Faculty of Engineering, University of Jaffna
Department of Computer Engineering
EC2010: Computer Programming
Lab 05

Lecturer: Dr, J. Jananie Instructors:

1. First, create a CPPproject and name it Lab05-RegNo, replacing the term RegNo with your RegNo.
2. Starting at the topmost line of the file, insert the following minimally required documentation, filling in your name, Reg_No, the assignment number, due date and a brief description of what the program will do. You must select one of the two forms of certification of Authenticity. Submissions not including a certification of authenticity will not be graded.

```
// Your Name
// Your RegNo
// EC2010
//Group: [Insert the number]
// Lab: [Insert the number]
// Program Description: [insert brief description here]
// Certificate of Authenticity: (choose one from below)
// I certify that the code in the method function main of this project
// is entirely my own work.
(or)
// I certify that the code in method function main of this project is
// entirely my own work, but I received assistance from [insert name/book/lectureslides].
// Follow this with a description of the type of assistance.
```

1) Implement the following programs and paste the outputs.

Task 01:

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

class Student{
    public:
        int age;
    private:
        string studentId,name;


    public:
        void displayAge(){
        cout << "Age = "<<age<<endl;
        }
    public:
        void displayname(string n)
        {
            name=n;
            cout<<"Name = "<<name<<endl;
        }
    public:
        void displayid(string n, string id)
        {
            name=n;
            studentId=id;
            cout<<name<<"\'s Student ID = "<<studentId<<endl;
        }
};

int main(){
    Student obj1;
    cout<<"Enter your age: ";
    cin>>obj1.age;
    string nameinput;
    cout<<"Enter your Name: ";
    cin>>nameinput;
    string idinput;
    cout<<"Enter your StudentId: ";
    cin>>idinput;
    obj1.displayname(nameinput);
    obj1.displayid(nameinput,idinput);
    obj1.displayAge();
    return 0;
}
```

Task 02:

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

class Employee {
private:
    double basicSalary;
    double allowance;
    double epfRate;
    double epf;
    double monthlySalary;

public:
    void get(double basicSalary, double allowance, double epfRate) {
        this->basicSalary = basicSalary;
        this->allowance = allowance;
        this->epfRate = epfRate;
    }

    double calculateMonthlySalary() {
        monthlySalary = basicSalary + allowance;
        return monthlySalary;
    }

    double calculateEPF() {
        epf = basicSalary * (epfRate / 100);
        return epf;
    }

    double calculateEPFAfterYears(int years) {
        double epfAfterYears = 0;

        for (int i = 1; i <= years; ++i) {
            epfAfterYears += epf * 12;
            epfAfterYears *= (1 + (epfRate / 100));
        }

        return epfAfterYears;
    }
};

```

```
41
42  int main() {
43      Employee emp1;
44
45      double basicSalary, allowance, epfRate;
46      int years;
47
48      cout << "Enter Basic Salary: ";
49      cin >> basicSalary;
50
51      cout << "Enter Allowance: ";
52      cin >> allowance;
53
54      cout << "Enter EPF Rate (%): ";
55      cin >> epfRate;
56
57      cout << "Enter Number of Years: ";
58      cin >> years;
59
60      emp1.get(basicSalary, allowance, epfRate);
61
62      cout << "Monthly Salary: " << emp1.calculateMonthlySalary() << endl;
63      cout << "EPF Deduction: " << emp1.calculateEPF() << endl;
64      cout << "EPF After " << years << " Years: " << emp1.calculateEPFAfterYears(years) << endl;
65
66      return 0;
67  }
```

2) Write a C++ program to find Nth number in below series in iterative and recursive way.
1,3,12,60,360…….. N-th term =N!*(N+1)/2

3) Write a C++ program to check, whether the given string is a palindrome or not by using the recursive method. (palindrome-a word that reads the same backward as forward. For instance, MADAM is a palindrome)

Enter a string : MADAM

Output:- MADAM is a palindrome.

Create a zip file in a format of Lab5-Regno-Coursecode including all your code folders and pdf answer sheets.

Upload the zip file on/before given deadline via team.

Any plagiarized work will be given 0 marks.