Manual Testing
Session-6

Test Design Techniques

- Test design techniques helps to design better cases.
- Reduce the number of test cases to be executed.

- Techniques:
  - Equivalence Class Partitioning
  - Boundary Value Analysis (BVA)
  - Decision Table based testing.
  - State Transition
  - Error Guessing

Equivalence Class Partition (ECP)

- Partition data into various classes and we can select data according to class then test. It reduce the number of test-cases and saves time for testing.

Enter a Number: [ ] * Allow Digits from 1--500

Normal Test Data	Divide values into Equivalence Classes	Test Data using ECP
1		
2		
3	-100 to 0 → **-50** (Invalid)	-50
4	1 – 100 → **30** (Valid)	30
.	101 – 200 → **160** (Valid)	160
.	201 – 300 → **250** (Valid)	250
.	301 – 400 → **320** (Valid)	320
.	401 – 500 → **450** (Valid)	450
500	501 – 600 → **550** (Invalid)	550

Equivalence Class Partition (ECP)

Name: [ ] * Allow only alphabets

Divide values into Equivalence Classes

A..Z → (Valid)
a..z → (Valid)
Special Characters → (Invalid)
Spaces → **250** (Invalid)
Numbers → **320** (Invalid)

Test Data using ECP
XYZ
zyz
@#$%
Xy z
1234

Boundary Value Analysis (BVA)

- BVA technique used to check Boundaries of the input.

Enter a Age: [ ] * Allow Digits from 18--35

Min = 18 (Pass)
Min-1 =17 (Fail)
Min+1 =19 (Pass)

Max = 35 (Pass)
Max-1 =34 (Pass)
Max+1 =36 (Fail)

Decision Table

- Decision Table is also called as Cause-Effect Table.
- This technique will be used if we have more conditions and corresponding actions.
- In Decision table technique, we deal with combinations of inputs.
- To identify the test cases with decision table, we consider conditions and actions.

Decision Table Example

- Take an example of transferring money online to an account which is already added and approved.
- Here the conditions to transfer money are
  - Account already approved
  - OTP (one time password) matched
  - Sufficient money in the account
- And the actions performed are
  - Transfer money
  - Show a message as insufficient amount
  - Block the transaction incase of suspicious transaction

Decision Table Example…

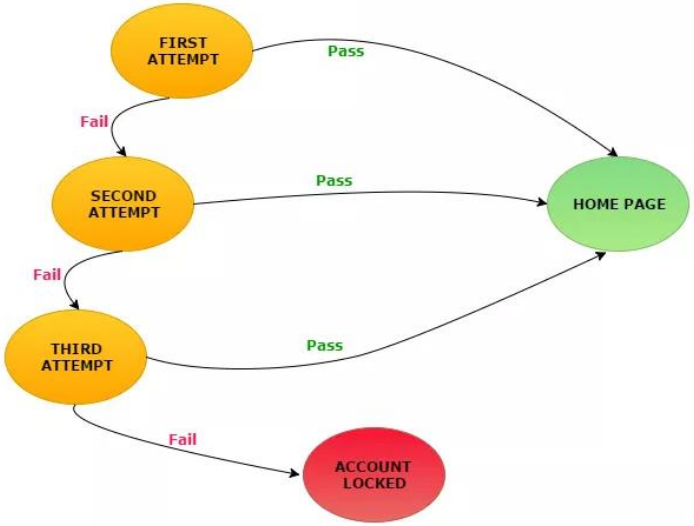
		TC1	TC2	TC3	TC4	TC5
Condition1	Account already approved	TRUE	TRUE	TRUE	TRUE	FALSE
Condition2	OTP Matched	TRUE	TRUE	FALSE	FALSE	X
Condition3	Sufficient Money in the Account	TRUE	FALSE	TRUE	FALSE	X
Action1	Transfer Money	Execute				
Action2	Show message 'Insufficient Amount'		Execute			
Action3	Block the transaction Incase of Suspicios Transaction			Execute	Execute	X

State Transition

- In State Transition technique changes in input conditions change the state of the Application.
- This testing technique allows the tester to test the behavior of an AUT.
- The tester can perform this action by entering various input conditions in a sequence.
- In State transition technique, the testing team provides positive as well as negative input test values for evaluating the system behavior.

State Transition Example

- Take an example of login page of an application which locks the user name after three wrong attempts of password.



STATE	LOGIN	CORRENT PASSWORD	INCORRECT PASSWORD
S1	First Attempt	S4	S2
S2	Second Attempt	S4	S3
S3	Third Attempt	S4	S5
S4	Home Page		
S5	Display a message as "Account Locked, please consult Administrator"		

Error Guessing

- Error guessing is one of the testing techniques used to find bugs in a software application based on tester's prior experience.
- In Error guessing we don't follow any specific rules.
- It depends on Tester Analytical skills and experience.
- Some of the examples are:
  - Submitting a form without entering values.
  - Entering invalid values such as entering alphabets in the numeric field.