**LAB EXERCISE 2**

**TOPIC: ELEMENTARY PROGRAMMING & CONTROL STRUCTURES**

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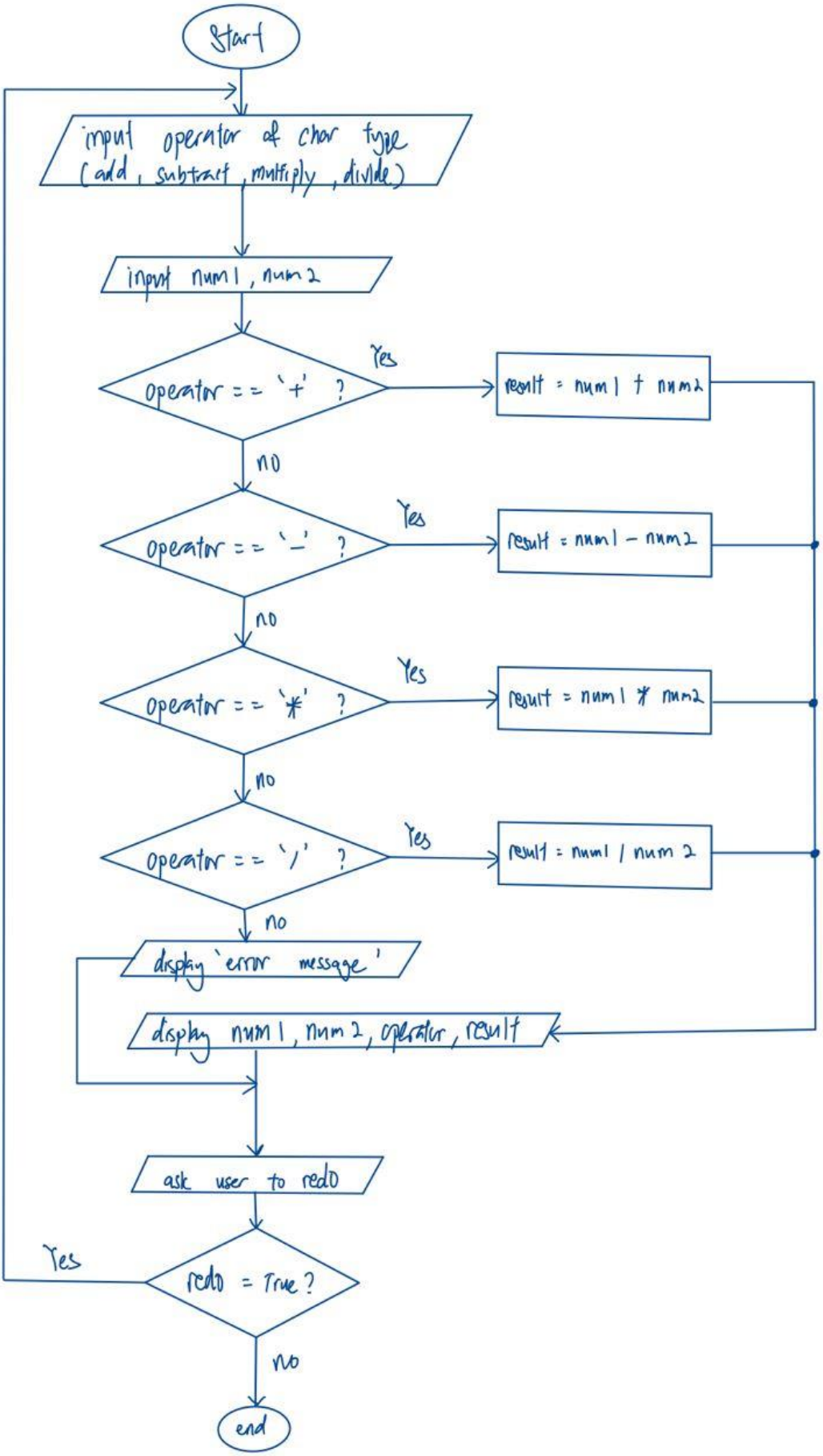
**SECTION: 05**

**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
input operator of char type (add, subtract, multiply, divide)
input num1, num2
operator == '+' ?
Yes
result = num1 + num2
no
operator == '-' ?
Yes
result = num1 - num2
no
operator == '*' ?
Yes
result = num1 * num2
no
operator == '/' ?
Yes
result = num1 / num2
no
display 'error message'
display num1, num2, operator, result
ask user to redo
redo = True ?
Yes
no
end

**QUESTION 2** **[30 Marks]**

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

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

int main(){
	char operators, redo;
	double num1, num2, result;

	do{

	cout<<"This is a program that will perform like a calculator involving operators add, subtract, multiply and divide.\n";
	cout<<"Please enter ONE operator need to function (+,-,*,/).\n"<<"Operator: ";
	cin>>operators;

	cout<<"Please input first number: ";
	cin>>num1;

	cout<<"Please input second number: ";
	cin>>num2;

	switch(operators){
		case '+':
			result=num1+num2;
			cout<<"\n\nfirst number: "<<num1<<endl;
			cout<<"second number: "<<num2<<endl;
			cout<<"operator: "<<operators<<endl;
			cout<<"result: "<<result<<endl;
```

```
        break;
case '-':
        result=num1-num2;
        cout<<"\n\nfirst number: "<<num1<<endl;
        cout<<"second number: "<<num2<<endl;
        cout<<"operator: "<<operators<<endl;
        cout<<"result: "<<result<<endl;
        break;
case '*':
        result=num1*num2;
        cout<<"\n\nfirst number: "<<num1<<endl;
        cout<<"second number: "<<num2<<endl;
        cout<<"operator: "<<operators<<endl;
        cout<<"result: "<<result<<endl;
        break;
case '/':
        result=num1/num2;
        if(num2==0){
                cout<<"Error. Devision by zero is not allowed.";
        }else{
        cout<<"\n\nfirst number: "<<num1<<endl;
        cout<<"second number: "<<num2<<endl;
        cout<<"operator: "<<operators<<endl;
        cout<<"result: "<<result<<endl;
}
        break;
default:
        result=0;
        cout<<"\nError. No result will be given.";
        break;
```

```
        }
        cout<<"\nDo you want to repeat? (Y/N)\n";
        cin>>redo;
        }while((redo == 'Y') || (redo== 'y'));

}
```