**Problem 01:**

#include <iostream>

using namespace std;

class publication{

public:

string title;

float price;

void getData(){

cout<<"Enter the Title: ";

cin>>title;

cout<<"Enter the Price: ";

cin>>price;

}

void putData(){

cout<<"Title: "<<title<<endl;

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

}

};

class book : public publication{

public:

int pageCount;

void getData(){

publication::getData();

cout<<"Enter the Page Counts: ";

cin>>pageCount;

}

void putData(){

publication::putData();

cout<<"Page Counts: "<<pageCount<<endl;

}

};

class tape: public publication{

public:

float playTime;

void getData(){

publication::getData();

cout<<"Enter the tape play time: ";

cin>>playTime;

}

void putData(){

publication::putData();

cout<<"Play Time (minutes): "<<playTime<<endl;

}

};

int main(){

book b1;

cout<<"Enter Book Details: "<<endl;

b1.getData();

cout<<"\nBook Details: "<<endl;

b1.putData();

cout<<endl;

tape t1;

cout<<"\nEnter Tape Details: "<<endl;

t1.getData();

cout<<"\nTape Details: "<<endl;

t1.putData();

}

**Problem 02:**

#include <iostream>

using namespace std;

class publication{

public:

string title;

float price;

void getData(){

cout<<"Enter the Title: ";

cin>>title;

cout<<"Enter the Price: ";

cin>>price;

}

void putData(){

cout<<"Title: "<<title<<endl;

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

}

};

class sales{

public:

float arr[3];

void getData(){

cout<<"Enter the Sales of 3 Months in $: ";

for(int i = 0; i<3; i++){

cin>>arr[i];

}

}

void putData(){

cout<<"The Data of 3 Months Sales: "<<endl;

for(int i = 0; i<3; i++){

cout<<arr[i]<<" ";

}

cout<<endl;

}

};

class book : public publication, public sales{

public:

int pageCount;

void getData(){

publication::getData();

sales::getData();

cout<<"Enter the Page Counts: ";

cin>>pageCount;

}

void putData(){

publication::putData();

sales::putData();

cout<<"Page Counts: "<<pageCount<<endl;

}

};

class tape: public publication, public sales{

public:

float playTime;

void getData(){

publication::getData();

sales::getData();

cout<<"Enter the tape play time: ";

cin>>playTime;

}

void putData(){

publication::putData();

sales::putData();

cout<<"Play Time (minutes): "<<playTime<<endl;

}

};

int main(){

book b1;

cout<<"Enter Book Details: "<<endl;

b1.getData();

cout<<"\nBook Details: "<<endl;

b1.putData();

cout<<endl;

tape t1;

cout<<"\nEnter Tape Details: "<<endl;

t1.getData();

cout<<"\nTape Details: "<<endl;

t1.putData();

}

**Problem 03:**

#include <iostream>

using namespace std;

class publication{

public:

string title;

float price;

void getData(){

cout<<"Enter the Title: ";

cin>>title;

cout<<"Enter the Price: ";

cin>>price;

}

void putData(){

cout<<"Title: "<<title<<endl;

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

}

};

class sales{

public:

float arr[3];

void getData(){

cout<<"Enter the Sales of 3 Months in $: ";

for(int i = 0; i<3; i++){

cin>>arr[i];

}

}

void putData(){

cout<<"The Data of 3 Months Sales: "<<endl;

for(int i = 0; i<3; i++){

cout<<arr[i]<<" ";

}

cout<<endl;

}

};

class disk: public publication, public sales{

enum DiskType { CD, DVD } diskType;

public:

void getData() {

publication::getData();

sales::getData();

char type;

cout << "Enter Disk Type (c for CD, d for DVD): ";

cin >> type;

if (type == 'd' || type == 'D') {

diskType = DVD;

} else {

diskType = CD;

}

}

void putData() {

publication::putData();

sales::putData();

cout << "Disk Type: " << (diskType == CD ? "CD" : "DVD") << endl;

}

};

class book : public publication, public sales{

public:

int pageCount;

void getData(){

publication::getData();

sales::getData();

cout<<"Enter the Page Counts: ";

cin>>pageCount;

}

void putData(){

publication::putData();

sales::putData();

cout<<"Page Counts: "<<pageCount<<endl;

}

};

class tape: public publication, public sales{

public:

float playTime;

void getData(){

publication::getData();

sales::getData();

cout<<"Enter the tape play time: ";

cin>>playTime;

}

void putData(){

publication::putData();

sales::putData();

cout<<"Play Time (minutes): "<<playTime<<endl;

