Source Code:

```cpp
#include<bits/stdc++.h>
using namespace std;
int main(){
        double num1,num2;
        cout<<"Enter num1: "; cin>>num1;
        cout<<"Enter num2: "; cin>>num2;
        char charecter,press;
        cout<<"Enter +,-,*,/,%: ";  cin>>charecter;
   cout<<"Enter =: ";  cin>>press;

        if(press=='='){
                if(charecter=='+'){
                        cout<<num1<<"+"<<num2<<" = "<<num1+num2<<endl;
                }
                else if(charecter=='-'){
                        cout<<num1<<"-"<<num2<<" = "<<num1-num2<<endl;
                }
                else if(charecter=='*'){
                        cout<<num1<<"*"<<num2<<" = "<<num1*num2<<endl;
                }
                else if(charecter=='/'){
                        cout<<num1<<"/"<<num2<<" = "<<num1/num2<<endl;
                }
                else{
                        cout<<num1<<"%"<<num2<<" = "<<int(num1)%int(num2)<<endl;
                }
        }
}
```

Output:

Enter num1: 5
Enter num2: 6
Enter +,-,*,/,%: *
Enter =: =
5*6 = 30

Source Code:

```cpp
#include <bits/stdc++.h>
using namespace std;
int main()
{
    int n;
    cout<<"Enter number: ";   cin>>n;
    vector<double>vec(2*n);
    int j = 2*n;
    cout<<"Enter numbers: "<<endl;
    for(int i=0; i<j; i++)
        cin>>vec[i];
    char ch;
    cout<<"Enter operator: ";   cin>>ch;
    if(ch == '+'){
        for(int i=0; i<j; i+=2){
            cout<<vec[i]<<" + "<<vec[i+1]<<" = "<<vec[i] + vec[i+1]<<endl;}}
    if(ch == '-'){
        for(int i=0; i<j; i+=2){
            cout<<vec[i]<<" - "<<vec[i+1]<<" = "<<vec[i] - vec[i+1]<<endl;}}
    if(ch == '*')   {
        for(int i=0; i<j; i+=2)        {
            cout<<vec[i]<<" * "<<vec[i+1]<<" = "<<vec[i] * vec[i+1]<<endl;}}
    if(ch == '/')   {
        for(int i=0; i<j; i+=2)        {
            cout<<vec[i]<<" / "<<vec[i+1]<<" = "<<vec[i] / vec[i+1]<<endl;}}
    return 0;
}
```

Output:

Enter number: 3
Enter numbers:
4
5
7
8
20
40
Enter operator: +
4 + 5 = 9
7 + 8 = 15
20 + 40 = 60

Source Code:

```cpp
#include <bits/stdc++.h>
using namespace std;
int main()
{
    string string1, string2, number1,number2;
    int number;
    char ch;
    cout<<"Enter 's' for string checking or 'n' for number checking: ";    cin>>ch;
    if(ch == 's'){
        cout<<"Enter a word without space: ";        cin>>string1;
        string2 = string1;
        reverse(string2.begin(), string2.end());
        if(string1 == string2){
            cout<<"The given word is palindrome."<<endl;
        }
        else{
            cout<<"The given word is not palindrome."<<endl;
        }
    }
    if(ch == 'n'){
        cout<<"Enter number without space: ";        cin>>number;
        number1 = to_string(number);
        number2 = number1;
        reverse(number2.begin(), number2.end());
        if(number1 == number2){
            cout<<"The given number is palindrome."<<endl;
        }
        else{
            cout<<"The given number is not palindrome."<<endl;
        }
    }
    return 0;
}
```

Output:

Enter 's' for string checking or 'n' for number checking: n
Enter number without space: 567765
The given number is palindrome.

Source Code:

```cpp
#include <bits/stdc++.h>
using namespace std;
int main()
{
    int number;
    cout<<"Enter a number to find factorial: ";    cin>>number;
    long long int fact=1;
    int j=1;
    for(int i = number; i>0; i--)
    {
        cout<<"Factorial in iteration "<<j<<" is : "<<fact<<" * "<<i<<" = "<<fact<<endl;
        fact = fact * i;
        j +=1;
    }
    cout<<endl<<number<<"! = "<<fact<<endl;
    return 0;
}
```

Output:

Enter a number to find factorial: 10
Factorial in iteration 1 is : 1 * 10 = 1
Factorial in iteration 2 is : 10 * 9 = 10
Factorial in iteration 3 is : 90 * 8 = 90
Factorial in iteration 4 is : 720 * 7 = 720
Factorial in iteration 5 is : 5040 * 6 = 5040
Factorial in iteration 6 is : 30240 * 5 = 30240
Factorial in iteration 7 is : 151200 * 4 = 151200
Factorial in iteration 8 is : 604800 * 3 = 604800
Factorial in iteration 9 is : 1814400 * 2 = 1814400
Factorial in iteration 10 is : 3628800 * 1 = 3628800

