

## VIT - Vellore

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### BCSE102P\_Structured and Object Oriented Programming Lab\_VL2024250502365

#### VIT V\_Structured and OOP\_Lab 7\_COD\_Easy\_Abstract Classes

Attempt : 1

Total Mark : 20

Marks Obtained : 20

#### Section 1 : Coding

##### 1. Problem Statement:

Write a Program to calculate the current bill.

Create a class currentBill with a virtual method double amount().

Create a Fan

Create a class Fan that extends currentBill with watts and hours as its public attributes and overrides the virtual function.

Create a class Light that extends currentBill with watts and hours as its public attributes and overrides the virtual function.

Create a class TV that extends currentBill with watts and hours as its public attributes and overrides the virtual function.

In the main method, prompt the user to enter the power rate of the appliance and the total hours used then create the necessary objects and call the methods.

### **Answer**

```
// You are using GCC
#include<iostream>
using namespace std;
```

```
class currentBill{
public:
    virtual double amount()=0;
};
```

```
class Fan: public currentBill{
public:
    int watts;
    int hours;
    Fan(int x,int y){
        watts=x;
        hours=y;
    }
    double amount() override{
        return watts*hours;
    }
};
```

```
class Light: public currentBill{
public:
    int watts;
    int hours;
    Light(int x,int y){
        watts=x;
        hours=y;
    }
    double amount() override{
        return watts*hours;
    }
};
```

```
class Tv: public currentBill{
```

```

public:
    int watts;
    int hours;
    Tv(int x,int y){
        watts=x;
        hours=y;
    }
    double amount() override{
        return watts*hours;
    }
};

int main(){
    int a,b,c,d,e,f;
    cin>>a>>b;
    cin>>c>>d;
    cin>>e>>f;
    Fan obj1(a,b);
    Light obj2(c,d);
    Tv obj3(e,f);
    cout<<(obj1.amount()+obj2.amount()+obj3.amount())*1.5/1000<<endl;
    return 0;
}

```

**Status :** Correct

**Marks :** 10/10

## 2. Problem Statement:

Create a base class named operationsBase with the following four virtual functions

void addition()

void subtraction()

void multiplication()

void division()

Create a derived class named operationsDerived that extends operationsBase with a and b as its private attributes and override the virtual functions.

### Answer

```
// You are using GCC
#include<iostream>
using namespace std;
class operationBase{
public:
    virtual void addition()=0;
    virtual void subtraction()=0;
    virtual void multiplication()=0;
    virtual void division()=0;
};

class operationsderived: public operationBase{
protected:
    int a,b;
public:
    operationsderived(int x, int y)
    {
        a=x;
        b=y;
    }
    void addition() override{
        cout<<a+b<<" ";
    }
    void subtraction() override{
        cout<<a-b<<" ";
    }
    void multiplication() override{
        cout<<a*b<<" ";
    }
    void division() override{
        cout<<a/b;
    }
};

int main(){
    int x,y;
    cin>>x>>y;
    operationsderived obj(x,y);
    obj.addition();
    obj.subtraction();
```

```
obj.multiplication();  
obj.division();  
return 0;  
}
```

**Status :** Correct

**Marks : 10/10**