

Objectives : Convert C programs to C++

Exercise 1 - 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 2 - Repetition

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 3 - 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;  
}
```

Exercise 1 - Formatting

Modify the program to produce the output given below (don't print the first two lines and the blank line).
You have to use the following commands in the <iomanip> header file

```
#include <iostream>
using namespace std;
int main() {
    float marks[] = {78.4, 90.6, 45.9, 72.2, 54.4};
    char names[][20] = {"Ajith", "Wimal", "Kanthi", "Suranji", "Kushmitha"};
    cout << "No" << "Name" << "Marks" << endl;
    for (int r = 0; r < 5; r++) {
        cout << r+1
              << names[r]
              << marks[r] << endl;
    }
}
setw(), setprecision(), setiosflags(ios::fixed)
```

Note : No has a width of 5, Name a width of 15, and Marks a width of 10, the marks are displayed with a precision of 2 decimal places.

```
0          1          2          3
123456789012345678901234567890

No          Name          Marks
1           Ajith          78.40
2           Wimal          90.60
3           Kanthi          45.90
4           Suranji         72.20
5           Kushmitha       54.40
```