Applying the concept of Method Overriding and run-time polymorphism to implement a Java program to create a superclass called Figure that stores the dimensions of a two-dimensional object. It also defines a method called area( ) that computes the area of an object. The program derives two subclasses from Figure. The first is Rectangle and the second is Triangle. Use dynamic method dispatch to display output as follows
Inside Area for Rectangle.
Area is 45
Inside Area for Triangle.
Area is 40
Area for Figure is undefined.
Area is 0

1.

2. Define a STUDENT class with USN, Name, Marks in 3 tests of a subject. Declare an array of n STUDENT objects. Using appropriate methods, find the average of 2 better marks for each student. Print the USN, Name and the average marks of all the students. Use constructors and destructors to initialize and destroy the object.

3. Write a program to Implement the TIME class. Each object of this class will represent a specified time of the day, storing the hours, minutes and seconds as integer. Include a constructor, access methods, a method **advance** (int h, int m,int s) to advance the given time, method currenttime (int h, int m, int s) to update the current time of an existing object and a **print** method to print the details.

4. Write a program to implement a class MATRIX for 2 X 2 Matrix. Include a default constructor, an **inverse( )** method that returns the inverse of the matrix, a **determinant( )** method that returns the determinant of the matrix, a Boolean method **isSingular( )** that returns 1 or 0 according to whether the determinant is 0 and a **print( )** method to print the details.

5. Make a class EMP with data members empno, empname and salary. Create two objects of EMP. Display the details of the employee who has got maximum salary using **this** pointer.

6. Create a class Student with data members-int usn, float cmarks, float smarks. Maximum marks of both cmarks and smarks are 50. Include methods to do the following:

    i.   accept the details from the user
    ii. display the grade according to the given slab along with their usn.

Total	Grade	Total	Grade
>=75	S	Between 40 and 59	B
Between 60 and 74	A	<40	F

7. Write a program to create a base class STUDENT(Name, Regno,Age) and using inheritance create classes UG_Student and PG _Student having fields as semester, fees and stipend. Enter the data for atleast 5 students. Find the average age semester wise for all UG and PG students separately.

8. Implement a class called PERSON having data members as name, dob and address. Derive a class STUDENT from PERSON having data members rollno and sem. Derive another class

EXAM from student which has data members marks1, marks2 and computes the average and displays the topper of the class. Use suitable methods to accept and display data in these classes.