

Lab Practical

Q. WAP to create a class CStudent. Assume necessary data members and member functions. Derive GEMath, GEElectronics, GEPE, and GEPysics student classes. A student is either Math, Electronics, PE or Physics student depending on the choice entered during time of input admission.

Code:-

```
//Harsh Bamotra
//Program to create a CStudent class

#include <iostream>
using namespace std;

/***** Defining CStudent class *****/
class CStudent
{
protected:
    string fname, lname, year, subject[4];           //defining protected members
    int RollNo;

public:
    //defining private members
    void getData()                                   //defining function to take data
    {
        cout << "***** Enter the details of the students *****" << endl;
        cout << "Enter your first name::";
        cin >> fname;
        cout << "Enter your last name ::";
        cin >> lname;
        cout << "Enter the year of college::";
        cin >> year;
        cout << "Enter your roll no. ::";
        cin >> RollNo;
        cout << "Enter your core subjects" << endl;
        for(int i=0 ; i<3 ; i++)
        {
            cout << "Enter subject " << i+1 << "::";
            cin >> subject[i];
        }
    }
}
```

```

void display()          //defining function to display data
{
    cout << "***** Details of the students *****"<< endl;
    cout << "Name ::" << fname << " " << lname << endl;
    cout << "Roll No. ::" << RollNo << endl;
    cout << "College Year ::" << year << endl;
    cout << "Subjects ::" << endl;
    for(int i=0 ; i<4 ; i++)
    {
        cout << i+1 << ". " << subject[i] << endl;
    }
    cout << "*****"<< endl;
}

};

class GEMath : public CSStudent          //inheriting GEMath class
{
    private:
        string gesub;

    public:
        GEMath()
        {
            gesub="Mathematics";
            subject[3]=gesub;
        }
};

class GEElectronics : public CSStudent    //inheriting GEElectronics class
{
    private:
        string gesub;

    public:
        GEElectronics()
        {
            gesub="Electronics";
            subject[3]=gesub;
        }
};

class GEPE : public CSStudent             //inheriting GEPE class
{
    private:
        string gesub;

    public:
        GEPE()
        {
            gesub="PE";
            subject[3]=gesub;
        }
};

```

```

class GEPHysics : public CSStudent                                //inheriting GEPHysics class
{
    private:
        string gesub;

    public:
        GEPHysics()
        {
            gesub="Physics";
            subject[3]=gesub;
        }
};

int main()
{
    string ch="Y";
    while(ch=="Y" || ch=="y")
    {
        int x;
        cout << "***** MENU *****" << endl;
        cout << "1. GEMath" << endl << "2. GEElectronins" << endl;
        cout << "3. GEPE " << endl << "4. GEPHysics" << endl;                //printing menu
        cout << "*****" << endl;
        cout << "Enter your GE subject (1 , 2 , 3 or 4)::";
        cin >> x;                                                            //taking user choice
        cout << endl;

        if(x==1)
        {
            GEMath s;
            s.getData();              //defining object , taking and printing data
            cout << endl;
            s.display();
        }
        else if(x==2)
        {
            GEElectronics s;
            s.getData();              //defining object , taking and printing data
            cout << endl;
            s.display();
        }

        else if(x==3)
        {
            GEPE s;
            s.getData();              //defining object , taking and printing data
            cout << endl;
            s.display();
        }
    }
}

```

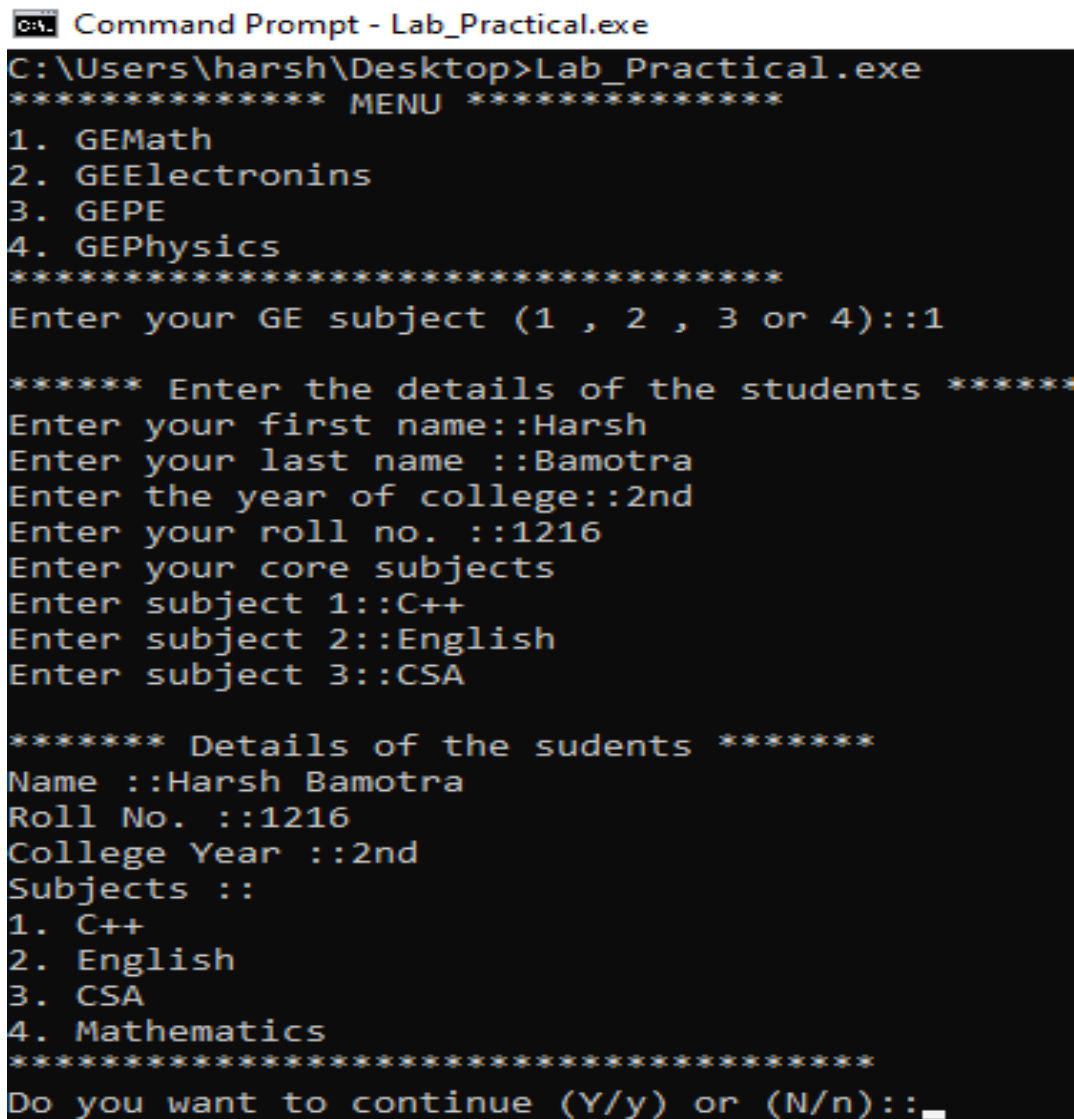
```

else if(x==4)
{
    GEPhysics s;
    s.getData();           //defining object , taking and printing data
    cout << endl;
    s.display();
}

else
{
    cout << "Wrong Input !! ";           //printing error message
}
cout << "Do you want to continue (Y/y) or (N/n)::";    //asking the user if he wants to continue
cin >> ch;
}
}

