1. Create a program which prints out your name, age and student number. These three features should be stored in separate variables.

```java
public class StudentInfo {
    //Question Number 1
    public static void main(String[] args) {
        // Declare and initialize variables
        String name = "Yajju Chansi";
        int age = 24;
        String studentNumber = "AS7842";

        // Print the information
        System.out.println("Name: " + name);
        System.out.println("Age: " + age);
        System.out.println("Student Number: " + studentNumber);
    }
}
```

2. Write a program to print the difference and product of numbers 45 and 32.

```java
public class MathOperations {
        //Question Number 2

    public static void main(String[] args) {
        int num1 = 45;
        int num2 = 32;

        int difference = num1 - num2;
        int product = num1 * num2;

        System.out.println("Difference: " + difference);
        System.out.println("Product: " + product);
    }
```

```
}
```

3. Write a Java program to print an int, a double, and a char on the screen.

```
public class DataTypesExample {
        //Question Number 3

    public static void main(String[] args) {
        // Declare variables of different types
        int myInt = 25;
        double myDouble = 3.14;
        char myChar = 'A';

        // Print the variables
        System.out.println("Integer value: " + myInt);
        System.out.println("Double value: " + myDouble);
        System.out.println("Character value: " + myChar);
    }
}
```

4. Write a program to calculate the area of a triangle.

$$A = \sqrt{s(s-a)(s-b)(s-c)}$$

Where s is the semi-perimeter of the triangle s = (a+b+c)/2

```
public class TriangleArea {
    public static void main(String[] args) {
        // Declare side lengths
        double a = 5;
        double b = 6;
```

```
        double c = 7;

        // Calculate semi-perimeter
        double s = (a + b + c) / 2;

        // Calculate area using Heron's formula
        double area = Math.sqrt(s * (s - a) * (s - b) * (s - c));

        // Print result
        System.out.println("The area of the triangle is: " + area);
    }
}
```

5. Write a Java program to calculate the area of a square. Prompt the user to enter the length of one side and then display the result. Ensure that the program handles user input as a double data type.

```
import java.util.Scanner;

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

        System.out.print("Enter the length of one side of the square: ");
        double side = scanner.nextDouble();

        double area = side * side;

        System.out.println("The area of the square is: " + area);

        scanner.close();
    }
```

```
}
```

6. Create a Java program that converts a temperature in Celsius to Fahrenheit. Prompt the user to enter the temperature in Celsius, perform the conversion using the formula (F = C * 9/5 + 32), and display the result as a double.

```
import java.util.Scanner;

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

        System.out.print("Enter temperature in Celsius: ");
        double celsius = scanner.nextDouble();

        double fahrenheit = celsius * 9 / 5 + 32;

        System.out.println("Temperature in Fahrenheit: " + fahrenheit);

        scanner.close();
    }
}
```

7. Develop a Java program that calculates the volume of a cylinder. Prompt the user to enter the radius and height of the cylinder and then display the result. Ensure that the program uses appropriate data types for calculation and output.

```java
import java.util.Scanner;

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

        System.out.print("Enter the radius of the cylinder: ");
        double radius = scanner.nextDouble();

        System.out.print("Enter the height of the cylinder: ");
        double height = scanner.nextDouble();

        double volume = Math.PI * radius * radius * height;

        System.out.println("The volume of the cylinder is: " + volume);

        scanner.close();
    }
}
```

8. Write a Java program that calculates the simple interest on a loan. Prompt the user to enter the principal amount, the rate of interest, and the time period. Calculate and display the interest amount as a double.

```java
import java.util.Scanner;

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

        System.out.print("Enter the principal amount: ");
        double principal = scanner.nextDouble();
```

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

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

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

        System.out.println("The simple interest is: " + interest);

        scanner.close();
    }
}
```

9. Create a Java program that takes two integer inputs from the user, performs all basic arithmetic operations (addition, subtraction, multiplication, and division) on these numbers, and displays the results.

