**Boundary Value Analysis**

**Question No: 01**

Select BVA technique and make test cases after classifying them to valid and invalid categories.

**Answer:**

|  |  |  |
| --- | --- | --- |
| Invalid  (min -1) | Valid  (min, min+1, nominal, max-1, max) | Invalid |
| 987654321 | 9876543210 | 98765432100 |

|  |  |  |  |
| --- | --- | --- | --- |
| Test Case ID | Input Value | Boundary | Expected Output |
| TC\_01 | 987654321 | 10 | Invalid, number should be of 10 digits |
| TC\_02 | 9876543210 | 10 | Valid, Mobile phone accepted |
| TC\_03 | 98765432100 | 10 | Invalid, number should be of 10 digits |

**Question No: 02**

Address text box which allows maximum 500 characters. So, writing test cases for each character once will be very difficult so that will choose boundary value analysis.

|  |  |  |
| --- | --- | --- |
| Invalid  (min -1) | Valid  (min, min+1, nominal, max-1, max) | Invalid |
| 0 characters | 1 to 500 characters | 501 characters |

min-1, min, min+1 nominal max-1, max, max+1

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0 1 2 250 499 500 501

|  |  |  |  |
| --- | --- | --- | --- |
| Test Case ID | Input Value | Boundary | Expected Output |
| TC\_01 | “(empty) | 1 | Invalid, enter address should have at least one character |
| TC\_02 | “A” | 1 | Valid, address accepted |
| TC\_03 | “AB” | 1 | Valid, address accepted |
| TC\_04 | “A” x 250 | 500 | Valid, address accepted |
| TC\_05 | “A” x 499 | 500 | Valid, address accepted |
| TC\_06 | “A” x 500 | 500 | Valid, address accepted |
| TC\_07 | “A” x 501 | 500 | Invalid, enter address should not have more than 500 characters |

**Equivalence Partitioning**

**Question No: 01**

|  |  |
| --- | --- |
| Purchased Amount (in Rs) | Discount (in %) |
| >=999 | 5 |
| >=1999 | 10 |
| >=3999 | 15 |
| >=5999 | 25 |
| >=7999 | 35 |
| >=9999 | 50 |

Do the Equivalence Partitioning Test for this:

**Answer:**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Invalid | Valid | | | | | |
| 0% | Partition 1 | Partition 2 | Partition 3 | Partition 4 | Partition 5 | Partition 6 |
| 5% | 10% | 15% | 25% | 35% | 50% |

|  |  |  |  |
| --- | --- | --- | --- |
| Test Case ID | Ranges | Input Value | Expected Output |
| TC\_01 | amount <999 | amount=550 | Discount= 0% |
| TC\_02 | 999>= amount <1999 | amount=1001 | Discount= 5% |
| TC\_03 | 1999>= amount <3999 | amount=2002 | Discount= 10% |
| TC\_04 | 3999>= amount <5999 | amount=4500 | Discount= 15% |
| TC\_05 | 5999>= amount <7999 | amount=6500 | Discount= 25% |
| TC\_06 | 7999>= amount <9999 | amount=8500 | Discount= 35% |
| TC\_07 | amount>=9999 | amount=10,000 | Discount= 50% |

**Cause Effect Graph**

**Question No: 01**

A tourist of age greater than 21 years and having a clean driving record is supplied with a rental car. A premium amount is also charged if the tourist is on business, otherwise it is not charged. If the tourist is less than 21-year-old, or does not have a clean driving record, the system will display the following message: “Car cannot be supplied.”

Draw the cause-effect graph and generate test cases.

**Answer:**

**Step 01:**

(Identify the Causes and Effects)

* Causes

1. C1: age is greater than 21.
2. C2: clean Driving record
3. C3: Tourist is on Business

* Effects
  + 1. E1: Tourist is supplied with rental car with premium amount.
    2. E2: Car is NOT supplied.
    3. E3: Tourist is supplied with rental car without premium amount.

**STEP 02:**

(Draw the Cause Effect Graph)

(and) ∧

(and) ∧

(and) ∧

E3

E2

E1

C3

C2

C1

**STEP 03**

(Decision Table)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Conditions | Case 1 | Case 2 | Case 3 | Case 4 |
| C1: age>21? | F | T | T | T |
| C2: clean driving record? | - | F | T | T |
| C3: Tourist is on Business? | - | - | F | T |
| Effects |  |  |  |  |
| E1: Car supplied with premium amount |  |  |  | ✔ |
| E2: Car supplied without premium amount |  |  | ✔ |  |
| E3: Car NOT supplied | ✔ | ✔ |  |  |

**STEP 04:**

(Write Test Cases)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Test Case ID | Age | Clean Driving Record | On Business Trip | Expected Output |
| T\_001 | 20 | Yes | Yes | Car NOT supplied |
| T\_002 | 21 | No | Yes | Car NOT supplied |
| T\_003 | 25 | Yes | No | Car supplied without premium charges |
| T\_004 | 26 | Yes | Yes | Car supplied with premium charges |

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**Question No: 02**

In a given network, the sendfile command is used to send a file to a user on a different file server. The sendfile command takes three arguments: the first argument should be an existing file in the sender’s home directory, the second argument should be the name of the receiver’s file server, and the third argument should be the receiver’s user\_id. If all the arguments are correct, then the file is successfully sent; otherwise the sender obtains an error message.

**Answer:**

**Step 01:**

(Identify the Causes and Effects)

* Causes

1. C1: file exists in senders home directory is entered.
2. C2: Name of receiver file server entered.
3. C3: Receivers user\_id entered.

* Effects

1. E1: File is Successfully sent.
2. E2: Error! File not sent.

**STEP 02:**

(Draw the Cause Effect Graph)

C1

E1

(and) ∧

(and) ∧

E2

C3

C2

**STEP 03**

(Decision Table)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Conditions | Case 1 | Case 2 | Case 3 | Case 4 | Case 5 |
| C1: file exists in sender home directory. | T | F | T | T | F |
| C2: Name of the receiver server is entered. | F | T | T | T | F |
| C3: Name of the user\_id is entered. | T | T | F | T | F |
| Effect |  |  |  |  |  |
| E1: File sent successfully. |  |  |  | ✔ |  |
| E2: Error! File not sent. | ✔ | ✔ | ✔ |  | ✔ |

**STEP 04:**

(Write Test Cases)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Teset Case ID | Files exist in directory entered? | Receiver server entered? | User id entered? | Expected Output |
| TC\_01 | “Img.png” | Comsis | Mahad | File Sent Successfully. |
| TC\_02 | “” (no file) | Comsis | Mahad | Error! File not Sent. |
| TC\_03 | “Img.png” | “” (not enter) | Mahad | Error! File not Sent. |
| TC\_04 | “Img.png” | Comsis | “” (no id) | Error! File not Sent. |
| TC\_05 | “” (no file) | “” (not enter) | “” (no id) | Error! File not Sent. |