

Java Assignments

1. Hello World Program

- Write a program to print "Hello, Java!".
- Objective: Understand structure of a Java program.

2. Sum of Two Numbers

- Take two integers as input and print their sum.
- Objective: Learn Scanner and basic arithmetic operators.

3. Check Even or Odd

- Input: Any integer. Output: Print "Even" or "Odd".
- Objective: If-else condition.

4. Find Largest of Three Numbers

- Input: 3 integers, Output: Largest number.
- Objective: Nested if / conditional operators.

5. Factorial of a Number

- Input: Integer n, Output: Factorial (n!).
- Objective: Loops.

6. Reverse a Number

- Input: 12345 → Output: 54321.
- Objective: Loop + modulus operator.

7. Check Prime Number

- Input: Number → Output: Prime or Not Prime.
- Objective: Loop, modulus, and conditions.

8. Sum of Digits

- Input: 1234 → Output: 10.
- Objective: Modulus operator and loops.

9. Fibonacci Series

- Input: 10 → Output: First 10 Fibonacci numbers.
- Objective: Loops and variable manipulation.

10. Palindrome Number Check

- Input: 121 → Output: Palindrome.
- Objective: Reverse number logic.

Static Keyword Focus

11. Static Variable Demo

- Create a class Student with a static variable college.
- Create multiple student objects and show that college is shared across all.

12. Static Method Demo

- Create a utility class MathUtils with a static method square(int x).
- Call the method without creating an object.

13. Static Block Demo

- Create a class that uses a static block to initialize some static data (like app version, author name) before main executes.

14. Count Number of Objects

- Create a class where each time an object is created, a counter (static variable) increases.
- Print how many objects were created.

15. Bank Interest Calculator

- Use a static variable rateOfInterest common for all accounts.
- Each account object should calculate interest based on balance.

Combined & Real world case studies

16. Employee Salary Calculator

- Class Employee with name, id, and basic salary.
- Use a static variable for companyName.
- Write methods to calculate gross salary (basic + allowances).

17. Library Book Tracker

- Each Book has title and author.

- Use a static variable to track total number of books added.

18. **Car Showroom Inventory**

- Each Car has model and price.
- Use a static method to display the **total number of cars**.

19. **University Student Enrollment System**

- Every student has id, name.
- Use a static counter to auto-generate unique student IDs.

20. **Online Store Discount System**

- Each product has price and category.
- Use a static variable festivalDiscount applicable to all products.