

1.sum of two numbers:

```
import java.util.Scanner;

public class SumOfTwoNumbers {
    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 sum = num1 + num2;

        System.out.println("The sum of " + num1 + " and " + num2 + " is: " + sum);

        scanner.close();
    }
}
```

Output

```
Enter the first number: 5
Enter the second number: 7
The sum of 5 and 7 is: 12
```

2.multiplication of two numbers:

```
import java.util.Scanner;

public class MultiplicationOfTwoNumbers {
    public static void main(String[] args) {
        // Create a Scanner object for user input
        Scanner scanner = new Scanner(System.in);

        // Prompt the user to enter the first number
        System.out.print("Enter the first number: ");
        int num1 = scanner.nextInt();
```

```

// Prompt the user to enter the second number
System.out.print("Enter the second number: ");
int num2 = scanner.nextInt();

// Calculate the product
int product = num1 * num2;

// Display the result
System.out.println("The product of " + num1 + " and " + num2 + " is: " + product);

// Close the scanner
scanner.close();
}

```

Output

Enter the first number: 4
Enter the second number: 5
The product of 4 and 5 is: 20

3.display odd numbers between 1 -100

```

class OddNumber {public static void main(String args[]) {System.out.println("The Odd
Numbers are:");for (int i = 1; i <= 100; i++) {if (i % 2 != 0) {System.out.print(i + " ");}}}

```

Output

The Odd Numbers are:
1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 31 33 35 37 39 41 43 45 47 49 51 53 55 57 59 61
63 65 67 69 71 73 75 77 79 81 83 85 87 89 91 93 95 97 99

4.Sum of odd numbers between 1 -100

```

class SumOfNum {public static void main(String args[]) {int sum = 0;for (int i = 1; i <= 100;
i++) {if (i % 2 != 0) {sum = sum + i;}}System.out.println("The Sum Of 100 Odd Numbers are:"
+ sum);}}

```

Output

The Sum Of 100 Odd Numbers are: 2500

5.otat number of odd numbers between 1 -100

```

class TotalNumOfOddNum{public static void main(String args[]){int count = 0;for(int i = 1;i <=
100;i++){if(i % 2 != 0){count++;}}System.out.println("The Count Of Odd Numbers are:" +
count);}}

```

Output

The Count Of Odd Numbers are: 50

6. Find sum of first n numbers

```
class SumOfNum{public static void main(String args[]){int sum = 0;int n=10;for(int i = 1;i <= n;i++){sum = sum + i;}System.out.println("The Sum Of "+n+" Numbers are:" + sum);}}
```

Output

The Sum Of 10 Numbers are: 55

7. Switch case

```
public class SwitchExample {
    public static void main(String[] args) {
        int day = 3;

        switch (day) {
            case 1:
                System.out.println("Monday");
                break;
            case 2:
                System.out.println("Tuesday");
                break;
            case 3:
                System.out.println("Wednesday");
                break;
            case 4:
                System.out.println("Thursday");
                break;
            case 5:
                System.out.println("Friday");
                break;
            default:
                System.out.println("Weekend");
        }
    }
}
```

Output

Wednesday

8. For loop

```
public class ForLoopExample {
    public static void main(String[] args) {
        for (int i = 1; i <= 5; i++) {
            System.out.println(i);
        }
    }
}
```

```
}  
}
```

Output

```
1  
2  
3  
4  
5
```

9. Fact recursion

```
public class Factorial {  
  
    public static int factorial(int n) {  
  
        if (n == 0) {  
            return 1;  
        } else {  
  
            return n * factorial(n - 1);  
        }  
    }  
  
    public static void main(String[] args) {  
        int number = 5;  
        int result = factorial(number);  
        System.out.println("Factorial of " + number + " is " + result);  
    }  
}
```

Output

Factorial of 5 is 120

10. Do while loop

```
public class DoWhile {  
    public static void main(String[] args) {  
        int i = 1;  
  
        // This loop will run at least once  
        do {  
            System.out.println("Iteration " + i);  
            i++;  
        } while (i <= 5);  
    }  
}
```

Output

Iteration 1
Iteration 2
Iteration 3
Iteration 4
Iteration 5

11. If else

```
public class IfElse {  
    public static void main(String[] args) {  
        int number = 10;  
  
        if (number > 0) {  
            System.out.println("The number is positive.");  
        } else {  
            System.out.println("The number is negative or zero.");  
        }  
    }  
}
```

Output

The number is positive.

