Polymorphism

1- what is the output?

```java
class Parent {

    void myMethod() {

        System.out.println("super class");

    }

}

public class Derived extends Parent {

    void myMethod() {

        System.out.println("derived class");

    }

    public static void main(String[] args) {

        Derived object = new  Parent ();

        object.myMethod();

    }

}
```

a) super class
b) derived class
c) Compilation error
d) Runtime error

3- What is up-casting and down casting, explain and give code example of each?

4- Create a class named Employee that can be used to calculate the salaries of different employees.
  The Employee class should keep a track of the employee ID, name, department, salary, and designation with appropriate accessor and mutator methods.
  Also create an equals() method that overrides Object's equals() method, where employees can check if their designation is identical.
  Next, create two additional classes named Manager and Clerk that are derived from Employee.
  Create an overridden method named addBonus that returns the salary of the employee after adding up the bonus.
    There is a default bonus of $200/month.
    Managers have a bonus of $300/month and clerks have a bonus of $100/month.
  Finally create a display method to print the details of the employee.
  Test your classes from a main method.

(attach to your solution few lines of explain bindings in your program and give example of each type of binding from your own solution)

5-) Write a program that creates an ArrayList of pets. An item in the list is either a Dog or a Cat. For each pet, enter its name and type ('c' for cat and 'd' for dog). Stop the input when the string STOP is entered for the name. After the input is complete, output the name and type for each pet in the list.

6-) Consider an asset-tracking program that will track four types of assets: electronic appliances, automobiles, furniture, and compact disks. What classes would you design for the program? Would you define four unrelated classes or one superclass and four subclasses? If you design a superclass, will it be an abstract superclass?

Implement the asset-tracking program of Exercise 10. Allow the user to add, modify, and delete electronic appliances, automobiles, furniture, and compact disks. Allow the user to list the assets by category and search for an asset by its serial number