Programs:

1) Print “C++ is better than C” and use comments

```
#include <iostream>
using namespace std;
int main(){
    cout << "C++ is better than c";
    return 0;
}
```

Output:

```
┌──(root💀ROBEENKS)-[~/…/Class/PCC-SEM-3/OOPS/EXPT1]
└─# g++ 1first.cpp

┌──(root💀ROBEENKS)-[~/…/Class/PCC-SEM-3/OOPS/EXPT1]
└─# ./a.out
C++ is better than c
```

2) Find the sum and average of two numbers

```
#include <iostream>
using namespace std;
int main()
{
    int a;
    int b;
    int sum;
    int avg;
    cout << "please enter a\n";
    cin >> a;
    cout << "Please enter b\n";
    cin >> b;
    sum = a + b;
    cout << "The sum is:" << sum << endl;
    avg = sum / 2;
    cout << "The avg is :" << avg;
```

```
    return 0;
}
```

Output:

```
┌──(root💀ROBEENKS)-[~/…/Class/PCC-SEM-3/OOPS/EXPT1]
└─# g++ 2sum and average.cpp

┌──(root💀ROBEENKS)-[~/…/Class/PCC-SEM-3/OOPS/EXPT1]
└─# ./a.out
please enter a
30
Please enter b
2
The sum is:32
The avg is :16
```

3) Even & Odd numbers

```
#include <iostream>
#include <conio.h>
using namespace std;
void main()
{
    int i;
    cout << "Enter the number:";
    cin >> i;
    if (i % 2 == 0)
        cout << "Even Number";
    else
        cout << "Odd Number";
}
```

Output:

```
┌──(root💀ROBEENKS)-[~/…/Class/PCC-SEM-3/OOPS/EXPT1]
└─# ./a.out
Enter the number:4
Even Number

┌──(root💀ROBEENKS)-[~/…/Class/PCC-SEM-3/OOPS/EXPT1]
└─# ./a.out
Enter the number:1
Odd Number
```

4) Quadratic Equations

```
#include <iostream>
#include <math.h>
using namespace std;
int main()
{
    float root1;
    float root2;
    float x, y, z;
    float a, b, c;
    cout << "Enter the value of a , b , c\n";
    cin >> a >> b >> c;
    x = -b;
    y = sqrt((b * b) - (4 * a * c));
    z = 2 * a;
    root1 = (x + y) / z;
    root2 = (x - y) / z;
    cout << "root 1 : " << root1;
    cout << "root 2 : " << root2;
}
```

Output:

```
┌──(root💀ROBEENKS)-[~/…/Class/PCC-SEM-3/OOPS/EXPT1]
└─# ./a.out
Enter the value of a , b , c
40 30 2
root 1 : -0.0739601root 2 : -0.67604
```

5) Factorial number

```
#include <iostream>
using namespace std;
void factorial(int i)
{
```

```
    int temp = 1;
    for (int j = 1; j <= i; j++)
        temp = temp * j;
    cout << "Factorial:" << temp;
}
int main()
{
    int i;
    cout << "Enter the number:";
    cin >> i;
    factorial(i);
}
```

Output:

```
┌──(root💀ROBEENKS)-[~/…/Class/PCC-SEM-3/OOPS/EXPT1]
└─# ./a.out
Enter the number:5
Factorial:120
```

6) Fibonacci of number

```
#include <iostream>
using namespace std;
int main()
{
    int i1 = 0, i2 = 1, t, a;
    cout << "Enter the fibonacci number of values to display:";
    cin >> a;
    if (a == 1)
        cout << i1;
    else if (a == 2)
        cout << i1 << "\t" << i2;
    else if (a > 2)
    {
        cout << i1 << "\t" << i2 << "\t";
```

```
        for (int i = 1; i <= a - 2; i++)
        {
            t = i1 + i2;
            cout << t << "\t";
            i1 = i2;
            i2 = t;
        }
    }
}
```

Output:

```
┌──(root💀ROBEENKS)-[~/…/Class/PCC-SEM-3/OOPS/EXPT1]
└─# ./a.out
Enter the fibonacci number of values to display:10
0       1       1       2       3       5       8       13      21      34
```

7) Area of circle

```
#include <iostream>
#include <math.h>
using namespace std;
int main()
{
    float pi = 3.14;
    float area;
    float radius;
    cout << "please enter the value of r";
    cin >> radius;
    area = pi * radius * radius;
    cout << "The answer is : " << area;
    return 0;
}
```

Output:

```
┌──(root💀ROBEENKS)-[~/…/Class/PCC-SEM-3/OOPS/EXPT1]
└─# ./a.out
please enter the value of r 9
The answer is : 254.34
```

8) Find the Sum of elements of an array.

```
#include <iostream>
using namespace std;
int main()
{
   int i, sum = 0;
   cout << "Enter the no. of elements of the array\n";
   cin >> i;
   int a[50];
   cout << "Enter the elements of the array\n";
   for (int j = 0; j < i; j++)
   {
      cin >> a[j];
      sum = sum + a[j];
   }
   cout << "\nSum:" << sum;
}
```

