

Topics-Abstract Classes

Assignment-1

- 1) Create an abstract class **Compartment** to represent a rail coach. Provide an abstract function **notice** in this class:

Derive **FirstClass**, **Ladies**, **General**, **Luggage** classes from the **Compartment** class.

Override the **notice** function in each of them to print a notice message that is suitable to the specific type of compartment.

Create a class **TestCompartment**. Write the main function to:

Declare an array of **Compartment** of size 10.

Create a compartment of a type decided by a randomly generated integer in the range 1 to 4.

Check the polymorphic behavior of the **notice** method.

Ans

```
abstract class Compartment {  
    public abstract String notice();  
}
```

```
class FirstClass extends Compartment {  
    public String notice() {  
        return "This is a First Class compartment.";  
    }  
}
```

```
class Ladies extends Compartment {  
    public String notice() {  
        return "This is a Ladies compartment.";  
    }  
}
```

```
class General extends Compartment {
```

```
public String notice() {  
    return "This is a General compartment.";  
}  
}
```

```
class Luggage extends Compartment {  
    public String notice() {  
        return "This is a Luggage compartment.";  
    }  
}
```

```
public class TestCompartment {  
    public static void main(String[] args) {  
        Compartment[] compartments = new Compartment[10];  
        for(int i = 0; i < compartments.length; i++) {  
            int rand = (int)(Math.random() * 4) + 1;  
            switch(rand) {  
                case 1: compartments[i] = new FirstClass(); break;  
                case 2: compartments[i] = new Ladies(); break;  
                case 3: compartments[i] = new General(); break;  
                case 4: compartments[i] = new Luggage(); break;  
            }  
        }  
  
        for(int i = 0; i < compartments.length; i++) {  
            System.out.println("Compartment " + (i+1) + ": " + compartments[i].notice());  
        }  
    }  
}
```