[1]

```
for (int i = 0; i < 10; i++) {
   System.out.println("Hello World");
}
```

[2]

```
for (int i = 1; i <= 100; i++) {
   System.out.println(i);
}
```

[3]

```
for (int i = 100; i >= 1; i--) {
   System.out.println(i);
}
```

[4]

```
for (int i = 2; i <= 100; i += 2) {
   System.out.println(i);
}
```

[5]

```
import java.util.Random;

Random random = new Random();
for (int i = 0; i < 10; i++) {
   System.out.println(random.nextInt(101));
}
```

[6]

```
import java.util.Random;

Random random = new Random();
for (int i = 0; i < 10; i++) {
   int num = random.nextInt(101);
```

```
    if (num % 2 != 0) {
        System.out.println(num);
    }
}
```

[7]

```
for (char c = 'A'; c <= 'Z'; c++) {
    System.out.println(c);
}
```

[8]

```
for (int i = 2; i <= 100; i++) {
    boolean isPrime = true;
    for (int j = 2; j <= Math.sqrt(i); j++) {
        if (i % j == 0) {
            isPrime = false;
            break;
        }
    }
    if (isPrime) {
        System.out.println(i);
    }
}
```

[9]

```
int num = 5; // example number
long factorial = 1;
for (int i = num; i >= 1; i--) {
    factorial *= i;
}
System.out.println("Factorial of " + num + " is " + factorial);
```

[10]

```
for (int num = 0; num <= 10; num++) {
   long factorial = 1;
   for (int i = num; i >= 1; i--) {
      factorial *= i;
   }
   System.out.println("Factorial of " + num + " is " + factorial);
}
```

[11]

```
import java.util.Scanner;

Scanner scanner = new Scanner(System.in);
int count = 0;
for (int i = 0; i < 50; i++) {
   int num = scanner.nextInt();
   if (num > 100) {
      count++;
   }
}
System.out.println("Numbers greater than 100: " + count);
```

[12]

```
import java.util.Scanner;

Scanner scanner = new Scanner(System.in);
int total = 0, max = Integer.MIN_VALUE, min = Integer.MAX_VALUE;
for (int i = 0; i < 10; i++) {
   int mark = scanner.nextInt();
```

```
    total += mark;
    if (mark > max) max = mark;
    if (mark < min) min = mark;
}
double average = total / 10.0;
System.out.println("Total: " + total);
System.out.println("Max: " + max);
System.out.println("Min: " + min);
System.out.println("Average: " + average);
```

[13]

```
import java.util.Scanner;

public class StudentStats {
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);
        int numberOfStudents = 100;
        double totalHeight = 0, totalWeight = 0;
        int validCount = 0;

        for (int i = 0; i < numberOfStudents; i++) {
            System.out.print("Enter height (in cm) for student " + (i + 1) + ": ");
            double height = scanner.nextDouble();
            System.out.print("Enter weight (in kg) for student " + (i + 1) + ": ");
            double weight = scanner.nextDouble();

            if (height > 0 && weight > 0) {
                totalHeight += height;
                totalWeight += weight;
```

```
            validCount++;
        } else {
            System.out.println("Invalid input. Skipping this student.");
        }
    }

    if (validCount > 0) {
        double averageHeight = totalHeight / validCount;
        double averageWeight = totalWeight / validCount;
        System.out.println("Average Height: " + averageHeight + " cm");
        System.out.println("Average Weight: " + averageWeight + " kg");
    } else {
        System.out.println("No valid data to calculate averages.");
    }
  }
}
```

[14]

```
import java.util.Scanner;

public class SalaryDisbursement {
  public static void main(String[] args) {
    Scanner scanner = new Scanner(System.in);
    int[] notes = {5000, 1000, 500, 100, 50, 20, 10, 5, 2, 1};
    System.out.print("Enter the number of employees: ");
    int numEmployees = scanner.nextInt();

    for (int i = 0; i < numEmployees; i++) {
        System.out.print("Enter salary for employee " + (i + 1) + ": ");
        int salary = scanner.nextInt();
```

```
        System.out.println("Currency distribution:");

        for (int note : notes) {
            int count = salary / note;
            salary %= note;
            System.out.println(note + " notes: " + count);
        }
    }
  }
}
```

