



Basic Object Oriented Programming

LAB MANUAL

Department
Of
Computer Engineering

Neotech Faculty of Diploma Engineering

Name: - _____

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NEOTECH FACULTY OF DIPLOMA ENGINEERING
Basic Object Oriented Programming(4311603)



Neotech Faculty Of
Diploma Engineering

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CERTIFICATE

This is to certify that

Mr./Ms. Enrollment No. _____ of 2nd Semester Diploma course in
_____ has satisfactorily completed his/her termwork in
_____ within four walls of institute during the year 2022.

Place:

Date:

Subject Teacher

Head of Department

Subject: Basic Object Oriented Programming

Subject Code : 4311603

LIST OF EXPERIMENTS

Sr. NO.	TITLE OF EXPERIMENT	Date	Sign
1.	Create your account on github and save simple C++ Program in github		
2.	Develop minimum 5 program cin and cout		
3.	Develop program using scope resolution operator, simple manipulators , and enumeration		
4.	Develop programs using call by reference and return by reference, default arguments, constant arguments, inline and function overloading.		
5.	Develop programs using structures.		
6.	Define minimum 5 different classes such as student, distance, shape, employee, account, inventory, vector, movie-ticket booking, time, point, etc. with data member & member functions. Also Develop programs to test those classes functionality.		
7.	Develop Programs using array of objects and static member function		
8.	Develop programs to pass object as an argument and Returning object.		
9.	Develop programs using friend function and Friend class.		
10.	Apply the concepts of constructors and destructors in the Programs developed in unit-2 and test those programs.		
11.	Develop programs using single, multilevel, multiple Inheritance		

12.	Develop programs using Constructors in base and derive classes			
13.	Develop a program to show use of this pointer			
14.	Develop a program using runtime polymorphism			
15.	Develop at least 2 programs using file operations			

Q.2) Develop minimum 5 program using cin and cout.

Program1

→ Addition of two number

```
#include<iostream.h>

#include<conio.h>

int main()
{
    int num1,num2,num3;

    cout<<"Enter the number 1 : ";

    cin>>num1;

    cout<<"Enter the number 2 : ";

    cin>>num2;

    num3=num1+num2;

    cout<<"sum = "<<num3<<endl;

    return 0;
}
```

Output

Enter the number 1 : 5

Enter the number 2 : 5

sum = 10

Program2

→Subtraction of two number

```
#include<iostream.h>

#include<conio.h>

int main()
{
    int num1,num2,num3;

    cout<<"Enter the number 1 : ";

    cin>>num1;

    cout<<"Enter the number 2 : ";

    cin>>num2;

    num3=num1-num2;

    cout<<"subtraction = "<<num3<<endl;

    return 0;
}
```

Output

Enter the number 1 : 10

Enter the number 2 : 5

subtraction = 5

Program 3

→ Multiplication of two number

```
#include<iostream>

#include<conio.h>

using namespace std;

int main()
{
    int num1,num2,num3;

    cout<<"Enter the number 1 : ";

    cin>>num1;

    cout<<"Enter the number 2 : ";

    cin>>num2;

    num3=num1*num2;

    cout<<"multiplication = "<<num3<<endl;

    return 0;
}
```

Output

Enter the number 1 : 2

Enter the number 2 : 5

multiplication = 10

Program 4

→ Division of two number

```
#include<iostream>

#include<conio.h>

using namespace std;

int main()
{
    int num1,num2,num3;

    cout<<"Enter the number 1 : ";

    cin>>num1;
    cout<<"Enter the number 2 : ";

    cin>>num2;

    num3=num1/num2;

    cout<<"division = "<<num3<<endl;

    return 0;
}
```

Output

Enter the number 1 : 16

Enter the number 2 : 2

division = 8

Program 5

→ Program to print the number

```
#include<iostream>

#include<conio.h>

using namespace std;

int main()

{
    int number;

    cout<<"Enter the number : ";

    cin>>number;

    cout<<"Enter number is "<<number<<endl;

    return 0;
}
```

Output

Enter the number : 10

Entered number is 10

Q.3)Develop program using scope resolution operator ,simple manipulators ,and enumeration.

Program 1

→ scope resolution operator

```
#include<iostream>

#include<conio.h>

using namespace std;

int num = 100;

int main()
{
    int num = 50;

    cout<<"The value of local variable is "<<num<<endl;

    cout<<"The value of Global variable is "<<::num<<endl;

    return 0;
}
```

Output

The value of local variable is 50

The value of Global variable is 100

Program 2

→ Enumeration operator

```
#include<iostream>

using namespace std;

enum weak{sunday,monday,tuesday,wednesday,thursday,friday,saturday};

int main()
{
    weak today;

    today = wednesday;

    cout<<"Day"<<today<<endl;

    return 0;
}
```

Output

Day4

Program 3

→ Manipulator

```
#include<iostream>

#include<conio.h>

#include<iomanip>

using namespace std;

int main()
{
    int num1=1,num2=20,num3=300;

    cout<<"The value of number 1 is"<<setw(4)<<num1<<endl;

    cout<<"The value of number 2 is"<<setw(4)<<num2<<endl;

    cout<<"The value of number 3 is"<<setw(4)<<num3<<endl;
}
```

Output

The value of number 1 is 1

The value of number 2 is 20

The value of number 3 is 300

Q.4)Develop program using call by reference and return by reference ,default arguments ,constant arguments, inline and function overloading.

