Assignment 1:

Title: Write a program to declare a class 'Student' having two public members 'roll' and 'marks' and also display the roll no and marks of the student?

Description: Create a class and name it as 'Student' and declare two public data members 'roll' and 'marks' (the datatype of roll is int and marks will be float). In main function create the object of class 'Student' and access the data members of the class using the object and initialize the value. In last display the rollno and marks in cout.

Sample I/O:

Roll no: 1

Marks: 20.5

Assignment 2:

Title: Write a program to calculate the average of the marks obtained by the student and send the object of the class 'Student' as parameter to a function 'average'?

Description: Create a class 'Student', declare three public data members 'm1','m2' and 'avg'. Define two functions 'get' and 'show'. Enter the input marks of the student in the 'get' function and display the marks entered by the student in 'show' function. Write a function 'average' outside the class where you can calculate the average of the marks and pass the object of the class 'Student' as a parameter to the function 'average'. The data members can be accessed by the object passed in the parameter to the function. In main function, create the object of class Student and call the functions 'get', 'show' using the object and while calling 'average' function pass object of class 'Student' as parameter. Display the average of marks in the function.

Sample I/O:

Enter the marks of two subjects:

34

59

First Subject marks is: 34

Second Subject marks is: 59

Average of two subjects is: 46.5

Assignment 3:

Title: Write a program to calculate the average of the marks obtained by the 3 students. Declare objects of the class 'Student' in array?

Description: Create a class Student, declare four data members, 3 for marks and 1 for name (datatype of name will be char array). Define two functions 'get' and 'show'. Enter the input name and marks of the student in the 'get' function and in 'show' calculate the average of the marks entered by the student and display the result i.e. average

of the marks. In main function, create 3 objects of the class 'Student' in array. Make use of for loop to access one object at a time and call the function 'get'. Take another for loop to call the function 'show' using one object at a time.

Sample I/O:

Enter name of the student: Ridhima

Enter the marks of three subjects

21

34

78

Enter name of the student: Sakshi

Enter the marks of three subjects

45

67

87

Enter name of the student: Pihu

Enter the marks of three subjects

76

78

89

Average of Ridhima is: 44.3333

Average of Sakshi is: 66.3333

Average of Pihu is: 81

Assignment 4:

Title: Write a program to find the maximum marks obtained by the student using nesting member functions concept?

Description: Create a class 'Student', declare two data members for marks. Enter the input marks of the student in 'get' function. Define two member function 'max' and 'show' outside the class (by using the class name and the scope resolution operator), to access these functions; mention the prototype declaration of the function inside the class which becomes a member function of the class. To find the maximum marks obtained, write a condition in function 'max' which checks whether marks1 is greater or marks2. If marks1 is greater then return marks1 else return marks2. Call the function 'max' Inside the 'show' function and also display the maximum marks in the function 'show'. In main function create the object of the class 'Student' and call the function 'get' and 'show'.

Sample I/O:

Enter the marks of the two subjects:

32

56.6

Maximum marks obtained is: 56.6

Assignment 5:

Title: Write a program to display the details of student where data member of class 'Student' and parameters of constructor will have same name?

Description: Create a class 'Student', declare 2 variables for 'roll', 'fees' and a pointer variable 'name.' Display all the details of the student such as roll, name and fees of the student in the function 'printStudentDetails'. In main function, creating the object of the class 'Student' with parameters will call the parameterized constructor where it will assign the parameter values to the data members and call 'printStudentDetails' function.

Sample I/O:

Student details:

Roll no: 1

Name: Shristi

Fees: 900

Assignment 6:

Title: Write a program to calculate the total marks of the student using the constructor overloading concept?

Description: Create a class 'Student', declare two data members for marks. Define a default constructor and a parameterized constructor. Also define two functions 'total' and 'show'. In function 'total', add the marks entered and return the total marks of the student. Pass the total marks as a parameter to the function 'show' and display the value passed (total marks). In main function, create an object of class student with no parameters will call the default constructor where the data member values are initialized and marks are displayed. Creating another object of the class with parameters will call the parameterized constructor where it will assign the parameter values to the data members and displays the marks. Call the function 'total' and 'show' using both the objects. The return value got when calling the function 'total' will be passed to the 'show' function in parameter.

Sample I/O:

Marks of the 1st subject is: 91.2

Marks of the 2nd subject is: 80.8

Total marks of the Student 1 is: 172

Marks of the 1st subject is: 40.5

Marks of the 2nd subject is: 60

Total marks of the Student 2 is: 100.5

Assignment7:

Title: Write a program to calculate the percentage of a given marks and also make a copy of the percentage obtained using copy constructor?

Description: Create a class 'Student', declare the data members and define a parameterized constructor and a function 'percentage' in which you can calculate the percentage of the marks. In function main, enter the input marks of the student. Creating the object of the class with parameters will call the parameterized constructor where it will assign the parameter values to the data members. For making the copy of the percentage, create another object of the class. The first object value will be assigned to the second object of the class. Call the function 'percentage' using both the objects and display the values.

Sample I/O:

Enter the Marks of three subjects:

12.6

56.6

34

Percentage of the marks is: is: 34.4%

Copy of Percentage of the marks is: is: 34.4%

Assignment 8:

Title: Write a program to calculate the average of the marks obtained using friend function?

Description: Create a class 'Student', declare the data members. Enter the input marks of the student in the function 'get'. Outside the class, define a function 'average' taking the object of the class as parameter and make this function as the friend of the class 'Student'. Calculate the average of the marks and return the average of marks in the function 'average'. In main function, create the object of the class 'Student' and call the function 'get' using the object. Pass the object while calling the function 'average'.

Sample I/O:

Enter marks of the two subjects:

45.6

76

Average is: 60.8
