Java Programming Assignment 1

Instructions:

1. Make sure you follow the problem statement correctly.
2. Write clear and concise code with proper indentation.
3. Test your programs with given test data to ensure correctness.
4. Comment your code to explain the logic or draw flowchart for understanding.

1. Print 'Hello' and Your Name

Write a Java program to print 'Hello' on the screen and then print your name on a separate line.

Expected Output:

Hello

Alexandra Abramov

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2. Sum of Two Numbers

Write a Java program to print the sum of two numbers.

Test Data: 74 + 36

Expected Output:

110

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3. Divide Two Numbers

Write a Java program to divide two numbers and print the result on the screen.

Test Data: 50 / 3

Expected Output:

16

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4. Perform Arithmetic Operations

Write a Java program to print the result of the following operations.

Test Data:

a. -5 + 8 * 6
b. (55 + 9) % 9
c. 20 + -3 * 5 / 8
d. 5 + 15 / 3 * 2 - 8 % 3

Expected Output:

43

1

19

13

5. Multiply Two Numbers

Write a Java program that takes two numbers as input and displays the product of the two numbers.

Test Data:

- **Input first number: 25**

- **Input second number: 5**

Expected Output:

25 x 5 = 125

6. Basic Arithmetic Operations

Write a Java program to print the sum, multiplication, subtraction, division, and remainder of two numbers.

Test Data:

- **Input first number: 125**

- **Input second number: 24**

Expected Output:

125 + 24 = 149

125 - 24 = 101

125 x 24 = 3000

125 / 24 = 5

125 mod 24 = 5

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7. Multiplication Table

Write a Java program that takes a number as input and prints its multiplication table up to 10.

Test Data:

- **Input a number: 8**

Expected Output:

8 x 1 = 8

8 x 2 = 16

8 x 3 = 24

8 x 4 = 32

8 x 5 = 40

8 x 6 = 48

8 x 7 = 56

8 x 8 = 64

8 x 9 = 72

8 x 10 = 80

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8. Swap Two Numbers

Write a Java program to swap the values of two variables without using a third variable.

Test Data:

- **Input first number: 10**

- **Input second number: 20**

Expected Output:

Before swapping:

First number: 10

Second number: 20

After swapping:

First number: 20

Second number: 10

9. Calculate the Area of a Circle

Write a Java program that calculates the area of a circle.

Test Data:

- **Input the radius: 7**

Formula: Area = π * radius²

Expected Output:

Area of the circle: 153.93804

10. Check If a Number Is Even or Odd

Write a Java program that checks if a number is even or odd.

Test Data:

- **Input a number: 15**

Expected Output:

The number 15 is Odd.

11. Find the Largest of Three Numbers

Write a Java program that takes three numbers as input and finds the largest of the three.

Test Data:

- **Input first number: 12**
- **Input second number: 45**

- **Input third number: 22**

Expected Output:

The largest number is 45.

12. Reverse a Number

Write a Java program that takes a number as input and prints the reverse of that number.

Test Data:

- **Input number: 12345**

Expected Output:

The reverse of 12345 is 54321.

13. Calculate the Average of Three Numbers

Write a Java program to calculate the average of three numbers.

Test Data:

- **Input first number: 20**
- **Input second number: 40**
- **Input third number: 60**

Expected Output:

The average is: 40.0

14. Print the Fibonacci Series

Write a Java program to print the Fibonacci series up to the 10th number.

Expected Output:

0 1 1 2 3 5 8 13 21 34

15. Find the Factorial of a Number

Write a Java program to find the factorial of a number.

Test Data:

- **Input a number: 5**

Expected Output:

Factorial of 5 is 120.

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16. Check Whether a Number Is Prime

Write a Java program to check whether a number is prime or not.

Test Data:

- **Input number: 17**

Expected Output:

The number 17 is Prime.

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17. Print the First N Natural Numbers

Write a Java program to print the first N natural numbers, where N is provided by the user.

Test Data:

- **Input a number: 6**

Expected Output:

1 2 3 4 5 6

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18. Convert Celsius to Fahrenheit

Write a Java program to convert a temperature from Celsius to Fahrenheit.

Test Data:

- **Input temperature in Celsius: 25**

Formula: Fahrenheit = (Celsius * 9/5) + 32

Expected Output:

25°C is equal to 77.0°F

19. Calculate the Power of a Number

Write a Java program that calculates the power of a number. Take two numbers as input: the base and the exponent, and compute the result of base raised to the power of exponent.

Test Data:

- **Input base number: 3**

- **Input exponent number: 4**

Expected Output:

3 raised to the power 4 is 81

20. Count the Number of Digits in a Number

Write a Java program that counts the number of digits in a given number.

Test Data:

- **Input number: 123456**

Expected Output:

The number 123456 has 6 digits.

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