12. Operators

```
public class Operators {  
    public static void main(String[] args) {  
  
        // Arithmetic Operators  
        int a = 10, b = 3;  
        int sum = a + b;  
        int difference = a - b;  
        int product = a * b;  
        int quotient = a / b;  
        int remainder = a % b;  
  
        System.out.println("Arithmetic Operators:");  
        System.out.println("a + b = " + sum);  
        System.out.println("a - b = " + difference);  
        System.out.println("a * b = " + product);  
        System.out.println("a / b = " + quotient);  
        System.out.println("a % b = " + remainder);  
  
        // Relational Operators  
        boolean isEqual = a == b;
```

```

boolean isNotEqual = a != b;
boolean isGreaterThan = a > b;
boolean isLessThan = a < b;
boolean isGreaterThanOrEqual = a >= b;
boolean isLessThanOrEqual = a <= b;

System.out.println("\nRelational Operators:");
System.out.println("a == b: " + isEqual);
System.out.println("a != b: " + isNotEqual);
System.out.println("a > b: " + isGreaterThan);
System.out.println("a < b: " + isLessThan);
System.out.println("a >= b: " + isGreaterThanOrEqual);
System.out.println("a <= b: " + isLessThanOrEqual);

// Logical Operators
boolean x = true, y = false;
System.out.println("\nLogical Operators:");
System.out.println("x && y: " + (x && y));
System.out.println("x || y: " + (x || y));
System.out.println("!x: " + !x);

// Unary Operators
int count = 5;
System.out.println("\nUnary Operators:");
System.out.println("++count = " + (++count)); // Pre-increment
System.out.println("count++ = " + (count++)); // Post-increment
System.out.println("count = " + count);

// Ternary Operator
int max = (a > b) ? a : b;
System.out.println("\nTernary Operator:");
System.out.println("Max value between a and b: " + max);

// Bitwise Operators
int p = 5, q = 3;
System.out.println("\nBitwise Operators:");
System.out.println("p & q = " + (p & q)); // Bitwise AND
System.out.println("p | q = " + (p | q)); // Bitwise OR
System.out.println("p ^ q = " + (p ^ q)); // Bitwise XOR
System.out.println("~p = " + (~p)); // Bitwise NOT
System.out.println("p << 1 = " + (p << 1));
System.out.println("p >> 1 = " + (p >> 1));

// Assignment Operators
a += 5; // a = a + 5
b *= 2; // b = b * 2
System.out.println("\nAssignment Operators:");
System.out.println("a += 5: " + a);

```

```
        System.out.println("b *= 2: " + b);
    }
}
```

Output

Arithmetic Operators:

$a + b = 13$

$a - b = 7$

$a * b = 30$

$a / b = 3$

$a \% b = 1$

Relational Operators:

$a == b$: false

$a != b$: true

$a > b$: true

$a < b$: false

$a >= b$: true

$a <= b$: false

Logical Operators:

$x \&\& y$: false

$x \|\ y$: true

$!x$: false

Unary Operators:

$++count = 6$

$count++ = 6$

$count = 7$

Ternary Operator:

Max value between a and b: 10

Bitwise Operators:

$p \& q = 1$

$p | q = 7$

$p \wedge q = 6$

$\sim p = -6$

$p \ll 1 = 10$

$p \gg 1 = 2$

Assignment Operators:

$a += 5$: 15

$b *= 2$: 6

13. Simple interest

```

import java.util.Scanner;

public class SimpleInterest {
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in)
        System.out.print("Enter the principal amount (P): ");
        double principal = scanner.nextDouble();

        System.out.print("Enter the rate of interest (R) in percentage: ");
        double rate = scanner.nextDouble();

        System.out.print("Enter the time (T) in years: ");
        double time = scanner.nextDouble();

        double simpleInterest = (principal * rate * time) / 100;

        System.out.println("The Simple Interest is: " + simpleInterest);

        scanner.close();
    }
}

```

Output

```

Enter the principal amount (P): 1000
Enter the rate of interest (R) in percentage: 5
Enter the time (T) in years: 2
The Simple Interest is: 100.0

