Java Basic Programs

## 1. Non-void method using Simple Prime Number Check

public class PrimeCheck {  
 public static boolean isPrime(int num) {  
 if (num <= 1) return false;  
 for (int i = 2; i <= num / 2; i++) {  
 if (num % i == 0) return false;  
 }  
 return true;  
 }  
  
 public static void main(String[] args) {  
 System.out.println(isPrime(17)); // true  
 }  
}

## 2. Void method to find and print maximum

public class MaxFinder {  
 public static void findMax(int a, int b, int c) {  
 int max = (a > b) ? (a > c ? a : c) : (b > c ? b : c);  
 System.out.println("Maximum is: " + max);  
 }  
  
 public static void main(String[] args) {  
 findMax(3, 7, 5);  
 }  
}

## 3. Remove Alternate Characters (Method with Parameter)

public class AlternateRemover {  
 public static void removeAlternate(String str) {  
 for (int i = 0; i < str.length(); i += 2) {  
 System.out.print(str.charAt(i));  
 }  
 }  
  
 public static void main(String[] args) {  
 removeAlternate("abcdef"); // Output: ace  
 }  
}

## 4. Method without Parameter

public class NoParamMethod {  
 public static void greet() {  
 System.out.println("Hello! This is a method without parameters.");  
 }  
  
 public static void main(String[] args) {  
 greet();  
 }  
}

## 5. Sum of First N Natural Numbers using Recursion

public class SumRecursion {  
 public static int sum(int n) {  
 if (n == 1) return 1;  
 return n + sum(n - 1);  
 }  
  
 public static void main(String[] args) {  
 System.out.println(sum(5)); // Output: 15  
 }  
}

## 6. Reverse a Number Using Recursion

public class ReverseNumber {  
 public static void reverse(int n) {  
 if (n < 10) {  
 System.out.print(n);  
 return;  
 }  
 System.out.print(n % 10);  
 reverse(n / 10);  
 }  
  
 public static void main(String[] args) {  
 reverse(1234); // Output: 4321  
 }  
}

## 7. Count Number of Digits Using Recursion

public class DigitCounter {  
 public static int countDigits(int n) {  
 if (n == 0) return 0;  
 return 1 + countDigits(n / 10);  
 }  
  
 public static void main(String[] args) {  
 System.out.println(countDigits(1234)); // Output: 4  
 }  
}

## 8. Class: Circle Perimeter

public class Circle {  
 double radius;  
  
 Circle(double r) {  
 radius = r;  
 }  
  
 double getPerimeter() {  
 return 2 \* Math.PI \* radius;  
 }  
  
 public static void main(String[] args) {  
 Circle c = new Circle(5.0);  
 System.out.println("Perimeter: " + c.getPerimeter());  
 }  
}

## 9. Class: Book Info

public class Book {  
 String title;  
 String author;  
 double price;  
  
 Book(String t, String a, double p) {  
 title = t;  
 author = a;  
 price = p;  
 }  
  
 void display() {  
 System.out.println("Title: " + title + ", Author: " + author + ", Price: " + price);  
 }  
  
 public static void main(String[] args) {  
 Book b1 = new Book("Java Basics", "Dharshan", 299.99);  
 Book b2 = new Book("DSA", "Kumar", 499.50);  
 b1.display();  
 b2.display();  
 }  
}