}

};

int main(){

book b1;

cout<<"Enter Book Details: "<<endl;

b1.getData();

cout<<"\nBook Details: "<<endl;

b1.putData();

cout<<endl;

tape t1;

cout<<"\nEnter Tape Details: "<<endl;

t1.getData();

cout<<"\nTape Details: "<<endl;

t1.putData();

disk d1;

cout << "\nEnter details for disk:" << endl;

d1.getData();

cout << "\nDisk details:" << endl;

d1.putData();

}

**Problem 04:**

#include <iostream>

using namespace std;

class employee {

string name;

double number;

public:

void getData() {

cout << "Enter name: ";

cin >> name;

cout << "Enter number: ";

cin >> number;

}

void putData() const {

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

cout << "Number: " << number << endl;

}

};

class employee2 : public employee {

public:

enum Period { HOURLY, WEEKLY, MONTHLY };

private:

double compensation;

Period period;

public:

void getData() {

employee::getData();

cout << "Enter compensation: ";

cin >> compensation;

char periodType;

cout << "Enter period (h for hourly, w for weekly, m for monthly): ";

cin >> periodType;

if(periodType == 'h'){

period = HOURLY;

} else if(periodType == 'w'){

period = WEEKLY;

} else{

period = MONTHLY;

}

}

void putData() const {

employee::putData();

cout << "Compensation: " << compensation << endl;

cout << "Period: " << (period == HOURLY ? "Hourly" :

period == WEEKLY ? "Weekly" :

"Monthly") << endl;

}

};

class manager : public employee2 {

public:

void getData() {

employee2::getData();

}

void putData() const {

employee2::putData();

}

};

class scientist : public employee2 {

public:

void getData() {

employee2::getData();

}

void putData() const {

employee2::putData();

}

};

class laborer : public employee2 {

public:

void getData() {

employee2::getData();

}

void putData() const {

employee2::putData();

}

};

int main() {

manager m;

cout << "Enter details for manager:" << endl;

m.getData();

cout << "\nManager details:" << endl;

m.putData();

cout << endl;

scientist s;

cout << "Enter details for scientist:" << endl;

s.getData();

cout << "\nScientist details:" << endl;

s.putData();

cout << endl;

laborer l;

cout << "Enter details for laborer:" << endl;

l.getData();

cout << "\nLaborer details:" << endl;

l.putData();

return 0;

}

**Problem 05:**

#include <iostream>

using namespace std;

class shape {

public:

string color;

shape(const string& col) : color(col) {}

void printColor() const {

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

}

};

class circle : public shape {

double radius;

double area;

double pi = 3.14;

public:

circle(const string& col, double rad) : shape(col), radius(rad), area(0) {}

void calculateArea() {

area = pi \* radius \* radius;

}

void printArea() const {

cout << "Area of Circle: " << area << endl;

}

};

class rectangle : public shape {

double length;

double width;

double area;

public:

rectangle(const string& col, double len, double wid) : shape(col), length(len), width(wid), area(0) {}

void calculateArea() {

area = length \* width;

}

void printArea() const {

cout << "Area of Rectangle: " << area << endl;

}

};

int main() {

circle cir1("Red", 5.0);

cout << "Circle Details:" << endl;

cir1.printColor();

cir1.calculateArea();

cir1.printArea();

cout << endl;

rectangle rect1("Blue", 4.0, 6.0);

cout << "Rectangle Details:" << endl;

rect1.printColor();

rect1.calculateArea();

rect1.printArea();

return 0;

}

**Problem 06:**

#include <iostream>

using namespace std;

class Employee {

public:

string name;

int empID;

string department;

void getVal(){

cout<<"Enter Name: ";

cin>>name;

cout<<"Enter Employee ID: ";

cin>>empID;

cout<<"Enter Department: ";

cin>>department;

}

};

class SalariedEmployee : public Employee{

public:

double annualSal;

double monthSal;

void getVal(){

Employee::getVal();

cout<<"Enter Annual Salary: ";

cin>>annualSal;

}

double monPay(){

monthSal = annualSal/12;

cout<<"\nYour monthly Salary: "<<monthSal<<endl;

}

};

class CommissionEmployee : public Employee{

public:

double sales;

double commRate;

double comSal;

void getVal(){

Employee::getVal();

cout<<"Enter Sales: ";

cin>>sales;

cout<<"Enter Commision Rate: ";

cin>>commRate;

}

double commPay(){

comSal = sales \* (commRate/100);

cout<<"\nYour Total Pay: "<<comSal<<endl;

}

};

int main() {

SalariedEmployee s1;

cout<<"Salaried Employee Data: "<<endl;

s1.getVal();

s1.monPay();

cout<<"\nCommisioned Employee Data: "<<endl;

CommissionEmployee c1;

c1.getVal();

c1.commPay();

}