

**Objectives :** Convert C programs to C++

Use your Repl.IT account and use the Instructions provided by your Instructors to complete the Tutorial. All instructions are in the Repl.IT classroom for the Tutorial Questions for Week 02. Please submit your solutions using Repl.IT itself.

### Exercise 1 - Calculations

Convert the C program given below which converts a length given in cm to inches to a C++ program.

Please Note that the input command in C++ is `std::cin`. This is a representation of the Keyboard.

e.g.

```
float data1;  
int data2;  
scanf("%f", &data1); --> std::cin >> data1;  
scanf("%d", &data2); --> std::cin >> data2;
```

You already know that `printf()` in C is `std::cout` in C++

e.g.

```
printf("Hello World") --> std::cout << "Hello World";
```

2.54cm = 1 inch

```
#include <stdio.h>  
void main(void)  
{  
    float cm, inches;  
    printf("Enter a length in cm : ");  
    scanf("%f", &cm);  
    inches = cm / 2.54;  
    printf("Length in inches is %f \n", inches);  
}
```

### Exercise 2 - Selection

Convert the C program given below which calculates an employee's salary to a C++ program.

Input Type, Salary, otHours

Type = 1

OtRate = 1000

Type = 2

OtRate = 1500

Type = 3

OtRate = 1700

Please Note that the input command in C++ is `std::cin`. This is a representation of the Keyboard.

```
#include <stdio.h>
void main(void)
{
    double salary, netSalary;
    int etype, otHrs, otRate;
    printf("Enter Employee Type : ");
    scanf("%d", &etype);
    printf("Enter Salary : ");
    scanf("%f", &salary);
    printf("Enter OtHrs : ");
    scanf("%d", &otHrs);

    switch (etype) {
        case 1 :
            otRate = 1000;
            break;
        case 2 :
            otRate = 1500;
            break;
        default :
            otRate = 1700;
            break;
    }
```

```
}

    netSalary = salary + otHrs* otRate;
    printf("Net Salary is %f ", netSalary);
}
```

### **Exercise 3 - Repeation**

Convert the C program given below which calculates the Factorial of a number that you input from the keyboard to a C++ program.

Please Note that the input command in C++ is `std::cin`. This is a representation of the Keyboard.

```
#include <stdio.h>
void main(void)
{
    int no;
    long fac;

    printf("Enter a Number : ");
    scanf("%d", &no);

    fac = 1;
    for (int r=no; r >= 1; r--) {
        fac = fac * r;
    }

    printf("Factorial of %d is %ld\n", no, fac);
}
```

**Exercise 4 - Functions**

Write a program to calculate the function called nCr which is defined as

$$nCr = n! / r! (n-r)!$$

Where n! is the factorial of n.

Implement the functions

long Factorial(int no);

long nCr(int n, int r);

Do not modify the main function.

```
#include <iostream>

long Factorial(int no);
long nCr(int n, int r);

int main() {
    int n, r;
    std::cout << "Enter a value for n ";
    std::cin >> n;
    std::cout << "Enter a value for r ";
    std::cin >> r;
    std::cout << "nCr = ";
    std::cout << nCr(n, r);
    std::cout << std::endl;
}
```