```

14. Electricity bill

```

public class ElectricBill{public static void main(String args[]){int units = 123;int bill = 0;if (units
> 100){if (units >= 200){if (units > 300){bill = units * 8;}elsebill = units * 6;}elsebill = units *
5;}System.out.println("CHENNAI ELECTRICITY LTD, CHENNAI");System.out.println("Units
Consumed : " + units);System.out.println("Total Bill : " + bill);}}

```

Output

```

CHENNAI ELECTRICITY LTD, CHENNAI
Units Consumed: 123
Total Bill: 615

```

15. Collect and store student details

```

import java.util.ArrayList;
import java.util.Scanner
class Student {

```



```

private String name;
private int age;
private String grade;
public Student(String name, int age, String grade) {
    this.name = name;
    this.age = age;
    this.grade = grade;
}
public void displayStudentDetails() {
    System.out.println("Name: " + name);
    System.out.println("Age: " + age);
    System.out.println("Grade: " + grade);
}
}

public class StudentDetails {
    public static void main(String[] args)
    ArrayList<Student> students = new ArrayList<>();
    Scanner scanner = new Scanner(System.in);
    System.out.println("Enter the number of students:");
    int numberOfStudents = scanner.nextInt();
    scanner.nextLine();

    for (int i = 0; i < numberOfStudents; i++) {
        System.out.println("Enter details for student " + (i + 1) + ":");

        System.out.print("Enter name: ");
        String name = scanner.nextLine();

        System.out.print("Enter age: ");
        int age = scanner.nextInt();
        scanner.nextLine();

        System.out.print("Enter grade: ");
        String grade = scanner.nextLine();

        students.add(new Student(name, age, grade));
    }

    // Display all student details
    System.out.println("\nStudent Details:");
    for (Student student : students) {
        student.displayStudentDetails();
        System.out.println();
    }

    scanner.close();
}

```

```
}  
}
```

Output

Student Details:

Name: Alice

Age: 20

Grade: A

Name: Bob

Age: 22

Grade: B

16. Sum of digits of number

```
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 number = scanner.nextInt();  
  
        int sum = 0;  
        int temp = Math.abs(number);  
  
        while (temp > 0) {  
            int digit = temp % 10;  
            sum += digit;  
            temp /= 10;  
        }  
  
        // Output the result  
        System.out.println("The sum of digits is: " + sum);  
  
        scanner.close();  
    }  
}
```

Output

The sum of digits is: 10

17. Odd or even

```
import java.util.Scanner;

public class OddOrEven {
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);
        System.out.print("Enter a number: ");
        int number = scanner.nextInt();
        if (number % 2 == 0) {
            System.out.println(number + " is even.");
        } else {
            System.out.println(number + " is odd.");
        }
        scanner.close();
    }
}
```

Output

Enter a number: 5

5 is odd.

Enter a number: 10

10 is even.

18. Read and print

```
import java.util.Scanner;

public class ReadAndPrint {
    public static void main(String[] args)
        Scanner scanner = new Scanner(System.in);
        System.out.print("Enter something: ");
        String input = scanner.nextLine(); // Read input as a string

        System.out.println("You entered: " + input);

        scanner.close();
    }
}
```

Output

Enter something: Hello, Java!

You entered: Hello, Java!

19. Class and object instance

```
class Person {
```

```

String name;
int age;
Person(String name, int age) {
    this.name = name;
    this.age = age;
}
void displayDetails() {
    System.out.println("Name: " + name);
    System.out.println("Age: " + age);
}
}
public class Main {
    public static void main(String[] args) {
        Person person1 = new Person("Alice", 25);
        Person person2 = new Person("Bob", 30);
        System.out.println("Person 1 Details:");
        person1.displayDetails();

        System.out.println("\nPerson 2 Details:");
        person2.displayDetails();
    }
}

```

Output

Person 1 Details:
 Name: Alice
 Age: 25

Person 2 Details:
 Name: Bob
 Age: 30

20. Constructor

```

class Person {
    String name;
    int age;

    Person(String name, int age) {
        this.name = name;
        this.age = age;
    }

    void display() {
        System.out.println("Name: " + name);
        System.out.println("Age: " + age);
    }
}

```

```

    }
}

public class Main {
    public static void main(String[] args) {
        Person person = new Person("Alice", 25);
        person.display();
    }
}