→Call reference

```
#include<iostream>
#include<conio.h>
using namespace std;
void swap(int &,int &);
int main()
{
    int num1,num2;
    cout<<"Enter the number 1"<<endl;
    cin>>num1;
    cout<<"Enter the number 2"<<endl;
    cin>>num2;
    swap(num1,num2);
    cout<<"The swap number 1 is "<<num1<<endl;
    cout<<"The swap number 2 is "<<num2<<endl;
    return 0;
}

void swap (int &var1,int &var2)
{
    int temp;
    temp=var1;
    var1=var2;
    var2=temp;
}
```

Output

```
Enter the number 1
2
Enter the number 2
4
The swap number 1 is 4
The swap number 2 is 2
```

Q.5) Develop program using structure.

→Structure

```
#include<iostream>
#include<string.h>
using namespace std;
struct student
{
    int Enroll;
    string name;
    int age;
    int sem;
};
int main()
{
    struct student a1;
    cout<<"Enter the Enrollement number : ";
    cin>>a1.Enroll;
    cout<<"Enter the name of the student : ";
    cin>>a1.name;
    cout<<"Enter the age : ";
    cin>>a1.age;
    cout<<"Enter the semester of the student : ";
    cin>>a1.sem;
    cout<<endl;
    cout<<"The name of the student is : "<<a1.name<<endl;
    cout<<"The Enrollement number of the student is : "<<a1.Enroll<<endl;
    cout<<"The age of the student is : "<<a1.age<<endl;
    cout<<"The semester of the student is : "<<a1.sem<<endl;

    return 0;
}
```

Output

```
Enter the Enrollement number : 10
Enter the name of the student : veer
Enter the age : 17
Enter the semester of the student : 2
```

The name of the student is : veer

The Enrollement number of the student is : 10

The age of the student is : 17

The semester of the student is : 2

Q.6) Define minimum 5 different classes such as student, distance, shape, employee, account, inventory, vector, movie-ticket booking, time, point, etc. with data member & member functions. Also Develop programs to test those classes functionality

→ program 1

→

```
#include<iostream>
#include<conio.h>
using namespace std;
class student
{
private:
    int enrollement_number;
    char name[20];
    char field[10];
    int phone_number;
    int student_number;
    char student_email[40];
public:

    int per;
    void getinfo(void)
    {
        cout<<"-----Enter the student details-----";
        cout<<endl;
        cout<<endl;
        cout<<"Enter the student name"<<endl;
        gets(name);
        cout<<"Enter the student enrollement number"<<endl;
        cin>>enrollement_number;
        cout<<"Enter the parents phone number"<<endl;
        cin>>phone_number;
        cout<<"Enter the student phone number"<<endl;
        cin>>student_number;
        cout<<"Enter the student Email "<<endl;
        gets(student_email);
    }
}
```



```
void printinfo(void)
{
    cout<<"Informations of the student"<<name;
    cout<<endl;
    cout<<endl;
    cout<<"student full name : "<<name<<endl;
    cout<<"student enrollement : "<<enrollement_number<<endl;
    cout<<"phone number : "<< phone_number <<endl;
    cout<<"student phone number : "<< student_number <<endl;
    cout<<"student Email : "<< student_email <<endl;
}
};

int main()
{
    student veer;
    veer.getinfo();
    cout<<endl;
    veer.printinfo();
    return 0;
}
```

Output

-----Enter the student details-----

Enter the student name

veer

Enter the student enrollement number

112233

Enter the parents phone number

987543219

Enter the student phone number

912345789

Enter the student Email

veerpatel112@gmail.com

Informations of the studentveer

student full name :veer

student enrollement :112233

phone number :987543219

student phone number :912345789

student Email :veerpatel112@gmail.com

→program 2

```
#include<iostream>
#include<conio.h>
#include<string.h>
using namespace std;
class employ
{
private:
    int id;
    char employName[20];
    int number;
    char address[40];
    int salary;
public:
    void getinfo(void);
    void printinfo(void);
};

void employ :: getinfo(void)
{
    cout<<"Enter the employ information"<<endl;
    cout<<" Enter the Employ ID : ";
    cin>>id;
    cout<<" Enter the Employ Name: ";
    gets(employName);
    cout<<" Enter the employ phone number: ";
    cin>>number;
    cout<<" Enter the Address of the employ: ";
    gets(address);
    cout<<" Enter the salary of the employ: ";
    cin>>salary;
}

void employ :: printinfo(void)
{
    cout<<"The information of the Employ are "<<endl;
    cout<<"The Employ ID is : "<<id<<endl;
    cout<<"The Employ name is : "<<employName<<endl;
    cout<<"The Employ phone number is : "<<number<<endl;
    cout<<"The Employ Address is : "<<address<<endl;
    cout<<"The Employ salary is : "<<salary<<endl;
```

```
}  
  
int main()  
{  
    employ veer;  
    veer.getinfo();  
    veer.printinfo();  
  
    return 0;  
}
```

