**ASSIGNMENT - 3**

Name: **HITARTH GANATRA**

Sem: **II**

Div.: **1**

ID: **22BCA064**

Subject: **Fundamentals of Object Oriented Programming Language**

Q1

**CODE:**

#include<iostream>

using *namespace* std;

*class* Area{

*int* length, breadth;

*public :*

        Area(*int* *a*, *int* *b*){

            length = *a*;

            breadth = *b*;

        }

*void* displayArea();

};

*void* Area::displayArea(){

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

}

*int* main(){

    Area sum1(10, 15);

    sum1.displayArea();

    return 0;

}

Q2

**CODE:**

#include<iostream>

using *namespace* std;

*class* Calculation{

*int* num1, num2;

*public :*

        Calculation(*int* *a*, *int* *b*);

*void* addition();

*void* subtraction();

*void* multiplication();

*void* division();

*void* do\_all(){

            addition();

            subtraction();

            multiplication();

            division();

        }

};

Calculation::Calculation(*int* *a*, *int* *b*){

    num1 = *a*;

    num2 = *b*;

}

*void* Calculation::addition(){

    cout << "The addition of " << num1 << " and " << num2 << " is " << num1 + num2 << endl;

}

*void* Calculation::subtraction(){

    cout << "The subtraction of " << num1 << " and " << num2 << " is " << num1 - num2 << endl;

}

*void* Calculation::multiplication(){

    cout << "The multiplication of " << num1 << " and " << num2 << " is " << num1 \* num2 << endl;

}

*void* Calculation::division(){

    cout << "The division of " << num1 << " and " << num2 << " is " << (*float*)num1 / num2 << endl;

}

*int* main(){

    Calculation c1(10, 3);

    c1.do\_all();

    return 0;

}

Q3

**CODE:**

#include<iostream>

using *namespace* std;

*class* Bank

{

*private:*

*int* accno, balance;

*public:*

        Bank(*int* *a*, *int* *b*);

*void* ask();

*void* deposit();

*void* withdraw();

*void* balance\_func();

};

Bank::Bank(*int* *a*, *int* *b*){

    accno = *a*;

    balance = *b*;

}

*void* Bank::ask(){

*int* choice;

    cout << "1. Deposit" << endl;

    cout << "2. Withdraw" << endl;

    cout << "3. Balance" << endl;

    cout << "4. Exit" << endl << endl;

    cout << "Enter your choice : ";

    cin >> choice;

    switch (choice)

    {

        case 1:

            deposit();

            break;

        case 2:

            withdraw();

            break;

        case 3:

            balance\_func();

            break;

        case 4:

            cout << "Thank you for using the program . " << endl;

            break;

        default:

            cout << "Please enter a correct option." << endl << endl;

            ask();

            break;

    }

}

*void* Bank::deposit()

{

*int* deposit;

    cout << "Enter the amount you want to deposit : ";

    cin >> deposit;

    balance += deposit;

    cout << "Your current balance is : " << balance << endl << endl;

    ask();

}

*void* Bank::withdraw(){

*int* withdraw;

    cout << "Enter the amount you want to withdraw : ";

    cin >> withdraw;

    if (withdraw > balance)

    {

        cout << "Not enough balance" << endl << endl;

        ask();

    }

    else{

        balance -= withdraw;

        cout << "Your current balance is : " << balance << endl << endl;

        ask();

    }

}

*void* Bank::balance\_func(){

    cout << "Your current balance is : " << balance << endl << endl;

    ask();

}

*int* main(){

    Bank p1(1, 1000);

    p1.ask();

    return 0;

}

Q4

**CODE:**

#include<iostream>

using *namespace* std;

*class* Mobile{

*public:*

        string brand, color;

*int* price;

*float* width, height;

        Mobile(string *b*, *int* *p*, string *c*, *float* *w*, *float* *h*){

            brand = b;

            price = p;

            color = c;

            width = w;

            height = h;

        }

*void* display(){

            cout << "Brand : " << brand << endl;

            cout << "Price : " << price << endl;

            cout << "Color : " << color << endl;

            cout << "Width : " << width << endl;

            cout << "Height : " << height << endl << endl;

        }

};