```

Output

Name: Alice

Age: 25

21. Students record using access modifier, constructor

```

class Student {

    private String name;
    private int rollNumber;
    private double mark;
    public Student(String name, int rollNumber, double marks) {
        this.name = name;
        this.rollNumber = rollNumber;
        this.marks = marks;
    }

    public void displayDetails() {
        System.out.println("Student Name: " + name);
        System.out.println("Roll Number: " + rollNumber);
        System.out.println("Marks: " + marks);
    }

    public double getMarks() {
        return marks;
    }

    public void setMarks(double marks) {
        if (marks >= 0 && marks <= 100) {
            this.marks = marks;
        } else {
            System.out.println("Invalid marks! Please enter marks between 0 and 100.");
        }
    }
}

```

```

public class StudentRecord {
    public static void main(String[] args) {

        Student student1 = new Student("Alice", 101, 85.5);
        Student student2 = new Student("Bob", 102, 92.0);
        System.out.println("Student 1 Details:");
        student1.displayDetails();

        System.out.println("\nStudent 2 Details:");
        student2.displayDetails();
        System.out.println("\nUpdating Student 1 Marks...");
        student1.setMarks(88.0);
        System.out.println("Updated Marks for Student 1: " + student1.getMarks());
        System.out.println("\nTrying to set invalid marks for Student 2...");
        student2.setMarks(105.0); // Invalid marks
    }
}

```

Output

Student 1 Details:
 Student Name: Alice
 Roll Number: 101
 Marks: 85.5

Student 2 Details:
 Student Name: Bob
 Roll Number: 102
 Marks: 92.0

Updating Student 1 Marks...
 Updated Marks for Student 1: 88.0

Trying to set invalid marks for Student 2...
 Invalid marks! Please enter marks between 0 and 100.

22. Reference variable

```

class Car {

    String brand;
    int year;

    Car(String brand, int year) {
        this.brand = brand;
    }
}

```

```

        this.year = year;
    }

    void display() {
        System.out.println("Brand: " + brand);
        System.out.println("Year: " + year);
    }
}

public class ReferenceVariableExample {
    public static void main(String[] args) {
        Car myCar = new Car("Toyota", 2021);
        myCar.display();
        Car yourCar = myCar;
        yourCar.brand = "Honda";

        System.out.println("\nDetails of myCar after modification:");
        myCar.display();

        System.out.println("\nDetails of yourCar:");
        yourCar.display();
    }
}

```

Output

```

Brand: Toyota
Year: 2021

```

```

Details of myCar after modification:
Brand: Honda
Year: 2021

```

```

Details of yourCar:
Brand: Honda
Year: 2021

```

23. Insert and display students details

```

import java.util.Scanner;

class Student {

    String name;
    int rollNumber;
    double mark;
    Student(String name, int rollNumber, double marks) {

```

```

        this.name = name;
        this.rollNumber = rollNumber;
        this.marks = marks;
    }

    void displayDetails() {
        System.out.println("Student Name: " + name);
        System.out.println("Roll Number: " + rollNumber);
        System.out.println("Marks: " + marks);
    }
}

public class StudentDetails {
    public static void main(String[] args) {

        Scanner scanner = new Scanner(System.in);

        System.out.print("Enter student's name: ");
        String name = scanner.nextLine();

        System.out.print("Enter student's roll number: ");
        int rollNumber = scanner.nextInt();

        System.out.print("Enter student's marks: ");
        double marks = scanner.nextDouble();

        Student student = new Student(name, rollNumber, marks);

        System.out.println("\nStudent Details:");
        student.displayDetails();

        scanner.close();
    }
}

```

Output

```

Enter student's name: John
Enter student's roll number: 102
Enter student's marks: 90.5

```

```

Student Details:
Student Name: John
Roll Number: 102
Marks: 90.5

```


24. Getter and setter method

```
public class Main {  
    public static void main(String[] args) {  
        Person myObj = new Person();  
        myObj.name = "John";  
        System.out.println(myObj.name);  
    }  
}
```

Output

John

25. Program using class based on percentage increase

```
class PercentageIncrease:  
    def __init__(self, initial_value):  
        self.initial_value = initial_value  
  
    def calculate_increase(self, new_value):  
        # Calculate the increase from the initial value  
        increase = new_value - self.initial_value  
        # Calculate the percentage increase  
        percentage_increase = (increase / self.initial_value) * 100  
        return percentage_increase  
  
    def display_increase(self, new_value):  
        # Get the percentage increase  
        increase = self.calculate_increase(new_value)  
        print(f"Initial Value: {self.initial_value}")  
        print(f"New Value: {new_value}")  
        print(f"Percentage Increase: {increase:.2f}%")  
  
# Example usage:  
# Initialize the class with an initial value  
initial_value = float(input("Enter the initial value: "))  
new_value = float(input("Enter the new value: "))  
  
# Create an instance of the PercentageIncrease class  
increase_calculator = PercentageIncrease(initial_value)  
  
# Display the result  
increase_calculator.display_increase(new_value)
```