10! = 3628800

Source Code:

```cpp
#include <bits/stdc++.h>
using namespace std;

void sum(vector<int>arr1){
    int i = 0, sum=0;
    do{
        sum = sum + arr1[i];
        i++;
    }while(i<arr1.size());
    cout<<"Sum : "<<sum;
}
void avg(vector<int>arr1){
    int i = 0;
    float sum =0;
    do{
        sum = sum + arr1[i];
        i++;
    }while(i<arr1.size());
    cout<<"Average : "<<sum/arr1.size();
}
int main(){
    int n;
    cout<<"Enter array size: ";    cin>>n;
    vector<int>arr(n);
    cout<<"Enter array elements: ";
    for(int i = 0; i<n; i++){cin>>arr[i];}
    cout<<endl;
    sum(arr);
    cout<<endl;
    avg(arr);
    return 0;
}
```

Output:

Enter array size: 5
Enter array elements: 9 8 7 6 5

Sum : 35
Average : 7

Source Code:

```java
package Study;
import java.io.*;
public class CEException {
    public static void main(String args[]) throws Exception {
        try {
            Class.forName("Study.ExistClass");
            System.out.println("Class Found inside package.\n---------");
        } catch(ClassNotFoundException e) {
            System.out.println("CLassNotFoundException");
        }
        System.out.println("EOF exception for output ");
        DataInputStream dis = new DataInputStream(new FileInputStream("input.txt"));
        while(true) {
            try{
                byte ch;
                ch = dis.readByte();
                System.out.print((char)ch);
            } catch(EOFException e) {
                System.out.println("\nEnd of file reached");
                break;
            }
        }
        dis.close();
    }
}
```

```java
//Other class
package Study;
public class ExistClass
{
        public static void getDepartmentName()
        {
            System.out.println("Information and Communication Engineering");
        }
}
```

Output:

```
Problems   @ Javadoc   Declaration   Console  X
<terminated> CEException [Java Application] C:\Program Files\Java\jdk-18\bin\javaw.exe
Class Found inside package.
---------
EOF exception for output
Department Name: Information and Communication Engineering
End of file reached
```

Source Code:

```cpp
#include <bits/stdc++.h>
using namespace std;
int main() {
    freopen("input.txt","r",stdin);
    freopen("output.txt","w",stdout);
    int testcase; cin>>testcase;
    vector<int> v;
    while(testcase--)
    {
        int Num1,Num2;
        cin>>Num1>>Num2;
        v.push_back(Num1);
        v.push_back(Num2);
    }
    cout<<"Sum of Two number : "<<v[0]+v[1]<<endl;
    cout<<"Subtraction of Two number: "<<v[2]-v[3]<<endl;
    cout<<"Multiplication of Two number: "<<v[4]*v[5]<<endl;
    cout<<"Division of Two number : "<<v[6] / v[7]<<endl;
    return 0;
}
```

Output:

input.txt
4
3 4
7 2
5 9
8 4

output.txt
Sum of Two number : 7
Subtraction of Two number: 5
Multiplication of Two number: 45
Division of Two number : 2

INDEX

Exp. No.	Experiment Name
P-01	Write a program in "JAVA" or "C" to develop a simple calculator that would be able to take a number, an operator (addition/ subtraction/ multiplication/ division/ modulo) and another number consecutively as input and the program will display the output after pressing "=" sign. <u>Sample input:</u> 1+2; 8%4; <u>Sample output:</u> 1+2=3; 8%4=0.
P-02	Write a program in "JAVA" or "C" that will take two '*n*' integers as input until a particular operator and produce '*n*' output. <u>Sample input:</u> 4 5 7 8 20 40 +; <u>Sample output:</u> 9 15 60.
P-03	Write a program in "JAVA" or "C" to check weather a **number** or **string** is palindrome or not. <u>N.B:</u> your program must not take any test case number such as 1 or 2 for the desired cases from the user. Program user will insert a number or string as input directly and the program will display the exact result in the output console.
P-04	Write down the ATM system specifications and report the various bugs.
P-05	Write a program in "JAVA" or "C" to find out the factorial of a number using while or for loop. Also verify the results obtained from each case.
P-06	Write a program in "JAVA" or "C" that will find sum and average of array using do while loop and 2 user defined function.
P-07	Write a simple "JAVA" program to explain classNotFound Exception and endOfFile(EOF) exception.
P-08	Write a program in "JAVA" or "C" that will read a *input.txt* file containing *n* positive integers and calculate addition, subtraction, multiplication and division in separate *output.txt* file. <u>Sample input:</u> 5 5 9 8; <u>Sample output:</u> Case-1: 10 0 25 1; Case-2: 17 1 72 1.
P-09	Explain the role of software engineering in Biomedical Engineering and in the field of Artificial Intelligence and Robotics.
P-10	Study the various phases of Water-fall model. Which phase is the most dominated one?
P-11	Using COCOMO model estimate effort for specific problem in industrial domain.
P-12	Identify the reasons behind software crisis and explain the possible solutions for the following scenario: **Case 1:** "Air ticket reservation software was delivered to the customer and was installed in an airport 12.00 AM (mid night) as per the plan. The system worked quite fine till the next day 12.00 PM (noon). The system crashed at 12.00 PM and the airport authorities could not continue using software for ticket reservation till 5.00 PM. It took 5 hours to fix the defect in the software". **Case 2:** "Software for financial systems was delivered to the customer. Customer conformed the development team about a mal-function in the system. As the software was huge and complex, the development team could not identify the defect in the software".