Institute of Computer Technology
B. Tech Computer Science and Engineering
Subject: ESFP-II (2CSE203)

PRACTICAL-4

AIM: - To learn about Constructor and Destructor in C++.

1. Write a C++ program to create a class FD a/c which contains member (fdno, name, amt, interest rate, maturity amt & No. of months). Write parameterized constructor where interest rate should be default argument. Calculate maturity amt using interest rate & display all the details.

CODE:

```
#include<iostream>
#include<cstring>
#include<cmath>
using namespace std;

class FD
{
      int fdno,time;
      float amt, irate, m_amt;
      char nm[20];
   public:
      FD(int fno, int mnt, float am, float rt, char *name)
      {
            fdno=fno;
            time=mnt;
            amt=am;
            irate=rt;
            strcpy(nm, name);
      }
      void display()
      {
            m_amt=amt*pow((1+irate/100), time);

            cout<<"\n FdNo.: "<<fdno;
            cout<<"\n Month: "<<time;
            cout<<"\n Amount: "<<amt;
            cout<<"\n Interest rate: "<<irate;
            cout<<"\n Maturity Amount: "<<m_amt;
            cout<<"\n Name: "<<nm;
      }
};

int main()
{
      int fdno, time;
      float amt, irate;
      char nm[20];
      cout<<"\nEnter FD No.: ";
```

```
    cin>>fdno;
    cout<<"\nEnter Month: ";
    cin>>time;
    cout<<"\nEnter Amount: ";
    cin>>amt;
    cout<<"\nEnter irate: ";
    cin>>irate;
    cout<<"\nEnter Name: ";
    cin>>nm;
    FD f1(fdno, time, amt, irate, nm);
    f1.display();
    return 0;
}
```

OUTPUT:

```
Enter FD No.: 123

Enter Month: 24

Enter Amount: 20000

Enter irate: 12

Enter Name: Yash

 FdNo.: 123
 Month: 24
 Amount: 20000
 Interest rate: 12
 Maturity Amount: 303573
 Name: Yash
PS C:\Users\admin\Google Drive\B-Tech\SEM-2\ESFP-2\ESFP-Practicals\Prac-4>
```

2. Write a C++ program to read information about plant like plant-name, plant-code, plant-type and price. Construct the database with suitable member functions for initialization and destroying the data via constructor and destructor.

CODE:

```
#include <iostream>
#include <cstring>

using namespace std;

class plant {
  public:
    int plant_code;
    char plant_name[50];
    char plant_type[50];
    float price;
  public:
    plant(int pcode, char *pname,char *ptype, float pprice) {
      plant_code=pcode;
      strcpy(plant_name,pname);
      strcpy(plant_type,ptype);
```

```
        price=pprice;
        }
        void input();
        void display();

        plant(){}
};

void plant::input(){
   cout<<"\nPlant code: ";
   cin>>plant_code;
   cout<<"Plant Name: ";
   cin>>plant_name;
   cout<<"Plant Type: ";
   cin>>plant_type;
   cout<<"Plant Price: ";
   cin>>price;
}

void plant::display(){
   cout<<"\n================================";
   cout<<"\nPlant code: "<<plant_code;
   cout<<"\nPlant Name: "<<plant_name;
   cout<<"\nPlant Type: "<<plant_type;
   cout<<"\nPlant Price: "<<price;
   cout<<"\n================================\n";
}
int main() {
   int count,i;
   cout<<"\nEnter no. of plant details you want: ";
   cin>>count;
   for (i = 0; i < count; i++)
   {
      plant p(p.plant_code, p.plant_name, p.plant_type, p.price);
      p.input();
      p.display();
   }
   return 0;
}
```

OUTPUT:

```
Enter no. of plant details you want: 1

Plant code: 101
Plant Name: ABC
Plant Type: Herb
Plant Price: 200

==============================
Plant code: 101
Plant Name: ABC
Plant Type: Herb
Plant Price: 200
==============================
PS C:\Users\admin\Google Drive\B-Tech\SEM-2\ESFP-2\ESFP-Practicals\Prac-4>
```

Post Practical Task

1. Define a class Travelplan in C++ with the following descriptions:
Private Members:
Plancode of type long Place of type character array(string)
Number_of_travellers of type integer
Number_of_buses of type integer
Public Members: A constructer to assign initial values of
PlanCode as 1001, Place as“agra”,
Number_of_travellers as 5,Number_of_buses as 1 A function
NewPlan() which allows user to enter PlanCode, Place and Number_of travelers. Also, assign the value of Number_of_buses as per the following:
conditions:
Number_of_travellers less than 20
Number_of_buses 1
Equal to or more than 20 and less than 40-2
Equal to 40 or more than 40 - 3
A function ShowPlan() to display the content of all the data members on the screen.

CODE:

```
#include <iostream>
#include <cstring>
using namespace std;

class Travelplan
{
   long Plancode;
   char Place[21];
   int Number_of_travellers,Number_of_buses;
   public:
   Travelplan( )
     {
        Plancode=1001;
        strcpy(Place,"Agra");
        Number_of_travellers=5;
        Number_of_buses=1;
     }
void NewPlan()
{
   cout<<"\nEnter the Plan Code: ";
   cin>>Plancode;
   cout<<"\nEnter the Place to Travel: ";
   fflush(stdin);
   gets(Place);
   cout<<"\nEnter the Number of Travellers: ";
   cin>>Number_of_travellers;
   if(Number_of_travellers>=40)
   {
      Number_of_buses=3;
```

```
    }
    else if(Number_of_travellers>=20)
    {
        Number_of_buses=2;
    }
    else
    {
        Number_of_buses=1;
    }
}
void ShowPlan()
{
    cout<<"\nThe Plan Code: "<<Plancode;
    cout<<"\nThe Place of Travel: "<<Place;
    cout<<"\nNumber of Travellers: "<<Number_of_travellers;
    cout<<"\nNumber of Buses: "<<Number_of_buses;
}
};

int main()
{
    Travelplan T;
    T.NewPlan();
    T.ShowPlan();
    return 0;
}
```

OUTPUT:

```
Enter the Plan Code: 1002

Enter the Place to Travel: London

Enter the Number of Travellers: 24

The Plan Code: 1002
The Place of Travel: London
Number of Travellers: 24
Number of Buses: 2
PS C:\Users\admin\Google Drive\B-Tech\SEM-2\ESFP-2\ESFP-Practicals\Prac-4>
```