Software Engineering
Lab 8
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Answer 1:-

Part-1:-

Equivalence Class Test Cases for Previous Date Program:

1. **Valid Date**: For a valid input like (31, 12, 2015), the output should be the previous date, which is 30, 12, 2015.
2. **Invalid Day**: If the day exceeds the valid range for the month, such as (32, 1, 2010), the output should be "Invalid Date" because January doesn't have 32 days.
3. **Invalid Month**: For an input where the month is invalid, like (12, 13, 2005) (since 13 is not a valid month), the program should output "Invalid Date."
4. **Invalid Year**: If the year is outside the range, such as (25, 8, 1899), the output should be "Invalid Date" since the year is less than 1900.
5. **Leap Year**: For dates like (1, 3, 2000), the output should return the previous date as 29, 2, 2000, correctly handling leap years.

Part -2 :-

Test Case No.	Input (Day, Month, Year)	Expected Output	Actual Output	Test Type (EP/BVA)
1	(31, 12, 2015)	Previous Date: 30, 12, 2015	Previous Date: 30, 12, 2015	EP (Valid)
2	(1, 3, 2000)	Previous Date: 29, 2, 2000	Previous Date: 29, 2, 2000	EP (Valid, Leap Year)
3	(32, 1, 2010)	Invalid Date	Invalid Date	EP (Invalid Day)
4	(0, 5, 2000)	Invalid Date	Invalid Date	EP (Invalid Day)
5	(12, 13, 2005)	Invalid Date	Invalid Date	EP (Invalid Month)
6	(25, 8, 1899)	Invalid Date	Invalid Date	EP (Invalid Year)
7	(15, 10, 2016)	Invalid Date	Invalid Date	EP (Invalid Year)
8	(30, 2, 2012)	Invalid Date	Invalid Date	EP (Invalid Day, Leap Year)
9	(1, 1, 1901)	Previous Date: 31, 12, 1900	Previous Date: 31, 12, 1900	EP (Valid, Boundary Year)
10	(28, 2, 2001)	Previous Date: 27, 2, 2001	Previous Date: 27, 2, 2001	EP (Valid, Non-Leap Year)
11	(1, 1, 1900)	Invalid Date	Invalid Date	BVA (Lower Boundary Year)
12	(31, 12, 2015)	Previous Date: 30, 12, 2015	Previous Date: 30, 12, 2015	BVA (Upper Boundary Year)
13	(29, 2, 2000)	Previous Date: 28, 2, 2000	Previous Date: 28, 2, 2000	BVA (Leap Year, Boundary February 29)
14	(28, 2, 2001)	Previous Date: 27, 2, 2001	Previous Date: 27, 2, 2001	BVA (Non-Leap Year, Boundary February 28)
15	(30, 4, 2020)	Previous Date: 29, 4, 2020	Previous Date: 29, 4, 2020	BVA (Boundary Case for April)

Answer 2 :-

P1: linearSearch

Tester Action and Input Data	Expected Outcome	Test Type
5, [1, 2, 3, 4, 5]	Found at index 4	Equivalence Partitioning (Valid Input)
3, [1, 2, 3, 4, 5]	Found at index 2	Equivalence Partitioning (Valid Input)
6, [1, 2, 3, 4, 5]	-1 (Error Message)	Equivalence Partitioning (Invalid Input)
1, [1, 2, 3, 4, 5]	Found at index 0	Boundary Value Analysis (Lower Boundary)
5, [1, 2, 3, 4, 5]	Found at index 4	Boundary Value Analysis (Upper Boundary)

P2: countItem

Tester Action and Input Data	Expected Outcome	Test Type
3, [1, 2, 3, 3, 4, 5]	Count 2	Equivalence Partitioning (Valid Input)
5, [1, 2, 3, 4, 5, 5]	Count 2	Equivalence Partitioning (Valid Input)
6, [1, 2, 3, 4, 5, 6]	Count 1	Equivalence Partitioning (Valid Input)
8, [1, 2, 3, 4, 5, 6]	0 (Error Message)	Equivalence Partitioning (Invalid Input)

4, [1, 2, 3, 4, 5, 6]	Count 1	Boundary Value Analysis (Middle Boundary)

P3: binarySearch

Tester Action and Input Data	Expected Outcome	Test Type
5, [1, 2, 3, 4, 5]	Found at index 4	Equivalence Partitioning (Valid Input)
3, [1, 2, 3, 4, 5]	Found at index 2	Equivalence Partitioning (Valid Input)
6, [1, 2, 3, 4, 5]	-1 (Error Message)	Equivalence Partitioning (Invalid Input)
1, [1, 2, 3, 4, 5]	Found at index 0	Boundary Value Analysis (Lower Boundary)
5, [1, 2, 3, 4, 5]	Found at index 4	Boundary Value Analysis (Upper Boundary)

P4: triangle

Tester Action and Input Data	Expected Outcome	Test Type
3, 3, 3	Equilateral	Equivalence Partitioning (Valid Input - Equilateral)
3, 4, 4	Isosceles	Equivalence Partitioning (Valid Input - Isosceles)
3, 4, 5	Scalene	Equivalence Partitioning (Valid Input - Scalene)
1, 2, 3	Invalid	Equivalence Partitioning (Invalid Input)
3, 4, 5	Scalene	Boundary Value Analysis (Scalene Triangle)

P5: prefix

Tester Action and Input Data	Expected Outcome	Test Type
"pre", "prefix"	true	Equivalence Partitioning (Valid Input)
"test", "prefix"	false	Equivalence Partitioning (Invalid Input)
"hello", "helloworld"	true	Equivalence Partitioning (Valid Input)
"java", "javascript"	true	Equivalence Partitioning (Valid Input)
"xyz", "prefix"	false	Boundary Value Analysis (Invalid Input)

P6: floating triangle classification

Tester Action and Input Data	Expected Outcome	Test Type
3, 3, 3	Equilateral	Equivalence Partitioning (Valid Input - Equilateral)
3, 4, 4	Isosceles	Equivalence Partitioning (Valid Input - Isosceles)
3, 4, 5	Scalene	Equivalence Partitioning (Valid Input - Scalene)
1, 2, 3	Invalid	Equivalence Partitioning (Invalid Input)
5, 12, 13	Right-Angle	Boundary Value Analysis (Right-Angle Triangle)