Exercise 6.

1. Calculator Interface:

   Define an interface named `Calculator` with methods `add`, `subtract`, `multiply`, and `divide`. Implement this interface in a class named `BasicCalculator`. Test the functionality of the `BasicCalculator` class by performing arithmetic operations.

2. Shape Interface:
   Here are partial versions of the code for the remaining exercises

```
// Shape interface
interface Shape {
    double calculateArea();
    double calculatePerimeter();
}

// You need to implement the Circle, Rectangle, and Triangle classes here

// Test class
public class Main {
    public static void main(String[] args) {
        // Create shapes and test functionality
    }
}
```

   Your task is to complete the code by implementing the `Circle`, `Rectangle`, and `Triangle` classes, which should implement the `Shape` interface and provide concrete implementations for each method. Once you've completed that, you can test the functionality in the `Main` class.

3. Bank Account Interface:

   Design an interface named `BankAccount` with methods `deposit`, `withdraw`, and `getBalance`. Implement this interface in classes `SavingsAccount` and `CurrentAccount`. Test these classes by depositing, withdrawing, and checking balances.

4. Employee Interface:

Define an interface named `Employee` with methods `calculateSalary` and `displayDetails`. Implement this interface in classes `Manager`, `Clerk`, and `Technician`. Calculate and display the salary details for each type of employee.

5. Animal Interface:

   Create an interface named `Animal` with methods `eat`, `sleep`, and `makeSound`. Implement this interface in classes `Dog`, `Cat`, and `Bird`. Test the implementation by calling methods for different types of animals.

6. Define an interface named `Vehicle` with methods `start` and `stop`. Include a constant variable `MAX_SPEED` representing the maximum speed of the vehicle. Implement this interface in classes `Car` and `Bicycle`. Test the functionality by starting and stopping vehicles.
   Expected Output:
   Car started. Maximum speed: 60 km/h
   Car stopped.
   Bicycle started. Maximum speed: 60 km/h
   Bicycle stopped.

7. ElectronicDevice Interface Extension:
   Design a base interface named `ElectronicDevice` with methods `turnOn` and `turnOff`. Extend this interface to create another interface named `SmartDevice` with additional methods like `connectToInternet` and `runApp`. Implement both interfaces in classes like `Smartphone`, `SmartTV`, and `SmartWatch`. Test the functionality by turning on, turning off, and performing smart actions on devices.

8. Define a base interface named `Employee` with methods `work` and `takeBreak`. Extend this interface to create two more interfaces, `Manager` and `Clerk`, each with additional methods such as `manageTeam` and `organizeTasks`. Implement these interfaces in classes like `TeamManager`, `SalesClerk`, and `OfficeClerk`. Test the functionality by simulating employee actions.