LAB - 6

Q1. Write a program to create default constructor which accept roll, name & mark and display it.

```
#include <iostream>
using namespace std;
#include <string.h>
class Student
{
  int Roll;
  char Name[25];
  float Marks;
public:
  Student()
  {
    Roll = 1;
    strcpy(Name, "Anupam");
    Marks = 96;
  }
  void Display()
  {
    cout << "\tRoll :" << Roll;
    cout << "\n\tName :" << Name;
    cout << "\n\tMarks :" << Marks;
  }
};
int main()
{
  Student S;
  S.Display();
  return 0;
}
```

```
Roll : 1
Name : Anupam
Marks : 96
```

Q2. Write a program to accept first name and last name and merge it. And display using dynamic constructor.

```
#include <iostream>
#include <math.h>
#include <stdio.h>
#include <string.h>
using namespace std;
class student
{
  char first[10];
  char last[10];
public:
  student()
  {
    cout << "enter first name\n";
    cin >> first;
    cout << "enter last name\n";
    cin >> last;
```

```
        cout << first << " " << last;
    }
};
int main()
{
    student c;
}
```

```
enter first name
Anupam
enter last name
Moharana
Anupam Moharana
```

93. Write a program to add two no by using copy constructor.

```
#include <iostream>
using namespace std;
class Add
{
    float num;
public:
    Add()
    {
        cout << "default constructor" << endl;
        num = 0;
    }
    Add(float x)
    {
        cout << "parameterized construction";
        num = x;
    }
    Add(Add &c)
    {
        cout << "copy constructor" << endl;
        num = c.num;
    }
    void getData()
    {
        cout << "the Add number are:" << num << endl;
    }
    void showData()
    {
        cout << "the sum is:";
        cout << num << endl;
    }
    Add addition(Add x, Add y)
    {
        Add temp;
        temp.num = x.num + y.num;
        return temp;
    }
};
int main()
{
    Add n2(3), n3(n2), n1;
    n2.getData();
```

```
    n3.getData();
    n1 = n1.addition(n2, n3);
    n1.showData();
    return 0;
}
```

```
parameterized constructioncopy constructor
default constructor
the Add number are: 3
the Add number are: 3
copy constructor
copy constructor
default constructor
the sum is: 6
```

94. Write a program to enter name and allocate the memory and display it and free the memory by using constructor and destructor.

```
#include <iostream>
using namespace std;
class create
{
public:
create() {
cout << "Constructor" << endl;
}
~create() {
cout << "Destructor" << endl;
}
};
int main()
{
create* a = new create[3];
delete [] a;
return 0;
}
```

```
Constructor
Constructor
Constructor
Destructor
Destructor
Destructor
```

95. Write a program to create emp class. Which accept eno,ename,esal by using parameterised constructor and TA=15% HRA=17% and find gross salary and display it.

```
#include <iostream>
using namespace std;
class employee
{
  int emp_number;
  char emp_name[20];
  float emp_basic;
  float emp_ta;
  float emp_hra;
  float emp_net_sal;
```

```
public:
   void get_emp_details();
   float find_net_salary(float basic, float ta, float hra);
   void show_emp_details();
};
void employee ::get_emp_details()
{
   cout << "\nEnter employee number: ";
   cin >> emp_number;
   cout << "\nEnter employee name: ";
   cin >> emp_name;
   cout << "\nEnter employee basic: ";
   cin >> emp_basic;
   cout << "\nEnter employee TA: ";
   cin >> emp_ta;
   cout << "\nEnter employee HRA: ";
   cin >> emp_hra;
}
float employee ::find_net_salary(float basic, float ta, float hra)
{
   return (basic + ta + hra);
}
void employee ::show_emp_details()
{
   cout << "\n\n**** Details of Employee ****";
   cout << "\nEmployee Name    : " << emp_name;
   cout << "\nEmployee number  : " << emp_number;
   cout << "\nBasic salary     : " << emp_basic;
   cout << "\nEmployee TA      : " << emp_ta;
   cout << "\nEmployee HRA     : " << emp_hra;
   cout << "\nNet Salary       : " << find_net_salary(emp_basic , emp_ta, emp_hra);
   cout << "\n-----------------------------\n\n";
}
int main()
{
   employee emp;
   emp.get_emp_details();
   emp.show_emp_details();
   return 0;
}
```

```
Enter employee number: 1

Enter employee name: Anupam

Enter employee basic: 10000

Enter employee TA:
0.15

Enter employee HRA: 0.17


**** Details of  Employee ****
Employee Name      :  Anupam
Employee number    :  1
Basic salary       :  10000
Employee TA        :  0.15
Employee HRA       :  0.17
Net Salary         :  10000.3
-------------------------------
```

96. Write a program to create a Shape class. Which will display area of circle, square, rectangle and triangle by using constructor overloading.

```
#include <iostream>
#include <math.h>
#include <cstdlib>
using namespace std;
class area
{
  float ar;
public:
  area(float r)
  {
    ar = 3.14 * r * r;
  }
  area(float l, float b)
  {
    ar = l * b;
  }
  area(float a, float b, float c)
  {
    float s;
    s = (a + b + c) / 2;
    ar = s * (s - a) * (s - b) * (s - c);
    ar = pow(ar, 0.5);
  }
  void display()
  {
    cout << "\n Area :" << ar;
  }
};
int main()
{
  int ch;
  float x, y, z;
  do
  {
    cout << "\n\n 1. Area of Circle";
    cout << "\n 2. Area of Rectangle";
    cout << "\n 3. Area of Triangle";
    cout << "\n 4. Exit";
    cout << "\n\n Enter Your Choice :";
    cin >> ch;
    switch (ch)
    {
    case 1:
    {
      cout << "\n Enter Radius of the Circle :";
      cin >> x;
      area a1(x);
      a1.display();
    }
```

```
        break;
        case 2:
        {
          cout << "\n Enter Length and Breadth of the Rectangle : ";
          cin >> x >> y;
          area a2(x, y);
          a2.display();
        }
        break;
        case 3:
        {
          cout << "\n Enter Sides of the Triangle : ";
          cin >> x >> y >> z;
          area a3(x, y, z);
          a3.display();
        }
        break;
        case 4:
          exit(0);
        default:
          cout << "\n\n Invalid Choice ...";
        }
    } while (ch != 4);
    return 0;
}
```

```
1. Area of Circle
2. Area of Rectangle
3. Area of Triangle
4. Area of Square
5. Exit

Enter Your Choice : 1

Enter Radius of the Circle : 7

Area : 153.86

1. Area of Circle
2. Area of Rectangle
3. Area of Triangle
4. Area of Square
5. Exit

Enter Your Choice : 2

Enter Length and Breadth of the Rectangle : 10 20

Area : 200

1. Area of Circle
2. Area of Rectangle
3. Area of Triangle
4. Area of Square
5. Exit

Enter Your Choice : 3

Enter Sides of the Triangle : 10 10 10

Area : 43.3013

1. Area of Circle
2. Area of Rectangle
3. Area of Triangle
4. Area of Square
5. Exit

Enter Your Choice : 4

 Enter the Sides of the Square :10

 Area : 100

 1. Area of Circle
 2. Area of Rectangle
 3. Area of Triangle
 4. Area of Square
 5. Exit

 Enter Your Choice : 5
```

Anupam Moharana
CSE
20051130