[15] ‘8 3’

[16]

```
// First loop: prints 0 to 9
for (int i = 0; i < 10; i++) {
  System.out.println(i);
}

// Second loop: prints 0, 2, 4, 6, 8
for (int i = 0; i < 10; i++) {
  System.out.println(i++);
}

// Third loop: prints 1, 3, 5, 7, 9
for (int i = 0; i < 10; i++) {
  System.out.println(++i);
}
```

[17]

a. iilegal

b. legal

c. illegal

d.legal

[18]

Compiler Error: variable x and y might not have been initialized

[19]

5 4 4 5

[20]

A: for (int i = 100; i < 110; i++) { System.out.println(i); }

E: int k = 100; for (int i = 0; i < 10; i++) { System.out.println(k); k++; }

[21]

G,l,l

[22]

-1 -1

[23]

a: Infinite loop printing i : incrementally from 0 onward.

b: Prints i : from 0 to 9.

c: Prints i : from 0 to 8.

d: Prints characters A through Z.

e: Prints pairs of integers (i and j) as 0 10, 1 9, ..., up to 10 0.

f: Prints ASCII characters 0 through 127.

g: Prints 101 ten times.

h: Prints 100 ten times and then 110 outside the loop.

[24]

A: 1 2 3 4.

B: 2 3 4.

C: 3 4.

D and E: 4.

F: 4.

[25]

A: if (x > 0) { a = 0; }.

B: a = 0;.

E: if (true) { a = 0; }.

F: if (y > 0) { a = 0; } else { a = -1; }.

G: a = z > 0 ? 0 : -1;.

[26]

A (int x = 1): 1 2 3.

B (int x = 2): 2 3.

C (int x = 3): 3.

D (int x = 4): 4.

E (int x = 0): 4.

F (int x = 5): 4.

[28]

B: case b:.

F: case 'A':.

H: case (char) 66:.

[29]

A: Line 1.

B: Line 2.

C: Line 3.

D: Line 4.

E: Line 5.

F: Line 6.

H: Line 8.

[30]

A: for (int i = 0; i < 10; i++) {}.

C: for (int i = 0;; i++) {}.

D: for (int i = 0; i < 10;) {}.

E: for (double d = 0; d < 10; d++) {}.

F: for (;;) (infinite loop).

G: for (byte b = 0; b < 10; b++) {}.

J: for (int i = 0;;) {}.

[31]

A: char x = 'A';.

B: int x = 65;.

D: byte x = 65;.

E: short x = 66;.

[32]

```
// For-loop
for (int i = 0; i < 10; i++) {
   System.out.println("Hello World");
}

// While-loop
int count = 0;
```

```
while (count < 10) {
   System.out.println("Hello World");
   count++;
}
```

[33]

```
int i = 1;
while (i <= 100) {
   System.out.println(i);
   i++;
}
```

[34]

```
int i = 2;
while (i <= 100) {
   System.out.println(i);
   i += 2;
}
```

[35]

```
int num = 2;
while (num <= 100) {
   boolean isPrime = true;
   int divisor = 2;

   while (divisor <= Math.sqrt(num)) {
      if (num % divisor == 0) {
         isPrime = false;
         break;
      }
      divisor++;
```

```
    }

    if (isPrime) {
        System.out.println(num);
    }
    num++;
}
```

[36]

```
import java.util.Scanner;

public class SumOfDigits {
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);
        System.out.print("Enter a number: ");
        int num = scanner.nextInt();
        int sum = 0;

        while (num != 0) {
            sum += num % 10;
            num /= 10;
        }

        System.out.println("Sum of digits: " + sum);
    }
}
```

[37]

```
import java.util.Scanner;
```

```
public class ReverseNumber {
   public static void main(String[] args) {
      Scanner scanner = new Scanner(System.in);
      System.out.print("Enter a number: ");
      int num = scanner.nextInt();
      int reversed = 0;

      while (num != 0) {
         reversed = reversed * 10 + num % 10;
         num /= 10;
      }

      System.out.println("Reversed number: " + reversed);
   }
}
```