Output

Enter the employ information
Enter the Employ ID : 13
Enter the Employ Name: veer patel
Enter the employ phone number: 98754321
Enter the Address of the employ: New sama road, vadodara
Enter the salary of the employ: 30000
The information of the Employ are
The Employ ID is : 13
The Employ name is : veer patel
The Employ phone number is : 98754321
The Employ Address is : New sama road, vadodara
The Employ salary is : 30000

→program 3

```
#include<iostream>
#include<string.h>
using namespace std;
class shape
{
private:
    int side;
    int height;
    int width;
    char sh_name[20];
public:
    void getInfo(void)
    {
        cout<<"Shape name : ";
        gets(sh_name);
        cout << "Enter the number of sides : ";
        cin >> side;
        cout << "Enter the height of shape : ";
        cin >> height;
        cout << "Enter the width of shape : ";
        cin >> width;
    }
    void printInfo(void)
    {
        cout << "____Entered information are____ " << endl;
        cout<<"Shape name : "<<sh_name<<endl;
        cout << "The number of sides of the shape are : " << side<< endl;
        cout << "The height of the shape are : " << height<<"cm" << endl;
        cout << "The width of the shape are : " << width <<"cm"<< endl;
    }
};
int main()
{
    shape a;
    a.getInfo();
    a.printInfo();
    return 0;
}
```

Output

Shape name : rectangle

Enter the number of sides : 4

Enter the height of shape : 20

Enter the width of shape : 40

____Entered information are____

Shape name : rectangle

The number of sides of the shape are : 4

The height of the shape are : 20cm

The width of the shape are : 40cm

→program 4

```
#include<iostream>
#include<string.h>
using namespace std;
class movie
{
private:
    int num_tic;
    char movie[20];
    char name[20];
    int row;
    char email[20];
    int startseatnum;
    int endseatnum;
public:
    void getInfo(void)
    {
        cout<<"Enter the information";
        cout<<endl<<"Enter your name : ";
        gets(name);
        cout<<endl<<"Enter the name of the movie : ";
        gets(movie);
        cout<<endl<<"Enter the number of ticket: ";
        cin>>num_tic;
        cout<<"Enter the row of seat : ";
        cin>>row;
        cout<<"Enter the starting and ending seat"<<endl;
        cin>>startseatnum>>endseatnum;
        cout<<"Enter the Email number";
        cin>>email;
    }
    void Printinfo(void)
    {
        cout<<endl;
        cout<<"The enter inforamtion are "<<endl;
        cout<<"Name : "<<name<<endl;
        cout<<"Movie name : "<<movie<<endl;
        cout<<"Number of ticket : "<<num_tic<<endl;
        cout<<"Seat row : "<<row<<endl;
        cout<<"The seats are from "<<startseatnum<<"to"<<endseatnum<<endl;
        cout<<"Email : "<<email<<endl;
    }
}
```

```
}  
  
};  
int main()  
{  
    movie a1;  
    a1.getInfo();  
    a1.Printinfo();  
    return 0;  
}
```

Output

Enter the information

Enter your name : veer patel

Enter the name of the movie : RRR

Enter the number of ticket: 3

Enter the row of seat : 9

Enter the starting and ending seat

4

6

Enter the Email numberveerpatel1122@gmail.com

The enter inforamtion are

Name : veer patel

Movie name : RRR

Number of ticket : 3

Seat row : 9

The seats are from 7171939to6

Email : veerpatel1122@gmail.com

→program 5

```
#include<iostream>
#include<string.h>
using namespace std;
class account
{
    private:
        int ac_number;
        char ac_owner[30];
        int ifsc_code;
        int ac_balance = 100000;
        int pin;
    public:
        void getInfo(void)
        {
            cout<<"Enter the account information"<<endl;
            cout<<"Enter the account number : ";
            cin>>ac_number;
            cout<<endl;
            cout<<"Enter the account owner name : "<<endl;
            gets(ac_owner);
            gets(ac_owner);
            cout<<endl<<"Entert the IFSC code : ";
            cin>>ifsc_code;
            cout<<endl;
            cout<<"Enter the four digit pin : ";
            cin>>pin;
            cout<<endl;
        }
        void printInfo(void)
        {
            cout<<"The information you enter is as follows "<<endl;
            cout<<"Account number : "<<ac_number <<endl;
            cout<<"Account owner : "<<ac_owner <<endl;
            cout<<"Account IFSC code : "<<ifsc_code <<endl;
            cout<<"Account balance : "<<ac_balance <<endl;
        }
};
int main()
{
    account a1;
    a1.getInfo();
```



```
a1.printInfo();  
return 0;  
}
```

Output

Enter the account number : 2211314

Enter the account owner name :
veer patel

Entert the IFSC code : 1122112

Enter the four digit pin : 1234

The information you enter is as follows

Account number :2211314

Account owner :veer patel

Account IFSC code :1122112

Account balance :100000