LAB EXERCISE 2

TOPIC: ELEMENTARY PROGRAMMING & CONTROL STRUCTURES

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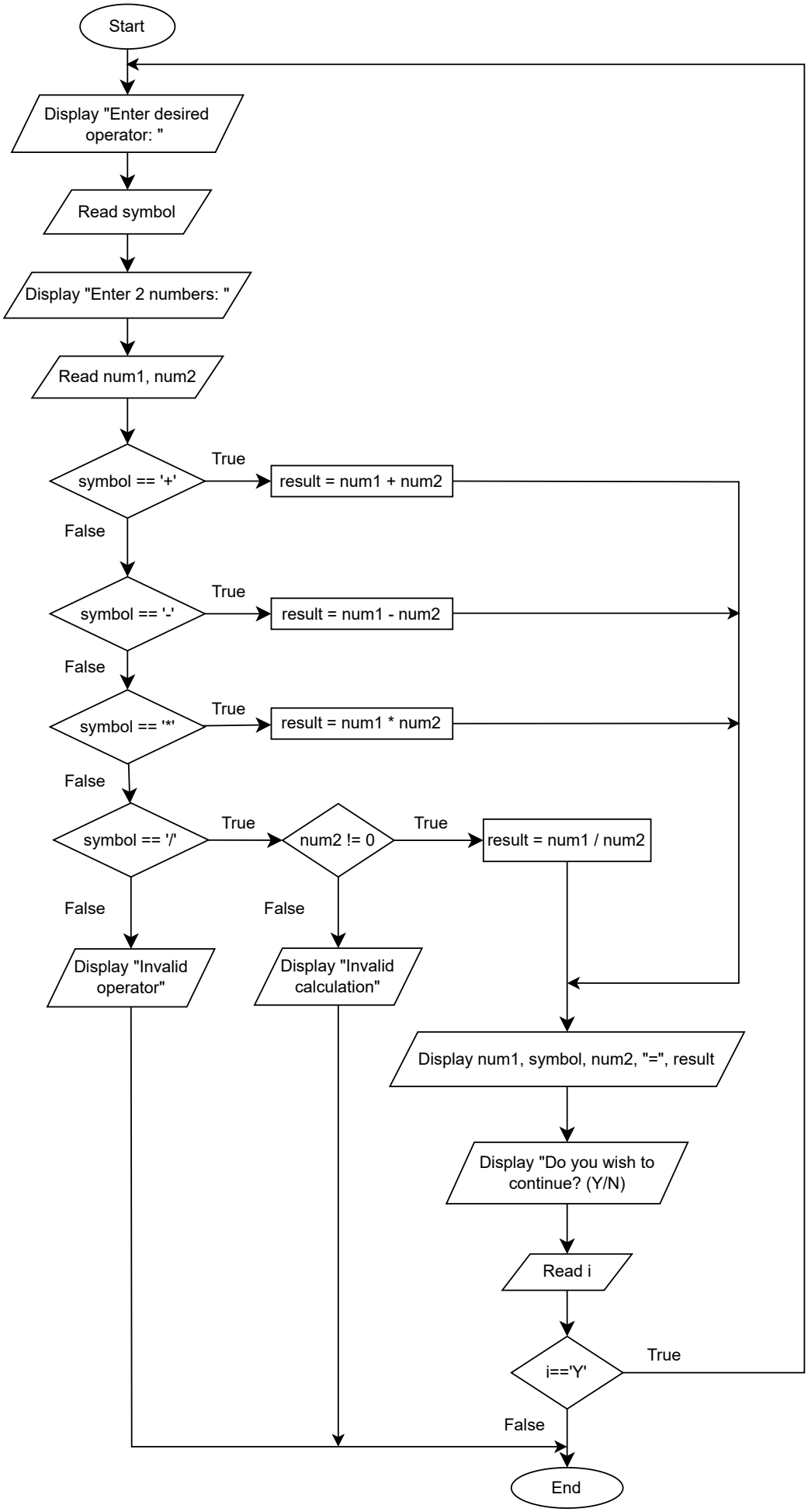
SECTION: 02

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
Display "Enter desired operator: "
Read symbol
Display "Enter 2 numbers: "
Read num1, num2
symbol == '+'
True
result = num1 + num2
False
symbol == '-'
True
result = num1 - num2
False
symbol == '*'
True
result = num1 * num2
False
symbol == '/'
True
num2 != 0
True
result = num1 / num2
False
False
Display "Invalid operator"
Display "Invalid calculation"
Display num1, symbol, num2, "=", result
Display "Do you wish to continue? (Y/N)
Read i
i=='Y'
True
False
End

QUESTION 2 **[30 Marks]**

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

C: > Users > User > OneDrive > Desktop > parcel > labexec2.cpp > main()

```cpp
#include <iostream>
using namespace std;

int main(){
    cout<<"**********Lab Exercise 2**********";

    char i='Y',symbol;
    float num1,num2;
    float result;

    do{
        cout<<"\nEnter desired operator: ";
        cin>>symbol;
        cout<<"Enter 2 numbers: ";
        cin>>num1>>num2;

        if(cin.fail()){
            break;
        }

        switch(symbol){
            case '+':
                result=num1+num2;
                break;

            case '-':
                result=num1-num2;
                break;

            case '*':
                result=num1*num2;
                break;

            case '/':
                if(num2!=0){
                    result=num1/num2;
                    break;
                }else{
                    cout<<"\nInvalid calculation\n";
                    continue;
                }

            default:
                cout<<"\nInvalid operator";
                continue;
        }
        cout<<num1<<symbol<<num2<<"="<<result;
        cout<<"\nDo you wish to continue? (Y/N)\n";
        cin>>i;
    }while(i=='Y');
    return 0;
}
```

Sample Output:

```
PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL  PORTS

PS C:\Users\User> cd "c:\Users\User\OneDrive\Desktop\parcel\" ; if ($?) { g++ labexec2.cpp -o labexec2 } ; if ($?) { .\labexec2 }
**********Lab Exercise 2**********
Enter desired operator: +
Enter 2 numbers: 5 6
5+6=11
Do you wish to continue? (Y/N)
N
PS C:\Users\User\OneDrive\Desktop\parcel>
```