*int* main(){

    Mobile samsung("Samsung", 30000, "Purple", 15.6, 13.2);

    samsung.display();

    return 0;

}

Q5

**CODE:**

#include<iostream>

using *namespace* std;

*class* Mobile{

*public:*

        string brand, color;

*int* price;

        Mobile(string *b*, *int* *p*, string *c*){

            brand = *b*;

            price = *p*;

            color = *c*;

        }

*void* display(){

            cout << "Brand : " << brand << endl;

            cout << "Price : " << price << endl;

            cout << "Color : " << color << endl << endl;

        }

};

*int* main(){

*int* total = 0;

    Mobile samsung[] = { Mobile("S22 Ultra", 5000, "Purple"),

                         Mobile("S23 Ultra", 8000, "White"),

                         Mobile("A15", 4000, "Black") };

    for (*int* i = 0; i < 4; i++)

    {

        if (samsung[i].price >= 5000)

        {

            total++;

        }

    }

    cout << "Total number of phones whose price is > 5000 are : " << total << endl << endl;

    for (*int* i = 0; i < 4; i++)

    {

        if (samsung[i].price >= 1000 && samsung[i].price <= 10000)

        {

            samsung[i].display();

        }

    }

    return 0;

}

Q6

**CODE:**

#include<iostream>

using *namespace* std;

*class* Employee{

*int* salary;

*public:*

        static *int* empcode;

        string name;

        Employee(string *n*, *int* *s*){

            name = *n*;

            salary = *s*;

            empcode++;

        }

*void* display(){

            cout << "Empcode : " << empcode << endl;

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

            cout << "Salary : " << salary << endl << endl;

        }

};

*int* Employee::empcode = 0;

*int* main(){

    Employee e1("E1", 1000);

    e1.display();

    Employee e2("E2", 2000);

    e2.display();

    Employee e3("E3", 3000);

    e3.display();

    return 0;

}

Q7

**CODE:**

#include<iostream>

using *namespace* std;

*class* Student{

*private:*

*int* ID;

        string name;

*int* marks[5];

*void* calculatePercentage();

*public:*

*float* percentage;

*void* getData();

*void* displayData();

};

*void* Student::getData(){

    cout << "Enter the ID: ";

    cin >> ID;

    cout << "Enter the name: ";

    cin >> name;

    cout << "Enter the marks for 5 subject : ";

    for(*int* i=0; i<5; i++){

        cin >> marks[i];

    }

    calculatePercentage();

}

*void* Student::calculatePercentage(){

*int* sum = 0;

    for(*int* i=0; i<5; i++){

        sum += marks[i];

    }

    percentage = sum/5.0;

}

*void* Student::displayData(){

    cout << endl << "ID : " << ID << endl;

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

    cout << "Percentage : " << percentage << endl << endl;

}

*int* main(){

*int* N;

    cout << "Enter the number of students: ";

    cin >> N;

    Student s[N];

    for(*int* i=0; i<N; i++){

        s[i].getData();

    }

*int* max = 0;

    for(*int* i=0; i<N; i++){

        if(s[i].percentage > s[max].percentage){

            max = i;

        }

    }

    s[max].displayData();

    return 0;

}

Q8

**CODE:**

#include<iostream>

using *namespace* std;

*class* Student;

*class* Sport{

*public:*

        friend *class* Student;

*int* sport\_mark;

*void* setSportMark(*int* *m1*){

            sport\_mark = m1;

        }

};

*class* Student{

*public:*

*int* rollNo, marks1, marks2, marks3;

*void* setData(*int* *rno*, *int* *m1*, *int* *m2*, *int* *m3*);

*int* total(Sport *s1*);

};

*int* Student::total(Sport *s1*){

    return (marks1 + marks2 + marks3 + s1.sport\_mark);

}

*void* Student::setData(*int* *rno*, *int* *m1*, *int* *m2*, *int* *m3*){

    rollNo = rno;

    marks1 = m1;

    marks2 = m2;

    marks3 = m3;

}

*int* main()

{

    Student n1;

    Sport s1;

    s1.setSportMark(90);

    n1.setData(1, 100, 95, 98);

*int* total = n1.total(s1);

    cout << total << endl;

    return 0;

}