Software Testing Lab - Functional Testing (Black-Box)

Dev Joshi 202201405

Q1: Previous Date Program - Equivalence Class Test Cases

Equivalence Partitioning

- Valid Date Inputs:
  - **(2, 1, 2020)**: Previous Date is (1, 1, 2020)
  - **(1, 3, 2020)**: Previous Date is (29, 2, 2020) [Considering leap year]
- Invalid Date Inputs:
  - **(-1, 5, 2000)**: Error message (invalid day)
  - **(32, 10, 2000)**: Error message (invalid day)
  - **(10, 13, 2005)**: Error message (invalid month)
  - **(15, 8, 2025)**: Error message (invalid year)

Boundary Value Analysis

- Valid Boundary Values:
  - **(1, 1, 1900)**: Error message (no previous date possible before the valid range)
  - **(31, 12, 2015)**: Previous Date is (30, 12, 2015)
- Invalid Boundary Values:
  - **(0, 1, 2000)**: Error message (invalid day)
  - **(1, 13, 2000)**: Error message (invalid month)
  - **(1, 1, 1899)**: Error message (invalid year)

Test Suite Example

Tester Action and Input Data	**Expected Outcome**
Equivalence Partitioning	
(2, 1, 2020)	Previous Date is (1, 1, 2020)
(-1, 5, 2000)	Error message (invalid day)
(10, 13, 2005)	Error message (invalid month)
Boundary Value Analysis	
(31, 12, 2015)	Previous Date is (30, 12, 2015)
(0, 1, 2000)	Error message (invalid day)

Q2: Program Testing

P1: Linear Search

Test Case	Input Data	Expected Outcome
Equivalence Partitioning	Search for 3 in [1,2,3,4,5]	Index 2
Boundary Value Analysis	Search for -1 in [0,1,2]	-1 (value not found)

P2: Count Item

Test Case	Input Data	Expected Outcome
Equivalence Partitioning	Count of 3 in [1,3,3,4]	2
Boundary Value Analysis	Count of 0 in [1,2,3]	0

P3: Binary Search

Test Case	Input Data	Expected Outcome
Equivalence Partitioning	Search for 3 in [1,2,3,4]	Index 2
Boundary Value Analysis	Search for -1 in [1,2,3]	-1 (value not found)

P4: Triangle Classification

Test Case	Input Data	Expected Outcome
Equivalence Partitioning	(3,3,3)	Equilateral
Boundary Value Analysis	(0, 1, 2)	Invalid

P5: Prefix Function

Test Case	Input Data	Expected Outcome
Equivalence Partitioning	”abc” and ”abcdef”	True
Boundary Value Analysis	”abcd” and ”abc”	False

Q6: Triangle Program with Floating Values

Equivalence Classes and Test Cases

- **Scalene Triangle:** A + B ¿ C
- **Isosceles Triangle:** A = B or A = C
- **Equilateral Triangle:** A = B = C
- **Right-Angle Triangle:** $A^2 + B^2 = C^2$
- **Invalid Triangle:** A + B C or non-positive input

Test Case	Input Data	Covered Class
(3.0, 4.0, 5.0)	Right-angled	Right-Angle Triangle
(2.0, 2.0, 3.0)	Isosceles	Isosceles Triangle
(3.0, 3.0, 3.0)	Equilateral	Equilateral Triangle
(1.0, 2.0, 3.0)	Invalid	Invalid Triangle