**PRODUCT GST**

#include <iostream>

#include <string>

using namespace std;

class GST;

class Product

{

  string product\_name;

  float product\_price;

public:

  void setProduct(string name, float price)

  {

    product\_name = name;

    product\_price = price;

  }

*friend* float finalPrice(Product p, GST g);

};

class GST

{

  float gst\_rate;

public:

  void setGST(float rate)

  {

    gst\_rate = rate;

  }

*friend* float finalPrice(Product p, GST g);

};

float finalPrice(Product p, GST g)

{

  float total\_price = p.product\_price + (p.product\_price \* g.gst\_rate / 100);

  cout << "Product Name: " << p.product\_name << endl;

  cout << "Total Price: " << total\_price << endl;

  return total\_price;

}

int main()

{

  string name;

  float price, rate;

  cout << "Enter Product Name: ";

  cin >> name;

  cout << "Enter Product Price: ";

  cin >> price;

  cout << "Enter GST Rate: ";

  cin >> rate;

  Product p;

  p.setProduct(name, price);

  GST g;

  g.setGST(rate);

  finalPrice(p, g);

  return 0;

}

**STUDENT**

#include <iostream>

#include <string>

using namespace std;

class Student

{

  int roll;

public:

  void setRoll(int r)

  {

    roll = r;

  }

  void displayRoll()

  {

    cout << "Roll: " << roll << endl;

  }

  int getRoll()

  {

    return roll;

  }

};

class Test : virtual public Student

{

  int marks;

public:

  void setMarks(int m)

  {

    marks = m;

  }

  void displayMarks()

  {

    cout << "Marks: " << marks << endl;

  }

  int getMarks()

  {

    return marks;

  }

};

class Sports : virtual public Student

{

  int score;

public:

  void setScore(int s)

  {

    score = s;

  }

  void displayScore()

  {

    cout << "Score: " << score << endl;

  }

  int getScore()

  {

    return score;

  }

};

class Result : public Test, public Sports

{

  int total;

  public:

  void displayResult()

  {

    total = getRoll() + getMarks();

    displayRoll();

    displayMarks();

    displayScore();

    cout << "Total: " << total << endl;

  }

};

int main()

{

  int roll, marks, score;

  cout << "Enter Roll: ";

  cin >> roll;

  cout << "Enter Marks: ";

  cin >> marks;

  cout << "Enter Score: ";

  cin >> score;

  Result r;

  r.setRoll(roll);

  r.setMarks(marks);

  r.setScore(score);

  r.displayResult();

  return 0;

}

**SHAPE**

#include <iostream>

using namespace std;

class Shape

{

public:

*virtual* void area() = 0;

*virtual* void perimeter() = 0;

};

class Square : public Shape

{

  int side;

public:

  Square(int s)

  {

    side = s;

  }

  void area()

  {

    cout << "Area of Square: " << side \* side << endl;

  }

  void perimeter()

  {

    cout << "Perimeter of Square: " << 4 \* side << endl;

  }

};

class Rectangle : public Shape

{

  int length, breadth;

public:

  Rectangle(int l, int b)

  {

    length = l;

    breadth = b;

  }

  void area()

  {

    cout << "Area of Rectangle: " << length \* breadth << endl;

  }

  void perimeter()

  {

    cout << "Perimeter of Rectangle: " << 2 \* (length + breadth) << endl;

  }

};

int main()

{

  Shape \*s;

  Square sq(5);

  Rectangle r(5, 10);

  s = &sq;

  s->area();

  s->perimeter();

  s = &r;

  s->area();

  s->perimeter();

  return 0;

}