

```

public class Transportation {
    // Common properties for all transportation types
    protected String name;
    protected int capacity;
    protected double speed; // in km/h

    // Constructor to initialize the properties
    public Transportation(String name, int capacity, double speed) {
        this.name = name;
        this.capacity = capacity;
        this.speed = speed;
    }

    // A general method to display information
    public void displayInfo() {
        System.out.println("Name: " + name);
        System.out.println("Capacity: " + capacity + " people");
        System.out.println("Speed: " + speed + " km/h");
    }

    // A general method for movement
    public void move() {
        System.out.println(x:"The transportation is moving.");
    }
}

```

```

1 public class AirTransport extends Transportation {
2     private int maxAltitude; // in feet
3
4     public AirTransport(String name, int capacity, double speed, int maxAltitude) {
5         // Call the constructor of the parent class (Transportation)
6         super(name, capacity, speed);
7         this.maxAltitude = maxAltitude;
8     }
9
10    // Overriding the parent's method to be more specific
11    @Override
12    public void move() {
13        System.out.println(name + " is flying through the air.");
14    }
15
16    @Override
17    public void displayInfo() {
18        super.displayInfo(); // Call parent's displayInfo first
19        System.out.println("Max Altitude: " + maxAltitude + " ft");
20    }
21 }
22

```

```

1 public class LandTransport extends Transportation {
2     private int numWheels;
3
4     public LandTransport(String name, int capacity, double speed, int numWheels) {
5         super(name, capacity, speed);
6         this.numWheels = numWheels;
7     }
8
9     @Override
10    public void move() {
11        System.out.println(name + " is moving on the ground.");
12    }
13
14    @Override
15    public void displayInfo() {
16        super.displayInfo();
17        System.out.println("Number of Wheels: " + numWheels);
18    }
19 }

```

```

1 public class WaterTransport extends Transportation {
2     private String propulsionType; // e.g., "Sail", "Engine"
3
4     public WaterTransport(String name, int capacity, double speed, String propulsionType) {
5         super(name, capacity, speed);
6         this.propulsionType = propulsionType;
7     }
8
9     @Override
10    public void move() {
11        System.out.println(name + " is moving on water.");
12    }
13
14    @Override
15    public void displayInfo() {
16        super.displayInfo();
17        System.out.println("Propulsion: " + propulsionType);
18    }
19 }

```

```

1 public class Airplane extends AirTransport {
2     public Airplane(String name, int capacity, double speed, int maxAltitude) {
3         super(name, capacity, speed, maxAltitude);
4     }
5 }

```

```

1 public class Helicopter extends AirTransport {
2     public Helicopter(String name, int capacity, double speed, int maxAltitude) {
3         super(name, capacity, speed, maxAltitude);
4     }
5 }

```

```

1 public class SpaceShuttle extends AirTransport {
2     public SpaceShuttle(String name, int capacity, double speed, int maxAltitude) {
3         super(name, capacity, speed, maxAltitude);
4     }
5
6     @Override
7     public void move() {
8         System.out.println(name + " is launching into space!");
9     }
10 }

```

```

1 public class Truck extends LandTransport {
2     public Truck(String name, int capacity, double speed) {
3         super(name, capacity, speed, 6); // Trucks commonly have 6 wheels
4     }
5 }

```

```

1 public class SUV extends LandTransport {
2     public SUV(String name, int capacity, double speed) {
3         super(name, capacity, speed, 4);
4     }
5 }

```

```
1 public class Tricycle extends LandTransport {
2     public Tricycle(String name, int capacity, double speed) {
3         super(name, capacity, speed, 3);
4     }
5 }
```

```
1 public class Motorcycle extends LandTransport {
2     public Motorcycle(String name, int capacity, double speed) {
3         super(name, capacity, speed, 2);
4     }
5 }
```

```
1 public class Kariton extends LandTransport {
2     public Kariton() {
3         // A Kariton has fixed properties
4         super("Kariton (Pushcart)", 1, 3.0, 2);
5     }
6
7     @Override
8     public void move() {
9         System.out.println(name + " is being pushed slowly.");
10    }
11 }
```

```
1 public class Boat extends WaterTransport {
2     public Boat(String name, int capacity, double speed) {
3         super(name, capacity, speed, "Motor Engine");
4     }
5 }
```

```
1 public class Submarine extends WaterTransport {
2     public Submarine(String name, int capacity, double speed) {
3         super(name, capacity, speed, "Nuclear Reactor");
4     }
5
6     @Override
7     public void move() {
8         System.out.println(name + " is diving underwater.");
9     }
10 }
```

```

1 public class TransportationTester {
2     Run | Debug
3     public static void main(String[] args) {
4         System.out.println(x: "--- Testing Transportation Hierarchy ---\n");
5
6         // Air Transport
7         Airplane boeing747 = new Airplane("Boeing 747", 416, 988, 35000);
8         boeing747.displayInfo();
9         boeing747.move();
10        System.out.println(x: "-----");
11
12        Helicopter apache = new Helicopter("Apache Helicopter", 2, 293, 20000);
13        apache.displayInfo();
14        apache.move();
15        System.out.println(x: "-----");
16
17        SpaceShuttle discovery = new SpaceShuttle("Discovery Shuttle", 7, 28000, 530000);
18        discovery.displayInfo();
19        discovery.move();
20        System.out.println(x: "\n--- Land Transport ---\n");
21
22        // Land Transport
23        Truck semiTruck = new Truck("Semi-Truck", 2, 100);
24        semiTruck.displayInfo();
25        semiTruck.move();
26        System.out.println(x: "-----");
27
28        SUV fortuner = new SUV("Toyota Fortuner", 7, 180);
29        fortuner.displayInfo();
30        fortuner.move();
31        System.out.println(x: "-----");

```

```

31
32        Tricycle bajaj = new Tricycle("Bajaj RE", 4, 60);
33        bajaj.displayInfo();
34        bajaj.move();
35        System.out.println(x: "-----");
36
37        Motorcycle xsr155 = new Motorcycle("Yamaha XSR155", 2, 130);
38        xsr155.displayInfo();
39        xsr155.move();
40        System.out.println(x: "-----");
41
42        Kariton pushcart = new Kariton();
43        pushcart.displayInfo();
44        pushcart.move();
45        System.out.println(x: "\n--- Water Transport ---\n");
46
47        // Water Transport
48        Boat speedBoat = new Boat("Speed Boat", 6, 90);
49        speedBoat.displayInfo();
50        speedBoat.move();
51        System.out.println(x: "-----");
52
53        Submarine ohioClass = new Submarine("Ohio-class Submarine", 155, 46);
54        ohioClass.displayInfo();
55        ohioClass.move();
56        System.out.println(x: "-----");
57    }
58 }

```