[38]

```
import java.util.Scanner;

public class ArmstrongNumber {
   public static void main(String[] args) {
      Scanner scanner = new Scanner(System.in);
      System.out.print("Enter a number: ");
      int num = scanner.nextInt();
      int original = num;
      int sum = 0;

      while (num != 0) {
```

```
        int digit = num % 10;
        sum += digit * digit * digit;
        num /= 10;
      }

      if (sum == original) {
        System.out.println(original + " is an Armstrong number.");
      } else {
        System.out.println(original + " is not an Armstrong number.");
      }
    }
}
```

[39]

```
import java.util.Scanner;

public class GCD {
  public static int gcd(int a, int b) {
    while (b != 0) {
      int temp = b;
      b = a % b;
      a = temp;
    }
    return a;
  }

  public static void main(String[] args) {
    Scanner scanner = new Scanner(System.in);
    System.out.print("Enter the first number: ");
```

```
        int num1 = scanner.nextInt();
        System.out.print("Enter the second number: ");
        int num2 = scanner.nextInt();

        int result = gcd(num1, num2);
        System.out.println("GCD: " + result);
    }
}
```

[40]

```
int sum = 0;

for (int i = 1; i < 1000; i++) {
    if (i % 3 == 0 || i % 5 == 0) {
        sum += i;
    }
}

System.out.println("Sum of multiples of 3 or 5 below 1000: " + sum);
```

[41]

```
import java.util.Scanner;

public class NumberOfDigits {
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);
        System.out.print("Enter a number: ");
        int num = scanner.nextInt();
        int count = 0;
```

```
        if (num == 0) {
            count = 1;
        } else {
            while (num != 0) {
                num /= 10;
                count++;
            }
        }

        System.out.println("Number of digits: " + count);
    }
}
```

[42]

```
import java.util.Scanner;

public class PalindromeNumber {
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);
        System.out.print("Enter a number: ");
        int num = scanner.nextInt();
        int original = num;
        int reversed = 0;

        while (num != 0) {
            reversed = reversed * 10 + num % 10;
            num /= 10;
        }
```

```
        if (reversed == original) {
            System.out.println(original + " is a palindrome.");
        } else {
            System.out.println(original + " is not a palindrome.");
        }
    }
}
```

[43]

```
public class SmallestMultiple {
    public static boolean isDivisible(int number, int range) {
        for (int i = 1; i <= range; i++) {
            if (number % i != 0) {
                return false;
            }
        }
        return true;
    }

    public static void main(String[] args) {
        int number = 20;

        while (true) {
            if (isDivisible(number, 20)) {
                System.out.println("Smallest positive number evenly divisible by all numbers from 1 to 20: "
+ number);
                break;
            }
```

```
        number += 20; // Increment by 20 to speed up checks
      }
    }
}
```

[44]

```
import java.util.Arrays;

public class SameDigits {
    public static boolean hasSameDigits(int x, int y) {
        char[] xChars = String.valueOf(x).toCharArray();
        char[] yChars = String.valueOf(y).toCharArray();
        Arrays.sort(xChars);
        Arrays.sort(yChars);
        return Arrays.equals(xChars, yChars);
    }

    public static void main(String[] args) {
        int x = 1;

        while (true) {
            boolean valid = true;

            for (int multiplier = 2; multiplier <= 6; multiplier++) {
                if (!hasSameDigits(x, x * multiplier)) {
                    valid = false;
                    break;
                }
            }
```

```
        if (valid) {
            System.out.println("Smallest positive integer x such that 2x, 3x, 4x, 5x, and 6x contain the same digits: " + x);
            break;
        }

        x++;
    }
  }
}
```

[45]

```
import java.util.ArrayList;
import java.util.List;

public class ConsecutivePrimeSum {
  public static boolean isPrime(int num) {
    if (num < 2) return false;
    for (int i = 2; i <= Math.sqrt(num); i++) {
      if (num % i == 0) return false;
    }
    return true;
  }

  public static void main(String[] args) {
    List<Integer> primes = new ArrayList<>();
    int limit = 1000;
```

```
    for (int i = 2; i < limit; i++) {
      if (isPrime(i)) primes.add(i);
    }

    int maxLength = 0;
    int maxPrime = 0;

    for (int start = 0; start < primes.size(); start++) {
      int sum = 0;

      for (int end = start; end < primes.size(); end++) {
        sum += primes.get(end);

        if (sum >= limit) break;
        if (isPrime(sum) && (end - start + 1) > maxLength) {
          maxLength = end - start + 1;
          maxPrime = sum;
        }
      }
    }

    System.out.println("Prime number below 1000 that is the sum of the most consecutive primes:
" + maxPrime);
  }
}
```

