Performance Testing

Ways of performance testing:

1. Load Testing

Testing the application with maximum load or peak load.

Example: Gmail – 1 lakh / sec – 2 secs – max. load

1 user/ sec – 2 secs

10 users / sec – 2 secs

150 users / sec – 2 secs

300 users/ sec – 2 secs

1500 users / sec – 2 secs

………….,

1 lakh users/ sec – 2 secs

1. Stress Testing

Testing the application beyond its capacity.

More load than its max. load.

1 lakh + 100 users / sec – 4 secs

1 lakh + 300 users / sec – 8 secs

1 lakh + 400 users / sec – 12 secs ……. 50 % - working but 50% - not working. ------ Saturation point

1 lakh + 450 users / sec – crashed -- crash point

1. Endurance Testing

Testing the application with its load for prolonged time period.

1 hr ---- 3hrs ----- 8 hrs ----- 12 hrs -----24 hrs---- 1day --- weeks….

1. Spike Testing

Sudden increase in load

Problems in Performance Testing

1. Generate user load
2. User simulation
3. Generate the reports

To overcome these problems, automation testing tool are used.

Performance testing tools like JMeter, LoadRunner, WinRunner, RPt, etc.

Methods of Testing

1. White Box Testing

Source code is tested.

Also called as Glass box, Transparent box, clear box testing.

Deals with structure of program or flow in a program.

1. Black Box Testing

Application is tested.

Also called as Behavioral testing.

Deals with the input and output of the application.

Techniques of White Box testing:

1. Statement Coverage
2. Decision Coverage / Branch Coverage
3. Condition Coverage

Statement Coverage = 1

D=0, oq =0

Decision Coverage = 1 + 1 + 1= 3

F T Condition Coverage = TT + TF + F

>=20

= 1 + 1 + 1=3

>=100

END IF

F T

End if

Black box Testing Techniques / Test Design Techniques

1. Equivalence Class Partitioning (ECP)

Step 1. Partition the inputs into valid and invalid classes.

Step 2. Select any single value from all the partitions.

Example 1:

Name \_\_abc@123\_\_\_\_

Valid class | Invalid class

Abc | abc@123

Example 2:

Month \_\_\_\_\_ ( 1 to 12)

Invalid class | valid class | invalid class

<1 | 1 ….. 12 | > 12

Values: -3, 5, 54

In ECP, boundary values are ignored.

To overcome this disadvantage, BVA technique is used.

1. Boundary Value Analysis (BVA)

Step 1: Partition the inputs into valid and invalid classes.

Step 2: Select the exact boundary values, one minimum and one maximum of each exact boundary.

Example 2:

Month \_\_\_\_\_ ( 1 to 12)

Invalid class | valid class | invalid class

<1 | 1 ….. 12 | > 12

Exact boundary: 1 , 12

One min and one max : 0, 2 , 11, 13

Theoretically considered values: 0, 1, 2, 11, 12, 13.

Practically considered values: 0, 1 , 12, 13

ISTQB paper 1: Q no 5

0% | 10% | 22% | 40%

1 … 4000 | 4001 … 5500 | 5501 … 33500 | 33501……

Same equivalence class: option D.

END IF