Output

Enter the initial value: 50

Enter the new value: 75
Initial Value: 50.0
New Value: 75.0
Percentage Increase: 50.00%

26. String

```
import java.util.Scanner;

public class StringOperationsEnhanced {
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);

        // Input strings
        System.out.print("Enter the first string: ");
        String str1 = scanner.nextLine();
        System.out.print("Enter the second string: ");
        String str2 = scanner.nextLine();

        // Display menu for string operations
        System.out.println("\nChoose a string operation:");
        System.out.println("1. Find Length");
        System.out.println("2. Convert to Uppercase");
        System.out.println("3. Convert to Lowercase");
        System.out.println("4. Reverse the String");
        System.out.println("5. Concatenate Strings");
        System.out.println("6. Compare Strings");
        System.out.println("7. Check if Substring Exists");
        System.out.println("8. Replace a Character");
        System.out.println("9. Find Character at Index");
        System.out.println("10. Split the String");
        System.out.println("11. Trim Whitespaces");
        System.out.println("12. Check if String is Empty");
        System.out.println("13. Convert to Character Array");
        System.out.println("14. Exit");

        int choice;
        do {
            System.out.print("\nEnter your choice: ");
            choice = scanner.nextInt();
            scanner.nextLine(); // Consume newline

            switch (choice) {
                case 1:
                    System.out.println("Length of first string: " + str1.length());
                    System.out.println("Length of second string: " + str2.length());
                    break;
```

case 2:

```
System.out.println("First string in uppercase: " + str1.toUpperCase());
System.out.println("Second string in uppercase: " + str2.toUpperCase());
break;
```

case 3:

```
System.out.println("First string in lowercase: " + str1.toLowerCase());
System.out.println("Second string in lowercase: " + str2.toLowerCase());
break;
```

case 4:

```
System.out.println("Reversed first string: " + new StringBuilder(str1).reverse());
System.out.println("Reversed second string: " + new StringBuilder(str2).reverse());
break;
```

case 5:

```
System.out.println("Concatenated string: " + str1.concat(str2));
break;
```

case 6:

```
int comparison = str1.compareTo(str2);
if (comparison == 0) {
    System.out.println("Strings are equal.");
} else if (comparison > 0) {
    System.out.println("First string is lexicographically greater.");
} else {
    System.out.println("Second string is lexicographically greater.");
}
break;
```

case 7:

```
System.out.print("Enter a substring to check in the first string: ");
String substring = scanner.nextLine();
System.out.println("Substring exists in the first string: " + str1.contains(substring));
break;
```

case 8:

```
System.out.print("Enter the character to replace: ");
char oldChar = scanner.next().charAt(0);
System.out.print("Enter the new character: ");
char newChar = scanner.next().charAt(0);
System.out.println("First string after replacement: " + str1.replace(oldChar, newChar));
System.out.println("Second string after replacement: " + str2.replace(oldChar,
newChar));
break;
```

case 9:

```
System.out.print("Enter the index to find the character (0-based): ");
```

```

        int index = scanner.nextInt();
        try {
            System.out.println("Character at index " + index + " in first string: " + str1.charAt(index));
            System.out.println("Character at index " + index + " in second string: " + str2.charAt(index));
        } catch (IndexOutOfBoundsException e) {
            System.out.println("Index out of range!");
        }
        break;

    case 10:
        System.out.print("Enter the delimiter to split the first string: ");
        String delimiter = scanner.nextLine();
        String[] parts = str1.split(delimiter);
        System.out.println("First string split into parts:");
        for (String part : parts) {
            System.out.println(part);
        }
        break;

    case 11:
        System.out.println("First string after trimming: [" + str1.trim() + "]");
        System.out.println("Second string after trimming: [" + str2.trim() + "]");
        break;

    case 12:
        System.out.println("Is the first string empty? " + str1.isEmpty());
        System.out.println("Is the second string empty? " + str2.isEmpty());
        break;

    case 13:
        System.out.println("Character array of first string:");
        for (char c : str1.toCharArray()) {
            System.out.print(c + " ");
        }
        System.out.println();
        break;

    case 14:
        System.out.println("Exiting...");
        break;

    default:
        System.out.println("Invalid choice. Please try again.");
    }
} while (choice != 14);

scanner.close();
}

```

```
}
```

Output

Enter the first string: Hello

Enter the second string: World

Choose a string operation:

1. Find Length

2. Convert to Uppercase

...

