1. Implement a package LibraryManagement with classes Book and Member. The Book class should have attributes like title, author, and ISBN, while the Member class should store member details. Use this package to create a simple library system

—>

Book.java:-

```
package LibraryManagement;

public class Book {
   private String title;
   private String author;
   private String isbn;

   public Book(String title, String author, String isbn)
 {
      this.title = title;
      this.author = author;
      this.isbn = isbn;
   }

   public String getTitle() {
      return title;
   }

   public String getAuthor() {
      return author;
   }

   public String getISBN() {
      return isbn;
   }

   public void displayInfo() {
      System.out.println("Book Title: " + title);
      System.out.println("Author    : " + author);
      System.out.println("ISBN      : " + isbn);
   }
}
```

Member.java:-

```
package LibraryManagement;

public class Member {
   private String name;
   private String memberId;

   public Member(String name, String memberId) {
      this.name = name;
      this.memberId = memberId;
   }

   public String getName() {
      return name;
   }

   public String getMemberId() {
      return memberId;
   }

   public void displayInfo() {
      System.out.println("Member Name: " + name);
      System.out.println("Member ID  : " + memberId);
   }
}
```

Main.java-

```
import LibraryManagement.Book;
import LibraryManagement.Member;

public class Main {
   public static void main(String[] args) {
      Book book1 = new Book("The Hobbit", "J.R.R. Tolkien", "978-0547928227");
      Member member1 = new Member("Virendra Katale", "EN23250682");

      System.out.println("=== Book Information ===");
      book1.displayInfo();

      System.out.println("\n=== Member Information ===");
      member1.displayInfo();
   }
}
```

Output:

```
=== Book Information ===
Book Title: The Hobbit
Author    : J.R.R. Tolkien
ISBN      : 978-0547928227

=== Member Information ===
Member Name: Virendra Katale
Member ID  : EN23250682
```

2. Create a package Ecommerce containing classes Product, Customer, and Order. Implement methods for placing an order, displaying product details, and calculating total order cost. Use this package in another program.

Product.java:-

```
package Ecommerce;
public class Product {
   private String name;
   private double price;
   private int quantity;
public Product(String name, double price, int quantity) {
      this.name = name;
      this.price = price;
      this.quantity = quantity;
   }
public double getPrice() {
      return price;
   }
public int getQuantity() {
      return quantity;
   }
public String getName() {
      return name;
   }
public void displayProduct() {
      System.out.println("Product Name : " + name);
      System.out.println("Price       : $" + price);
      System.out.println("In Stock    : " + quantity);
   }
}
```

Main.java-

```
import Ecommerce.Product;
import Ecommerce.Customer;
import Ecommerce.Order;
public class Main {
   public static void main(String[] args) {
      Product product = new Product("Wireless Mouse",
25.99, 100);
      Customer customer = new Customer("Virendra
Katale", "virendrakatale07@gmail.com");
      Order order = new Order(product, customer, 2);
          order.placeOrder();
      System.out.println();
      order.displayOrderDetails();
   }
```

Output:

```
=== Order Details ===
Customer Name : Virendra Katale
Email         : virendrakatale07@gmail.com

Product Name : Wireless Mouse
Price        : $25.99       In Stock     : 100
Quantity Ordered : 2   Total Cost       : $51.98
```

Customer.java:-

```
package Ecommerce;

public class Customer {
   private String name;
   private String email;

   public Customer(String name, String email) {
      this.name = name;
      this.email = email;
   }

   public void displayCustomer() {
      System.out.println("Customer Name : " + name);
      System.out.println("Email        : " + email);
   }
}
```

Order.java-

```
package Ecommerce;

public class Order {
   private Product product;
   private Customer customer;
   private int quantityOrdered;

   public Order(Product product, Customer customer, int
quantityOrdered) {
      this.product = product;
      this.customer = customer;
      this.quantityOrdered = quantityOrdered;
   }

   public void placeOrder() {
      System.out.println("Order placed successfully.");
   }

   public void displayOrderDetails() {
      System.out.println("=== Order Details ===");
      customer.displayCustomer();
      System.out.println();
      product.displayProduct();
      System.out.println("Quantity Ordered : " +
quantityOrdered);
      System.out.println("Total Cost      : $" +
calculateTotalCost());
   }

   public double calculateTotalCost() {
      return product.getPrice() * quantityOrdered;
   }
}
```

3. Create a package named MathOperations that contains classes for mathematical functions like floor, round, and ceil. Implement a program that uses these functions to perform operations on different numbers. (The Math class in Java contains the methods floor(), ceil(), and round())
—>

MathFunctions.java

```
package MathOperations;

public class MathFunctions {
    public static double applyFloor(double number) {
        return Math.floor(number);
    }

    public static double applyCeil(double number) {
        return Math.ceil(number);
    }

    public static long applyRound(double number) {
        return Math.round(number);
    }
}
```

Output:

```
=== Math Operations ===
Number: 12.3
Floor : 12.0
Ceil  : 13.0
Round : 12

Number: 8.7
Floor : 8.0
Ceil  : 9.0
Round : 9

Number: 15.5
Floor : 15.0
Ceil  : 16.0
Round : 16
```

Main.java

```
import MathOperations.MathFunctions;

public class Main {
    public static void main(String[] args) {
        double number1 = 12.3;
        double number2 = 8.7;
        double number3 = 15.5;

        System.out.println("=== Math Operations ===");

        System.out.println("Number: " + number1);
        System.out.println("Floor : " +
MathFunctions.applyFloor(number1));
        System.out.println("Ceil  : " +
MathFunctions.applyCeil(number1));
        System.out.println("Round : " +
MathFunctions.applyRound(number1));

        System.out.println();

        System.out.println("Number: " + number2);
        System.out.println("Floor : " +
MathFunctions.applyFloor(number2));
        System.out.println("Ceil  : " +
MathFunctions.applyCeil(number2));
        System.out.println("Round : " +
MathFunctions.applyRound(number2));

        System.out.println();

        System.out.println("Number: " + number3);
        System.out.println("Floor : " +
MathFunctions.applyFloor(number3));
        System.out.println("Ceil  : " +
MathFunctions.applyCeil(number3));
        System.out.println("Round : " +
MathFunctions.applyRound(number3));
    }
}
```