MAT 335E Programming Algorithms

Lab-3 / CRN : 10611

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1 Question 1

We want to write a simple calculator program (addition,subtraction,division and multiplication) for two numbers using **switch-case** structure. To accomplish the task, you should prepare a **Java static method** named **simpleCalculator** that takes two numbers and an arithmetic operation (+,-,*,/) as parameters and returns the result of the calculator.

Testing Data:

- simpleCalculator(4, 8, '+') → 12
- simpleCalculator(4, 8, '-') → -4
- simpleCalculator(4, 8, '*') → 32
- simpleCalculator(4, 8, '/') → 0.5

2 Question 2

Each digit in a non-negative integer k has a digit position. Digit positions begin at 0 and count from the right-most digit of k. For example, in 168589, the digit 9 is at position 0 and digit 5 is at position 2. The digit 8 appears at both positions 1 and 3.

Write a java static method named **find_digit**, which takes a non-negative integer k and a digit d greater than or equal to 0 and less than 10. It returns the largest position in k at which digit d appears. If d does not appear in n, then find_digit returns -1.

3 Question 3

Write a **Java static method** named TriangleType that takes the edge lengths of a triangle as parameters and classifies it as scalene, equilateral, isosceles.

Testing Data:

- TriangleType(2, 5, 6)→ scalene triangle
- TriangleType(5, 5, 5)→ equilateral triangle
- TriangleType(2, 5, 5) → isosceles triangle
- TriangleType(4, 6, 4)→ isosceles triangle