[46]

```
import java.util.Scanner;
```

```
public class HouseInquiries {
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);
        int[] inquiries = new int[7];
        int below50kCount = 0;
        int totalInquiries = 0;
        int above5mCount = 0;

        // Input inquiries and prices for 7 days
        for (int i = 0; i < 7; i++) {
            System.out.print("Enter the number of inquiries on day " + (i + 1) + ": ");
            inquiries[i] = scanner.nextInt();
            totalInquiries += inquiries[i];
            System.out.println("Enter the price for each inquiry:");

            for (int j = 0; j < inquiries[i]; j++) {
                int price = scanner.nextInt();
                if (price < 50000) {
                    below50kCount++;
                } else if (price > 5000000) {
                    above5mCount++;
                }
            }
        }

        // Output results
        System.out.println("Inquiries for houses costing less than 50,000 rupees: " + below50kCount);
        double above5mPercentage = ((double) above5mCount / totalInquiries) * 100;
```

```
    System.out.printf("Percentage of inquiries for houses costing more than 5 million rupees:
%.2f%%", above5mPercentage);
  }
}
```

[47]

```
import java.util.Scanner;

public class AnalyzeIntegers {
  public static void main(String[] args) {
    Scanner scanner = new Scanner(System.in);
    int lessThan1000 = 0;
    int greaterThan1000 = 0;

    while (true) {
      System.out.print("Enter a positive integer (-1 to stop): ");
      int num = scanner.nextInt();

      if (num == -1) break;
      if (num < 1000) {
        lessThan1000++;
      } else {
        greaterThan1000++;
      }
    }

    System.out.println("Numbers less than 1000: " + lessThan1000);
    System.out.println("Numbers greater than 1000: " + greaterThan1000);
  }
```

```
}
```

[48]

```
int x = 0;
int y = 11; // Initialize y as 11

do {
} while (x++ < y);

System.out.println(x); // Will print 12
```

[49]

```
import java.util.Scanner;

public class TeacherProgress {
   public static void main(String[] args) {
      Scanner scanner = new Scanner(System.in);
      int numStudents = 0;
      int totalMarks = 0;
      int max = Integer.MIN_VALUE;
      int min = Integer.MAX_VALUE;
      int marks;

      System.out.println("Enter marks for each student (-1 to stop):");
      while ((marks = scanner.nextInt()) != -1) {
         totalMarks += marks;
         numStudents++;

         if (marks > max) max = marks;
         if (marks < min) min = marks;
```

```
        }

        if (numStudents > 0) {
            double average = (double) totalMarks / numStudents;
            System.out.println("No. of Students: " + numStudents);
            System.out.println("Total Marks: " + totalMarks);
            System.out.println("Maximum: " + max);
            System.out.println("Minimum: " + min);
            System.out.printf("Average: %.3f", average);
        } else {
            System.out.println("No students available.");
        }
    }
}
```

[61]

```
int rows = 10;
for (int i = 1; i <= rows; i++) {
    for (int j = 0; j < i; j++) {
        System.out.print("* ");
    }
    System.out.println();
}
```

[62]

```
int rows = 10;
for (int i = rows; i >= 1; i--) {
    for (int j = 0; j < i; j++) {
        System.out.print("* ");
```

```
    }
    System.out.println();
}
```

[62]

```
int rows = 10;

// Top half
for (int i = 1; i <= rows; i++) {
    for (int j = 1; j <= i; j++) {
        System.out.print("* ");
    }
    System.out.println();
}

// Bottom half
for (int i = rows - 1; i >= 1; i--) {
    for (int j = 1; j <= i; j++) {
        System.out.print("* ");
    }
    System.out.println();
}
```