```
import java.util.Scanner;

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

        System.out.print("Enter the first integer: ");
        int num1 = scanner.nextInt();

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

```
        int addition = num1 + num2;
        int subtraction = num1 - num2;
        int multiplication = num1 * num2;

        System.out.println("Addition: " + addition);
        System.out.println("Subtraction: " + subtraction);
        System.out.println("Multiplication: " + multiplication);

        if (num2 != 0) {
             double division = (double) num1 / num2;  // casting for
decimal division
            System.out.println("Division: " + division);
        } else {
            System.out.println("Division: Cannot divide by zero");
        }

        scanner.close();
    }
}
```

10. Write a Java program that calculates the perimeter of a rectangle. Prompt the user to enter the length and width of the rectangle, and then display the result. Use appropriate data types for calculation and output.

```
import java.util.Scanner;

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

        System.out.print("Enter the length of the rectangle: ");
        double length = scanner.nextDouble();
```

```
        System.out.print("Enter the width of the rectangle: ");
        double width = scanner.nextDouble();

        double perimeter = 2 * (length + width);

             System.out.println("The perimeter of the rectangle is: " +
perimeter);

        scanner.close();
    }
}
```

11. Develop a Java program that converts miles to kilometers. Prompt the user to enter the distance in miles and display the equivalent distance in kilometers as a double.

```
import java.util.Scanner;

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

        System.out.print("Enter distance in miles: ");
        double miles = scanner.nextDouble();

        double kilometers = miles * 1.60934;

         System.out.println(miles + " miles is equal to " + kilometers + "
kilometers.");

        scanner.close();
    }
}
```

12. Create a Java program that computes the area of a circle. Prompt the user to enter the radius and display the result as a double. Use the formula (Area = π * r * r) for the calculation.

```java
import java.util.Scanner;

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

        System.out.print("Enter the radius of the circle: ");
        double radius = scanner.nextDouble();

        double area = Math.PI * radius * radius;

        System.out.println("The area of the circle is: " + area);

        scanner.close();
    }
}
```

13. Develop a Java program that calculates the total cost of purchasing a given quantity of items at a certain price per item. Prompt the user to enter the quantity and price and display the total cost as a double.

```java
import java.util.Scanner;

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

        // Prompt user for quantity
        System.out.print("Enter the quantity of items: ");
        int quantity = scanner.nextInt();

        // Prompt user for price per item
        System.out.print("Enter the price per item: ");
        double pricePerItem = scanner.nextDouble();

        // Calculate total cost
        double totalCost = quantity * pricePerItem;

        // Display the total cost
        System.out.println("Total cost: " + totalCost);

        scanner.close();
    }
}
```

14. Write a Java program that converts a given amount of money in U.S. dollars to another currency (e.g., rupees). Prompt the user to enter the amount and the exchange rate, and display the converted amount as a double.

```java
import java.util.Scanner;


public class CurrencyConverter {
```

```
    public static void main(String[] args) {

        Scanner scanner = new Scanner(System.in);



        System.out.print("Enter the amount in U.S. dollars: ");

        double dollars = scanner.nextDouble();



            System.out.print("Enter the exchange rate (1 USD to target
currency): ");

        double exchangeRate = scanner.nextDouble();



        double convertedAmount = dollars * exchangeRate;



        System.out.println("Converted amount: " + convertedAmount);



        scanner.close();

    }

}
```

15. Write a Java program that calculates and prints the sum, difference, product, and quotient of two given integers. Take user input for two integers and display the results.

```java
import java.util.Scanner;


public class ArithmeticOperations {

    public static void main(String[] args) {

        Scanner scanner = new Scanner(System.in);


        System.out.print("Enter the first integer: ");

        int num1 = scanner.nextInt();


        System.out.print("Enter the second integer: ");

        int num2 = scanner.nextInt();


        int sum = num1 + num2;

        int difference = num1 - num2;

        int product = num1 * num2;


        System.out.println("Sum: " + sum);

        System.out.println("Difference: " + difference);

        System.out.println("Product: " + product);


        if (num2 != 0) {

             double quotient = (double) num1 / num2; // cast to double for
precise division

            System.out.println("Quotient: " + quotient);
```

```
        } else {

                    System.out.println("Quotient: Division by zero is not
allowed.");

        }



        scanner.close();

    }

}
```