**Problem**

Write a program that prompts the user to enter two integers (either may be positive or negative). The program will then display the following menu:

1. Add

2. Subtract

3. Multiply

4. Divide

5. Remainder

After the user selects the operation, the program will perform the operation on the two entered integers and output the result.

Each arithmetic operation should be implemented using a function.

The generic format for each operation name is as follows:

Table

Description automatically generated

**Requirements**

* R1: enter two integers (negative or positive)
* R2: prompt menu from 1-5 selection option
* R3: perform operation from menu
* R4: input can be positive
* R5: input can be negative
* R6: menu option can NOT be over 5 or less than 1

**Test cases**

**Normal values**

N1: 3 and 5 (positive values)

N2: -3 and -3 (negative values)

N3: 3 and -3 (positive and negative values)

N4: 1-5 for the menu option selection

**Invalid values**

I1: ‘a’ as string for the two integers

I2: -1 or more than 5: for the menu option selection

**Boundary values**

B1: 0 for the menu option (out of range - R6)

B2: 6 for the menu option (out of range - R6)

**Special cases**

**Test Plan**

Note: UT = Unit Test; IT = Integration Test

|  |  |  |
| --- | --- | --- |
| **Test** | **Instruction (Satisfies test cases)** | **Expected** |
| UT1 | Type positive (N1) | Output accordingly with the input selected through the menu |
| UT2 | Type negative (N2) | Output accordingly with the input selected through the menu |
| UT3 | Type positive and negative (N3) | Output accordingly with the input selected through the menu |
| UT4 | Type ‘string’ instead of integers (I1) | Error: no output for the program (Program crashes) |
| UT5 | -1 or more than 5 for menu entry selection (I2) | No operation selected |
| UT6 | 0 for the menu option (B1) | No operation selected |
| UT7 | 6 for the menu option (B2) | No operation selected |