14. Exit

Enter your choice: 1

Length of first string: 5

Length of second string: 5

Enter your choice: 5

Concatenated string: HelloWorld

Enter your choice: 9

Enter the index to find the character (0-based): 1

Character at index 1 in first string: e

Character at index 1 in second string: o

Enter your choice: 14

Exiting...

27. Array examples

```
public class ArrayExamples {  
    public static void main (String [] args) {  
        // Single-dimensional array  
        int [] singleArray = {1, 2, 3, 4, 5};  
        System.out.println("Single-dimensional array:");  
        for (int i = 0; i < singleArray.length; i++) {  
            System.out.print(singleArray[i] + " ");  
        }  
        System.out.println();  
    }  
}
```

Output

Single-dimensional array:

1 2 3 4 5

Two dimensional array

```
int[][] twoDimensionalArray = {  
    {1, 2, 3},
```

```

        {4, 5, 6},
        {7, 8, 9}
    };
    System.out.println("\nTwo-dimensional array:");
    for (int i = 0; i < twoDimensionalArray.length; i++) {
        for (int j = 0; j < twoDimensionalArray[i].length; j++) {
            System.out.print(twoDimensionalArray[i][j] + " ");
        }
        System.out.println();
    }
}

```

Output

Two-dimensional array:

1 2 3

4 5 6

7 8 9

Multi dimensional array

```

int[][][] multiDimensionalArray = {
    {
        {1, 2, 3},
        {4, 5, 6}
    },
    {
        {7, 8, 9},
        {10, 11, 12}
    }
};
System.out.println("\nMulti-dimensional array (3D):");
for (int i = 0; i < multiDimensionalArray.length; i++) {
    for (int j = 0; j < multiDimensionalArray[i].length; j++) {
        for (int k = 0; k < multiDimensionalArray[i][j].length; k++) {
            System.out.print(multiDimensionalArray[i][j][k] + " ");
        }
        System.out.println();
    }
    System.out.println();
}
}
}

```

Output

Multi-dimensional array (3D):

Block 1:

1 2 3

4 5 6

Block 2:

7 8 9

10 11 12

28. Sum of array

```
public class SumOfArray {  
    public static void main(String[] args) {  
        int[] numbers = {5, 10, 15, 20, 25};  
        int sum = 0;  
        for (int num : numbers) {  
            sum += num;  
        }  
  
        System.out.println("Sum of elements: " + sum);  
    }  
}
```

Output

Sum of elements: 75

29. Matrix addition

```
public class MatrixAddition {  
    public static void main(String[] args) {  
        int[][] matrixA = {  
            {1, 2, 3},  
            {4, 5, 6}  
        };  
        int[][] matrixB = {  
            {7, 8, 9},  
            {10, 11, 12}  
        };  
  
        int[][] result = new int[2][3];  
        for (int i = 0; i < matrixA.length; i++) {  
            for (int j = 0; j < matrixA[i].length; j++) {  
                result[i][j] = matrixA[i][j] + matrixB[i][j];  
            }  
        }  
  
        System.out.println("Resultant matrix after addition:");  
        for (int[] row : result) {  
            for (int element : row) {  
                System.out.print(element + " ");  
            }  
        }  
    }  
}
```

```

        System.out.println();
    }
}

```

Output

Resultant matrix after addition:

```

8 10 12
14 16 18

```

30. Diagonal elements

```

public class DiagonalElements {
    public static void main(String[] args) {
        int[][] squareMatrix = {
            {1, 2, 3},
            {4, 5, 6},
            {7, 8, 9}
        };

        System.out.println("Diagonal elements:");
        for (int i = 0; i < squareMatrix.length; i++) {
            System.out.print(squareMatrix[i][i] + " ");
        }
        System.out.println();
    }
}

```

Output

Diagonal elements:

```

1 5 9

```

Anti-diagonal elements:

```

3 5 7

```