Output:

```
┌──(root💀ROBEENKS)-[~/…/Class/PCC-SEM-3/OOPS/EXPT1]
└─# ./a.out
Enter the no. of elements of the array
4
Enter the elements of the array
3 8 4 2

Sum:17
```

9) Find largest element of an array.

```
#include <iostream>
```

```
using namespace std;
void main()
{
   int i, temp, max = 0;
   cout << "Enter the no. of elements of the array\n";
   cin >> i;
   int a[50];
   for (int j = 0; j < i; j++)
   {
      cin >> a[j];
      if (max < a[j])
         max = a[j];
   }
   cout << "\nMax:" << max;
}
```

Output:

```
┌──(root💀ROBEENKS)-[~/…/Class/PCC-SEM-3/OOPS/EXPT1]
└─# ./a.out
Enter the no. of elements of the array
3
3 5 8

Max:8
```

10) Implement default arguments.

```
#include <iostream>
using namespace std;
int Add(int x, int y, int z);
int Add(int x = 10, int y = 20, int z = 30)
{
   return x + y + z;
}
int main()
{
   int a;
```

```
    a = Add(5);
    cout << "\n\tThe sum is : " << a;
    a = Add(5, 10);
    cout << "\n\tThe sum is : " << a;
    a = Add(7, 3, 4);
    cout << "\n\tThe sum is : " << a;
}
```

Output:

```
┌──(root💀ROBEENKS)-[~/…/Class/PCC-SEM-3/OOPS/EXPT1]
└─# ./a.out

        The sum is : 55
        The sum is : 45
        The sum is : 14
```

11)Add, subtract, multiply and divide two numbers using inline functions

```
#include <iostream>
using namespace std;
inline int add(int a, int b)
{
    return a + b;
}
inline int sub(int a, int b)
{
    return a - b;
}
inline int division(int a, int b)
{
    return a / b;
}
inline int multi(int a, int b)
{
    return a * b;
}
```

```
int main()
{
    int a, b;
    float ans;
    while (1)
    {
        cout << "1.Addition\n2.Subtraction\n3.Division\n4.Multipication\n5.Exit\n\n=>";
        cin >> a;
        switch (a)
        {
        case 1:
            cout << "Enter the numbers to find the sum\n=>";
            cin >> a >> b;
            ans = add(a, b);
            break;
        case 2:
            cout << "Enter the numbers to find the difference\n=>";
            cin >> a >> b;
            ans = sub(a, b);
            break;
        case 3:
            cout << "Enter the numbers to evaluate the division\n=>";
            cin >> a >> b;
            ans = division(a, b);
            break;
        case 4:
            cout << "Enter the numbers to multiply\n=>";
            cin >> a >> b;
            ans = multi(a, b);
            break;
        case 5:
            exit(0);
```

```
        }
        cout << "Ans=" << ans << endl
            << endl;
      }
    }
```

Output:

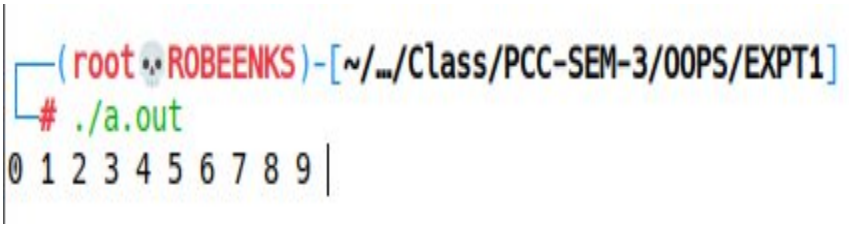
```
┌──(root💀ROBEENKS)-[~/…/Class/PCC-SEM-3/OOPS/EXPT1]
└─# ./a.out
1.Addition
2.Subtraction
3.Division
4.Multipication
5.Exit

=>1
Enter the numbers to find the sum
=>10 20
Ans=30

1.Addition
2.Subtraction
3.Division
4.Multipication
5.Exit

=>3
Enter the numbers to evaluate the division
=>40 5
Ans=8
```

12) Write a function to implement static variables.

```
#include <iostream>
using namespace std;
void count()
{
   static int c = 0;
   cout << c++ <<" ";
}
int main()
{
   for (int i = 0; i < 10; i++)
      count();
   getchar();
```

```
}
```

Output:



13) Using Bar Charts Display Array Data Graphically

```
#include <iostream>
#include <iomanip>
using namespace std;
int main()
{
   const int arraySize = 11;
   int n[arraySize] = {0, 0, 0, 0, 0, 0, 1, 2, 4, 2, 1};
   cout << "Grade distribution" << endl;
   for (int i = 0; i < arraySize; i++)
   {
      if (i == 0)
         cout << "0-9: ";
      else if (i == 10)
         cout << "100:";
      else
         cout << i * 10 << "-" << (i * 10) + 9 << ": ";
      for (int stars = 0; stars < n[i]; stars++)
         cout << '*';
      cout << endl;
   }
}
```

Output:

```
┌──(root💀ROBEENKS)-[~/…/Class/PCC-SEM-3/OOPS/EXPT1]
└─# ./a.out
Grade distribution
0-9:
10-19:
20-29:
30-39:
40-49:
50-59:
60-69: *
70-79: **
80-89: ****
90-99: **
100:*
```