Any plagiarism case will result in an automatic '0' for the Assignment.*

Questions/Student Outcomes: *This assignment covers/targets the following student outcomes (SOs):*

- ***SO (6)** -an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions*

Assignment Tasks	SOs	Mark	Student Mark
Task 1	SO(6)	4	
Task 2		4	
Task 3		2	
Total		10	

#1	Student Name: reem alshareef
#2	Student Name : laila almakrami
#3	Student Name : Abeer Alshaya
#4	Student Name : mais Alkhatib

Consider the following Use Case Scenario:

Title: Print a new bank card using a kiosk machine.
Primary actors: User
Preconditions:

- Bank kiosk machine is in an idle state.
- The user has created a new bank account.
- The user has an Absher account.

- The user has a working mobile phone that can receive SMS texts.

Basic flow of events:

1. User selects the “Print New Mada Card” option.
2. Kiosk prompts the user to select the language.
3. User selects the language.
4. Kiosk prompts the user to enter his account number.
5. User enters the bank account number.
6. Kiosk prompts the user to enter his National ID number.
7. User enters his National ID number.
8. Kiosk sends SMS with a verification code to the user’s phone number.
9. User receives the SMS with a verification code.
10. Kiosk prompts the user to enter the received verification code.
11. User enters the verification code.
12. Kiosk validates the number.
13. Kiosk prompts the user to select from different name options to be printed on the card.
14. User selects one option.
15. Kiosk confirms the selected option and displays the fees (No fees for printing a card of a new account).
16. User selects “Next”.
17. Kiosk prompts the user to place his right index finger on the fingerprint reader.
18. User places his right index finger on the fingerprint reader.
19. Kiosk validates the fingerprint.
20. Kiosk shows a printing message to the user.
21. Kiosk prints the card.

Alternative flows:

5a. Account number is invalid.
    5a1. Kiosk displays error message
    5a2. Redirect to step 4.

7a. National ID number is invalid.
    7a1. Kiosk displays error message
    7a2. Redirect to step 6.

12a. Invalid verification code was entered.
    12a1. Kiosk displays an error message.
    12a2. Redirects to step 10.

16a. User selects the “Back” option.
    16a1. Redirect to step 13.

19a. Kiosk can not verify the Right fingerprint for a number of attempts <= 3.
    19a1. Kiosk displays an error message.
    19a2. Redirects to step 17.

19b. Kiosk can not verify the Right fingerprint for a number of attempts > 3.
    19b1. Kiosk displays an error message.
    19b2. Kiosk cancels the process.

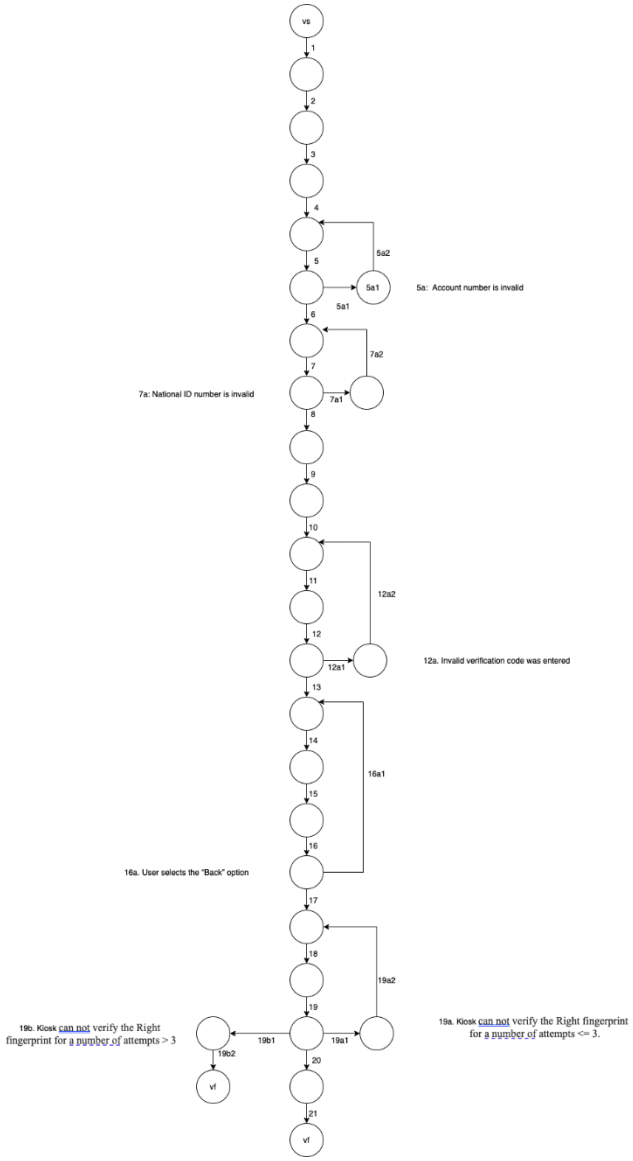
Post Condition:

