

OOP ASSIGNMENT

(Programs in class & homework)

PROGRAM #1:

Class Bankaccount:

Source code:

```
#include<iostream>
#include<conio.h>
using namespace std;
class bankaccount
{
private:
    int id;
    double balance;
public:
    void display()
    { cout<<"Id:"<<id<<endl<<"Balance"<<balance<<endl; }
    int getid()
    { return id; }
    double getbalance()
    { return balance; }
    void setid(int i)
    { id=i; }
    void setbalance(double bal)
    {
        if(bal>500)
            balance=bal;
        else
            cout<<"Error"<<endl;
    }
    void withdraw(double amt)
    {
        if(balance>amt+500)
            balance-=amt;
        else
            cout<<"Error"<<endl;
    }
    void deposit(double amt)
    {
        balance+=amt;
    }
};
void main()
{
    bankaccount b1,b2;
    b1.setid(1);
```

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```

    void setname(string n);
    void setid(int i);
    void setbasicpay(double bp);
    void setallownces(double a);
    void getname(string *p);
    int getid();
    double getbasicpay();
    double getallownces();
};
int employee::count=0;
employee::employee()
{
    count++;
    id=count;
    cout<<"Enter name:";
    cin>>name;
    cout<<"Enter basic pay:";
    cin>>basicpay;
    cout<<"Enter allownces:";
    cin>>allownces;
}
employee::employee(string n, double bp, double a)
{
    count++;
    name=n;
    id=count;
    basicpay=bp;
    allownces=a;
}
employee::employee(employee &e)
{
    name=e.name;
    id=e.id;
    basicpay=e.basicpay;
    allownces=e.allownces;
    total=e.total;
}
void employee::show()
{
    cout<<"Name:"<<name<<"\nId:"<<id<<"\nBasicpay:"<<basicpay<<"\nAllownces:"<<allownces<<"\nTotal pay:"<<total<<endl;
}
void employee::calculatepay()
{
    total=basicpay+allownces-0.2*basicpay;
}
void employee::setname(string n)
{ name=n;}

```

```

{ return _x;}
void main()
{
    cout<<"Inside main"<<endl;
    abc obj1(2);
    abc obj2(3);
    if(obj1.getx()<obj2.getx())
    {
        cout<<"Inside if"<<endl;
        abc obj3(8);
    }
}

```

Output:

```

Inside main
Inside if
Destroying object8
Destroying object3
Destroying object2

```

PROGRAM # 10:

Pointers to objects:

Source code:

```

#include<iostream>
#include<conio.h>
#include<string>
using namespace std;
class abc
{
    string name;
public:
    abc(string n);
    ~abc();
    void show();
};
abc::abc(string n)
{
    name=n;
}
abc::~~abc()
{
    cout<<"Deleting"<<name<<endl;
    getch();
}
void abc::show()
{
    cout<<"Name:"<<name<<endl;
}
void main()

```

```

        mag=sqrt(pow(Real,2)+pow(Imaginary,2));
        return mag;
    }
    void Complex_No::setreal(float r)
    { Real=r;}
    void Complex_No::setimag(float i)
    { Imaginary=i;}
    float Complex_No::getreal()
    {return Real;}
    float Complex_No::getimag()
    {return Imaginary;}
    void main()
    {
        Complex_No *c;
        Complex_No obj(2,5);
        c=&obj;
        c->display();
        Complex_No obj2(3,8);
        c=&obj2;
        c->display();
        Complex_No *R=new Complex_No(4,5);
        R->display();
        getch();
    }

```

Output:

```

The complex number is 2+5i
The complex number is 3+8i
The complex number is 4+5i

```

PROGRAM # 13:

Pointer to array of objects:

Source code:

```

//pointer to array of objects
#include<iostream>
#include<conio.h>
#include<cmath>
using namespace std;
class Complex_No
{
    float Real;
    float Imaginary;
public:
    Complex_No();
    Complex_No(float R,float I);
    Complex_No(Complex_No & c);

```

```
s[j].display()  
}  
getch();  
return 0;  
}
```

Output:

```
RECORD OF STUDENT  
Name of student is:maha  
  
Roll no is:1  
  
Marks are:  
Subject#1=23  
Subject#2=24  
Subject#3=25  
Subject#4=26  
Subject#5=27  
  
Percentage is:88  
  
RECORD OF STUDENT  
Name of student is:shaama  
  
Roll no is:2  
  
Marks are:  
Subject#1=34  
Subject#2=67  
Subject#3=87
```

PROGRAM # 17

Source Code:

```
#include<iostream>  
using namespace std;  
class Student{  
char name[80];  
int Rollno;  
double Marks[5];  
float Percentage;  
public:  
Student()//Constructor to take input from user  
{cout<<"\nEnter name of student: ";  
cin>>name;  
cout<<"\nEnter Rollno: ";  
cin>>Rollno;  
for(int i=0;i<5;i++)  
{cout<<"\nEnter Marks of Subject# "<<i+1<<" ";  
cin>>Marks[i];}  
cout<<"\nEnter Percentage: ";  
cin>>Percentage;
```

```
}  
void rollno_display(int rno)  
{ if(rno == Rollno)  
{  
    cout<<"Name of student is:"<<name<<"\n\n";  
    cout<<"Roll no is:"<<Rollno<<"\n\n";  
    cout<<"Marks are:"<<"\n";  
    for(int i=0;i<5;i++)  
    {  
        cout<<"Subject#"<<i+1<<"="<<Marks[i]<<"\n";  
    }  
    cout<<"\n";  
    cout<<"Percentage is:"<<Percentage<<"\n\n";  
    cout<<"\n\n";  
}else cout<<"No Match Found";  
}  
};  
int main()  
{ int rno;  
  Student *data;  
  data = new Student[2]();  
  cout<<"Enter roll no to be searched"  
  cin>>rno;  
  for(int k=0; k<2; k++)  
  {  
      (data+k)->rollno_display(rno);  
  }  
  delete [] data;  
}
```

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```

float calculatepercentage()
{
    float per = ((Marks[0] + Marks[1] + Marks[2] + Marks[3] + Marks[4]) / 500) * 100;

    return per;
}

void grade()
{
    if (calculatepercentage() >= 90)
        cout << "Grade A" << endl;
    else
        if (calculatepercentage() >= 80)
            cout << "Grade B" << endl;
        else
            if (calculatepercentage() >= 70)
                cout << "Grade C" << endl;
            else
                if (calculatepercentage() >= 60)
                    cout << "Grade D" << endl;
                else
                    if (calculatepercentage() < 60)
                        cout << "Grade F" << endl;
}

void display()
{
    cout << "\nStudent Info" << endl;
    cout << "Name:" << name << endl;
    cout << "Rollno:" << Rollno << endl;
    for (int j = 0; j < 5; j++)
        cout << "Marks of subject#" << j + 1 << ":" << Marks[j] << endl;
}

};

class science : public Student
{
    int pracmarks;
public:
    science() : Student()
    {
        cout << "\nEnter Marks for practical course:";
        cin >> pracmarks;
    }
    float calculatepercentage()
    {
        float per = ((Marks[0] + Marks[1] + Marks[2] + Marks[3] + Marks[4] + pracmarks) /
650) * 100;

```