```

Output:



```

C:\Users\harsh\Desktop>Lab_Practical.exe
***** MENU *****
1. GEMath
2. GEElectronins
3. GEPE
4. GEPhysics
*****
Enter your GE subject (1 , 2 , 3 or 4)::1

***** Enter the details of the students *****
Enter your first name::Harsh
Enter your last name ::Bamotra
Enter the year of college::2nd
Enter your roll no. ::1216
Enter your core subjects
Enter subject 1::C++
Enter subject 2::English
Enter subject 3::CSA

***** Details of the sudents *****
Name ::Harsh Bamotra
Roll No. ::1216
College Year ::2nd
Subjects ::
1. C++
2. English
3. CSA
4. Mathematics
*****
Do you want to continue (Y/y) or (N/n)::

```

Do you want to continue (Y/y) or (N/n)::y

***** MENU *****

1. GEMath
2. GEElectronins
3. GEPE
4. GEPysics

Enter your GE subject (1 , 2 , 3 or 4)::2

***** Enter the details of the students *****

Enter your first name::Harsh

Enter your last name ::Bamotra

Enter the year of college::1st

Enter your roll no. ::1216

Enter your core subjects

Enter subject 1::c++

Enter subject 2::CSA

Enter subject 3::English

***** Details of the sudents *****

Name ::Harsh Bamotra

Roll No. ::1216

College Year ::1st

Subjects ::

1. c++
2. CSA
3. English
4. Electronics

Do you want to continue (Y/y) or (N/n)::

Do you want to continue (Y/y) or (N/n)::y

***** MENU *****

1. GEMath
2. GEElectronins
3. GEPE
4. GEPysics

Enter your GE subject (1 , 2 , 3 or 4)::3

***** Enter the details of the students *****

Enter your first name::Harsh

Enter your last name ::Bamotra

Enter the year of college::3rd

Enter your roll no. ::1212

Enter your core subjects

Enter subject 1::EVS

Enter subject 2::C++

Enter subject 3::English

***** Details of the sudents *****

Name ::Harsh Bamotra

Roll No. ::1212

College Year ::3rd

Subjects ::

1. EVS
2. C++
3. English
4. PE

Do you want to continue (Y/y) or (N/n)::

Do you want to continue (Y/y) or (N/n)::y

***** MENU *****

1. GEMath
2. GEElectronins
3. GEPE
4. GEPysics

Enter your GE subject (1 , 2 , 3 or 4)::4

***** Enter the details of the students *****

Enter your first name::Harsh

Enter your last name ::Bamotra

Enter the year of college::3rd

Enter your roll no. ::1217

Enter your core subjects

Enter subject 1::C++

Enter subject 2::English

Enter subject 3::CSA

***** Details of the sudents *****

Name ::Harsh Bamotra

Roll No. ::1217

College Year ::3rd

Subjects ::

1. C++
2. English
3. CSA
4. Physics

Do you want to continue (Y/y) or (N/n)::y

```
Do you want to continue (Y/y) or (N/n)::y
***** MENU *****
1. GEMath
2. GEElectronins
3. GEPE
4. GEPysics
*****
Enter your GE subject (1 , 2 , 3 or 4)::5

Wrong Input !! Exiting Do you want to continue (Y/y) or (N/n)::n

C:\Users\harsh\Desktop>_
```

Harsh Bamotra

AC-1216