**Assignment 03 Namespaces**

**Assignment: Namespace**

**Write a program to**

**1. Create a namespace “SY” which has class SYMARKS (Computer Total, MathsTotal, ElectronicsTotal).**

**2. Create another namespace “TY” which has a class TYMarks (Theory, Practical).**

**3. Create object of student class (Outside SY & TY package) having roll number, name, SYMakrs and TYMarks. Add the marksof SY and TY Computer subjects and calculate grade ("A" for >=70, "B" for >=60, "C" for >=50, “Pass Class” for >=40 else “Fail”) and display the result of the student in proper format.**

**Main.cpp**

#include "student.h"

#include "sy.h"

#include "ty.h"

using *namespace* student;

using *namespace* sy;

using *namespace* ty;

*int* main()

{

    sy::Marks syMarks(45, 65, 43);

    ty::Marks tyMarks(75, 83);

    Student \*s1 = new Student(12, "Bhagvat", syMarks, tyMarks);

    s1->calculateGrade();

    s1->display();

    return 0;

}

**Student.h**

#include <bits/stdc++.h>

// Create object of student class (Outside SY & TY package) having roll number, name, SYMakrs and TYMarks. Add the marksof SY and TY Computer subjects and calculate grade ("A" for >=70, "B" for >=60, "C" for >=50, “Pass Class” for >=40 else “Fail”) and display the result of the student in proper format.

#include <string>

#include "sy.h"

#include "ty.h"

using *namespace* sy;

using *namespace* ty;

using *namespace* std;

*namespace* student

{

*class* Student

    {

*private:*

*int* roll\_no;

        string name;

        sy::Marks SyMarks;

        ty::Marks TyMarks;

        string grade;

*public:*

        Student();

        Student(*int*, string, sy::Marks, ty::Marks);

*void* calculateGrade();

*void* display();

    };

}

**Student.cpp**

#include "student.h"

*namespace* student

{

    Student::Student()

    {

        this->name = "No Name";

        this->roll\_no = 0;

        this->SyMarks;

        this->TyMarks;

        this->grade = "undefined";

    }

    Student::Student(*int* *rollNo*, string *Name*, sy::Marks *syMarks*, ty::Marks *tyMarks*)

        : roll\_no(*rollNo*), name(*Name*), SyMarks(*syMarks*), TyMarks(*tyMarks*)

    {

    }

    // Student::Student(int rollNo, string Name, sy::Marks syMarks, ty::Marks tyMarks)

    // {

    //     this->roll\_no = rollNo;

    //     this->name = Name;

    //     this->SyMarks = SyMarks;

    //     this->TyMarks = TyMarks;

    // }

    // void Student::display()

    // {

    //     cout << "Roll No : " << this->roll\_no << endl;

    //     cout << "Name  : " << this->name << endl;

    //     cout << "SY Marks :: " << endl;

    //     cout << "CompTotal:" << this->SyMarks.getComputerTotal() << endl;

    //     cout << "ElectronicsTotal:" << this->SyMarks.getElectronicsTotal() << endl;

    //     cout << "MathsTotal:" << this->SyMarks.getMathsTotal() << endl;

    // }

*void* Student::display()

    {

        cout << "Roll No : " << roll\_no << endl;

        cout << "Name : " << name << endl;

        cout << "SY Marks: " << SyMarks.getComputerTotal() << ", "

             << SyMarks.getMathsTotal() << ", " << SyMarks.getElectronicsTotal() << endl;

        cout << "TY Marks: " << TyMarks.getTheory() << ", " << TyMarks.getPractical() << endl;

        cout << "Grade: " << grade << endl;

    }

*void* Student::calculateGrade()

    {

*int* total = SyMarks.getComputerTotal() + TyMarks.getPractical();

        total /= 2;

        if (total >= 70)

        {

            grade = "A";

        }

        else if (total >= 60)

        {

            grade = "B";

        }

        else if (total >= 50)

        {

            grade = "C";

        }

        else if (total >= 40)

        {

            grade = "Pass Class";

        }

        else

        {

            grade = "Fail";

        }

    }

}

**SY.h**

#include <bits/stdc++.h>

#include <string>

using *namespace* std;

#pragma once

*namespace* sy

{

*class* Marks

    {

*private:*

*int* ComputerTotal, MathsTotal, ElectronicsTotal;

*public:*

        Marks();

        Marks(*int*, *int*, *int*);

*int* getComputerTotal();

*int* getMathsTotal();

*int* getElectronicsTotal();

*void* display();

    };

}

**SY.cpp**

#include "sy.h"

*namespace* sy

{

    Marks::Marks()

    {

        this->ComputerTotal = 0;

        this->ElectronicsTotal = 0;

        this->MathsTotal = 0;

    }

    Marks::Marks(*int* *CompTTL*, *int* *EleTTL*, *int* *MathTTL*)

    {

        this->ComputerTotal = *CompTTL*;

        this->ElectronicsTotal = *EleTTL*;

        this->MathsTotal = *MathTTL*;

    }

*int* Marks::getComputerTotal()

    {

        return this->ComputerTotal;

    }

*int* Marks::getElectronicsTotal()

    {

        return this->ElectronicsTotal;

    }

*int* Marks::getMathsTotal()

    {

        return this->MathsTotal;

    }

*void* Marks::display()

    {

        cout << ":: SY TOTAL MARKS ::\n";

        cout << "ComputerTotal = " << this->ComputerTotal << endl;

        cout << "ElectronicsTotal = " << this->ElectronicsTotal << endl;

        cout << "MathsTotal = " << this->MathsTotal << endl;

    }

}

**TY.h**

#include <bits/stdc++.h>

#include <string>

using *namespace* std;

#pragma once

*namespace* ty

{

*class* Marks

    {

*private:*

*int* Theory, Practical;

*public:*

        Marks();

        Marks(*int*, *int*);

*int* getTheory();

*int* getPractical();

        // void display();

    };

}

**Ty.cpp**

#include "ty.h"

*namespace* ty

{

    Marks::Marks()

    {

        this->Theory = 0;

        this->Practical = 0;

    }

    Marks::Marks(*int* Theory, *int* Practical)

    {

        this->Theory = Theory;

        this->Practical = Practical;

    }

*int* Marks::getTheory()

    {

        return this->Theory;

    }

*int* Marks::getPractical()

    {

        return this->Practical;

    }

    // void Marks::display()

    // {

    //     cout << ":: SY TOTAL MARKS ::\n";

    //     cout << "Theory = " << this->Theory << endl;

    //     cout << "Practical = " << this->Practical << endl;

    //     cout << "MathsTotal = " << this->MathsTotal << endl;

    // }

}

**OUTPUT:**

**PS D:\Fullstack-Java-FirstBit-Solutions\DSA\Assignments\NameSpacs\SyTyGr./main**

**Roll No : 12**

**Name : Bhagvat**

**SY Marks: 45, 43, 65**

**TY Marks: 75, 83**

**Grade: B**

**PS D:\Fullstack-Java-FirstBit-Solutions\DSA\Assignments\NameSpacs\SyTyGrades>**