LAB - 4

Q1. Wap to accept roll, name & mark of 5 students and display them by using array of objects.

```
#include <iostream>
#include <string>
using namespace std;
class std
{
private:
  string name;
  int marks;
public:
  void getDetails();
  void setDetails();
};
void std::setDetails()
{
  cout << "Enter the name :" << endl;
  cin >> name;
  cout << "Enter total marks :" << endl;
  cin >> marks;
}
void std::getDetails()
{
  cout << "Name :" << name << " ,marks :" << marks << endl;
}
int main(int argc, char const *argv[])
{
  int count;
  cout << "Enter the count of students :";
  cin >> count;
  if (count > 0)
  {
    std stdArr[count];
    for (int i = 0; i < count; i++)
    {
      cout << "For student " << i + 1 << " :" << endl;
      stdArr[i].setDetails();
    }
    cout << "\nYou have entered :" << endl;
    for (int i = 0; i < count; i++)
    {
      stdArr[i].getDetails();
    }
  }
  else
  {
    cout << "Please enter a valid number." << endl;
  }
  return 0;
}
```

```
Enter the count of students : 2
For student 1 :
Enter the name :
Anupam
Enter total marks :
98
For student 2 :
Enter the name :
Moharana
Enter total marks :
99
```

Q2. Wap to display simple interest by using class and object.

```
#include <iostream>
using namespace std;
class bank
{
private:
   float p, r, t, si, amount;
public:
   void read()
   {
      cout << " Enter Principle Amount :: ";
      cin >> p;
      cout << "\n Enter Rate of Interest :: ";
      cin >> r;
      cout << "\n Enter Number of years :: ";
      cin >> t;
      si = (p * r * t) / 100;
      amount = si + p;
   }
   void show()
   {
      cout << "\n Entered Details are :: \n";
      cout << "\n Principle Amount: " << p;
      cout << "\n Rate of Interest: " << r;
      cout << "\n Number of years: " << t;
      cout << "\n Interest : " << si;
      cout << "\n Total Amount : " << amount << "\n";
   }
};
int main()
{
   bank b;
   b.read();
   b.show();
   return 0;
}
```

```
Enter Principle Amount :: 1000

Enter Rate of Interest :: 5

Enter Number of years :: 3

Entered Details are ::

Principle Amount: 1000
Rate of Interest: 5
Number of years: 3
Interest : 150
Total Amount : 1150
```

Q3. Wap to take input eno, ename, esal of 5 employees and calculate TA=7% of basic HAR=9% of basic and take appropriate function and display employee details with their gross salary.

```
#include <iostream>
using namespace std;
class Employee
{
  char ename[30];
  int eno;
  float esal, har, ta, gross_salary;
public:
  void read_emp_details(int count)
  {
    cout << "\n\n*** Enter Employee " << count << " Details ***";
    cout << "\nEmployee Number: ";
    cin >> eno;
    cout << "Employee Name: ";
    cin >> ename;
    cout << "Basic Salary: ";
    cin >> esal;
    cout << "\n---- Employee " << count << " Datails are saved ----\n\n";
  }
  float find_net_salary()
  {
    har = esal * 0.09;
    ta = esal * 0.07;
    gross_salary = (esal + har + ta);
    return gross_salary;
  }
  void display_emp_details(int count)
  {
    cout << "\n*** Employee " << count << " Details ***";
    cout << "\nEmployee Number :" << eno;
    cout << "\nEmployee Name  :" << ename;
    cout << "\nNet Salary: " << gross_salary;
    cout << "\n-----------------------\n";
  }
};
int main()
{
  Employee emp[100];
  int number_of_emp, count;
```

```
    cout << "\nPlease enter the number of Employees:";
    cin >> number_of_emp;
    for (count = 0; count < number_of_emp; count++)
    {
      emp[count].read_emp_details(count + 1);
    }
    for (count = 0; count < number_of_emp; count++)
    {
      emp[count].find_net_salary();
    }
    for (count = 0; count < number_of_emp; count++)
    {
      emp[count].display_emp_details(count + 1);
    }
    return 0;
}
```

```
Please enter the number of Employees: 2


*** Enter Employee 1 Details ***
Employee Number: 1
Employee Name: Anupam
Basic Salary: 10000

---- Employee 1 Datails are saved ----


*** Enter Employee 2 Details ***
Employee Number: 2
Employee Name: Moharana
Basic Salary: 20000

---- Employee 2 Datails are saved ----


*** Employee 1 Details ***
Employee Number : 1
Employee Name   : Anupam
Net Salary: 11600
--------------------------

*** Employee 2 Details ***
Employee Number : 2
Employee Name   : Moharana
Net Salary: 23200
--------------------------
```