- User successfully received his bank card.

Assignment Tasks:

Task#1

Give a scenario graph corresponding to the use case "**Print a new bank card using a kiosk machine**".



Task#2

Complete the following table **with a minimal number of scenarios** for the coverage of **all the branches** in the graph in Task 1.

SId	Events	Descriptions
1	1-2-3-4-5-6-7-8-9-10-11-12-13-14-15-16-17-18-19-20-21	Normal scenario: the user prints a new card with a correct account number, national ID number, verification code received from SMS and right finger print.
2	1 - 2 - 3 - 4 - 5a.1 – 5a.2 – 4 - 5-6-7-8-9-10-11-12-13-14-15-16-17-18-19-20-21	The user prints a new card with an invalid account number in the first try.
3	1-2-3-4-5-6-7a.1-7a.2-6-7-8-9-10-11-12-13-14-15-16-17-18-19-20-21	The user prints a new card with an invalid national ID number in the first try.
4	1-2-3-4-5-6-7-8-9-10-11-12a.1-12a.2-10-11-12-13-14-15-16-17-18-19-20-21	The user prints a new card with an invalid verification code in the first try.
5	1-2-3-4-5-6-7-8-9-10-11-12-13-14-15-16a.1-13-14-15-16-17-18-19-20-21	The user goes back in the first try.
6	1-2-3-4-5-6-7-8-9-10-11-12-13-14-15-16-17-18-19a.1-19a.2-17-18-19-20-21	The user prints a new card with an invalid right fingerprint on the first try.
7	1-2-3-4-5-6-7-8-9-10-11-12-13-14-15-16-17-18-19a.1-19a.2-17-18-19a.1-19a.2-17-18-19a.1-19a.2-17-18-19b.1-19b.2	The user's operation is cancelled when he enters an invalid right fingerprint on the fourth try.

Task#3

Give a test case corresponding to **ONE** of the scenarios from Task 2.

Test Case: TC1

Goal: test the normal behaviour of the user to print a new card

Scenario Reference: 1

Setup: kiosk state is idle , user already has a bank account and absher account , user has a mobile phone which can receive SMS text

Course of test case:

#	External event	Reaction	Comment
1	User select 'print new mada card option'	system prompts the user to select the language.	
2	User selects the language.	system prompts the user to enter his account number.	
3	User enters his bank account number.	system prompts the user to enter his National ID number.	
4	User enters his National ID number.	system sends SMS with a verification code to the user's phone number.	
5	User receives the SMS with a verification code.	system prompts the user to enter the received verification code.	
6	User enters the verification code.	system validates the number.	
7	-	system prompts the user to select from different name options to be printed on the card.	
8	User selects one option.	system confirms the selected option and displays the fees (No fees for printing a card of a new account).	
9	User selects "Next".	system prompts the user to place his right index finger on the fingerprint reader.	
10		system validates the fingerprint.	

11 12	User places his right index finger on the fingerprint reader.	system shows a printing message to the user. system prints the card.	

Pass criteria: **user print his own card successfully**