LAB EXERCISE 2

TOPIC: ELEMENTARY PROGRAMMING & CONTROL STRUCTURES

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SECTION: 02

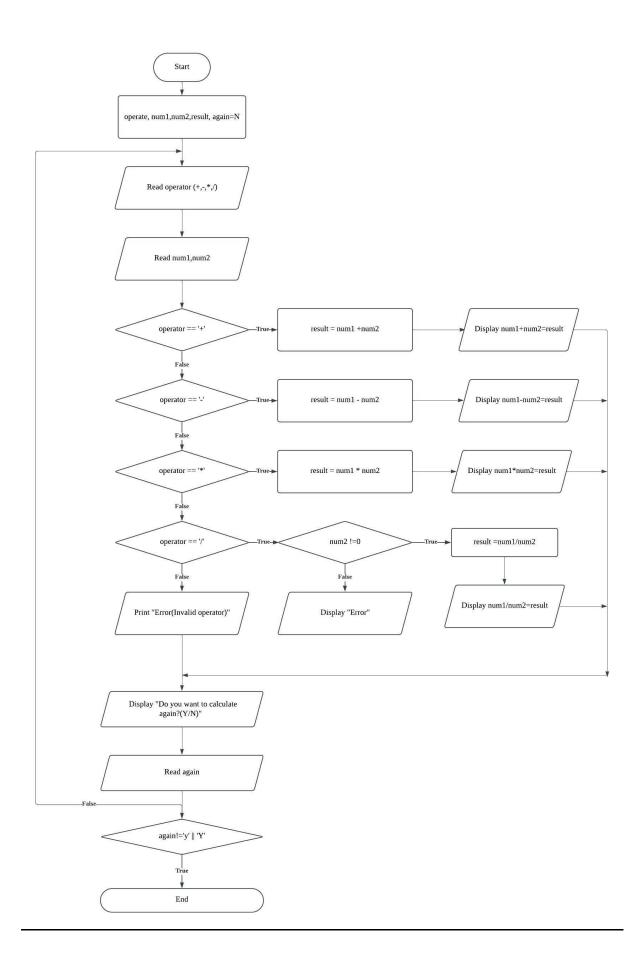**QUESTION 1**   **[10 Marks]**

Sketch a flowchart for a program that will perform like a calculator involving operators add, subtract, multiply and divide:

      a. Prompt the users to enter desired operator of char type (add, subtract, multiply and divide)

      b. Prompt the users to enter two inputs of numbers

      c. Use switch-case statements to check the entered input

          i. If the user enters +, addition is performed on the numbers.

          ii. If the user enters -, subtraction is performed on the numbers.

          iii. If the user enters *, multiplication is performed on the numbers.

          iv. If the user enters /, division is performed on the numbers.

          v. If the user enters any other character, print out error message

      d. For the output, display >> the two numbers, the operator, the result.

      e. Loop using the Do-While until user decides to stop.

```
                          ┌─────────────┐
                          │    Start    │
                          └──────┬──────┘
                                 │
                  ┌──────────────▼──────────────┐
                  │ operate, num1,num2,result,   │
                  │ again=N                      │
                  └──────────────┬──────────────┘
                                 │
                  ┌──────────────▼──────────────┐
                  │  Read operator (+,-,*,/)     │
                  └──────────────┬──────────────┘
                                 │
                  ┌──────────────▼──────────────┐
                  │  Read num1,num2              │
                  └──────────────┬──────────────┘
                                 │
```

- operator == '+' — True → result = num1 +num2 → Display num1+num2=result
- False
- operator == '-' — True → result = num1 - num2 → Display num1-num2=result
- False
- operator == '*' — True → result = num1 * num2 → Display num1*num2=result
- False
- operator == '/' — True → num2 !=0 — True → result =num1/num2 → Display num1/num2=result
  - False → Display "Error"
- False → Print "Error(Invalid operator)"

Display "Do you want to calculate again?(Y/N)"

Read again

False

again!='y' || 'Y'

True

End

QUESTION 2 [30 Marks]

Write a C++ program to prove the running of the solution.

```
5 C:\Users\kttec\Downloads\Inance Free Website Template - Free-CSS.com\inance-html>  & 'c:\Users\kttec\
.vscode\extensions\ms-vscode.cpptools-1.22.11-win32-x64\debugAdapters\bin\WindowsDebugLauncher.exe' '--s
tdin=Microsoft-MIEngine-In-ng3yokc1.kf3' '--stdout=Microsoft-MIEngine-Out-5i3c2tjh.vng' '--stderr=Micros
oft-MIEngine-Error-0kx1etar.mdt' '--pid=Microsoft-MIEngine-Pid-aob5cnlb.ey1' '--dbgExe=C:\mingw\bin\gdb.
exe' '--interpreter=mi'
Enter operator (+, -, *, /): +
Enter two numbers: 2
3
2 + 3 = 5
Do you want to calculate again (Y or N)? Y
Enter operator (+, -, *, /): /
Enter two numbers: 3
0
Error
Do you want to calculate again (Y or N)? Y
Enter operator (+, -, *, /): -
Enter two numbers: 5
3
5 - 3 = 2
Do you want to calculate again (Y or N)? Y
Enter operator (+, -, *, /): *
Enter two numbers: 4
3
4 * 3 = 12
Do you want to calculate again (Y or N)? N
PS C:\Users\kttec\Downloads\Inance Free Website Template - Free-CSS.com\inance-html> 
```