Q4. WAP to calculate average marks of students in 3 subjects.

```
#include <iostream>
using namespace std;
class student
{
  char name[30];
  int roll, i;
  float marks[5], avg;
public:
  void input()
  {
    cout << "Kindly enter the details \n";
    cout << "Enter name and roll \n";
    cin >> name >> roll;
    cout << "Enter marks for 3 sub\n";
    for (i = 0; i < 3; i++)
      cin >> marks[i];
```

```
    }
    float average()
    {
      int sum = 0, avg = 0;
      for (i = 0; i < 3; i++){
        sum += marks[i];}
      avg = sum / 3;
      return avg;
    }
    void output()
    {
      cout << "Entered details are:\n";
      cout << "name \n" << name << "\nroll no\n" << roll;
      cout << "\nmarks are\n";
      for (i = 0; i < 3; i++)
      {
        cout << marks[i] <<endl;
      }
      cout << "average is " << avg;
    }
};
int main()
{
  int n, i;
  cout << "enter no of students \n";
  cin >> n;
  student s[n];
  for (i = 0; i < n; i++)
  {
    cout << "For student " << i + 1 << ":" << endl;
    s[i].input();
  }
  for (i = 0; i < n; i++)
    s[i].average();
  for (i = 0; i < n; i++)
    s[i].output();
  return 0;
}
```

```
enter no of students
2
For student 1 :
Kindly enter the details
Enter name and roll
Anupam 1
Enter marks for 3 sub
90
98
97
For student 2 :
Kindly enter the details
Enter name and roll
Moharana 2
Enter marks for 3 sub
90
89
97
Entered details are:
name
Anupam
roll no
1
marks are
90
98
97
average is 5.88424e-039Entered details are:
name
Moharana
roll no
2
marks are
90
89
97
average is 2.01787e-043
```

Q5. Wap to display area of circle,rectange and triangle by using default arguments.

```
#include <iostream>
using namespace std;
int area(int, int);
float area(float);
float area(float, float);
int main()
{
   int l, b;
   float r, bs, ht;
   cout << "Enter length and breadth of rectangle:";
   cin >> l >> b;
   cout << "Enter radius of circle:";
   cin >> r;
   cout << "Enter base and height of triangle:";
   cin >> bs >> ht;
   cout << "\nArea of rectangle is " << area(l, b);
   cout << "\nArea of circle is " << area(r);
   cout << "\nArea of triangle is " << area(bs, ht);
}
int area(int l, int b)
{
   return (l * b);
}
float area(float r)
{
   return (3.14 * r * r);
}
float area(float bs, float ht)
{
   return ((bs * ht) / 2);
}
```

```
Enter length and breadth of rectangle:10 20
Enter radius of circle:21
Enter base and height of triangle:10 12

Area of rectangle is 200
Area of circle is 1384.74
Area of triangle is 60
```

Q6. WAP to calculate area of rectangle using pointers.

```
#include<iostream>
using namespace std;
class rectangle
{
  int width,height;
  public:
  void input()
  {
    cout<<"Enter the height and width of the rectangle :";
    cin>>height>>width;
  }
  int area()
  {
    return(height*width);
  }
};
int main()
{
  class rectangle r,*ptr;
  ptr=&r;
  ptr->input();
  cout<<"The area of the rectangle is :"<<ptr->area()<<endl;
  return 0;
}
```

```
Enter the height and width of the rectangle :10 20
The area of the rectangle is :200
```