

1. Pseudo code for finding the maximum of three numbers:

- Begin
- Input: num1, num2, num3
- If num1 >= num2 AND num1 >= num3 Then
- Output: num1 is the maximum
- Else If num2 >= num1 AND num2 >= num3 Then
- Output: num2 is the maximum
- Else
- Output: num3 is the maximum
- End

2. Comparison of Python and Java:

Python:

- **Strengths:**
 - Simple syntax, easy to learn.
 - High-level language, great for rapid development.
 - Extensive libraries and community support.
 - Suitable for tasks like data science, AI, web development, and scripting.
- **Weaknesses:**
 - Slower performance compared to statically-typed languages like Java.
 - Not ideal for mobile development.
 - Less optimized for large-scale applications compared to Java.

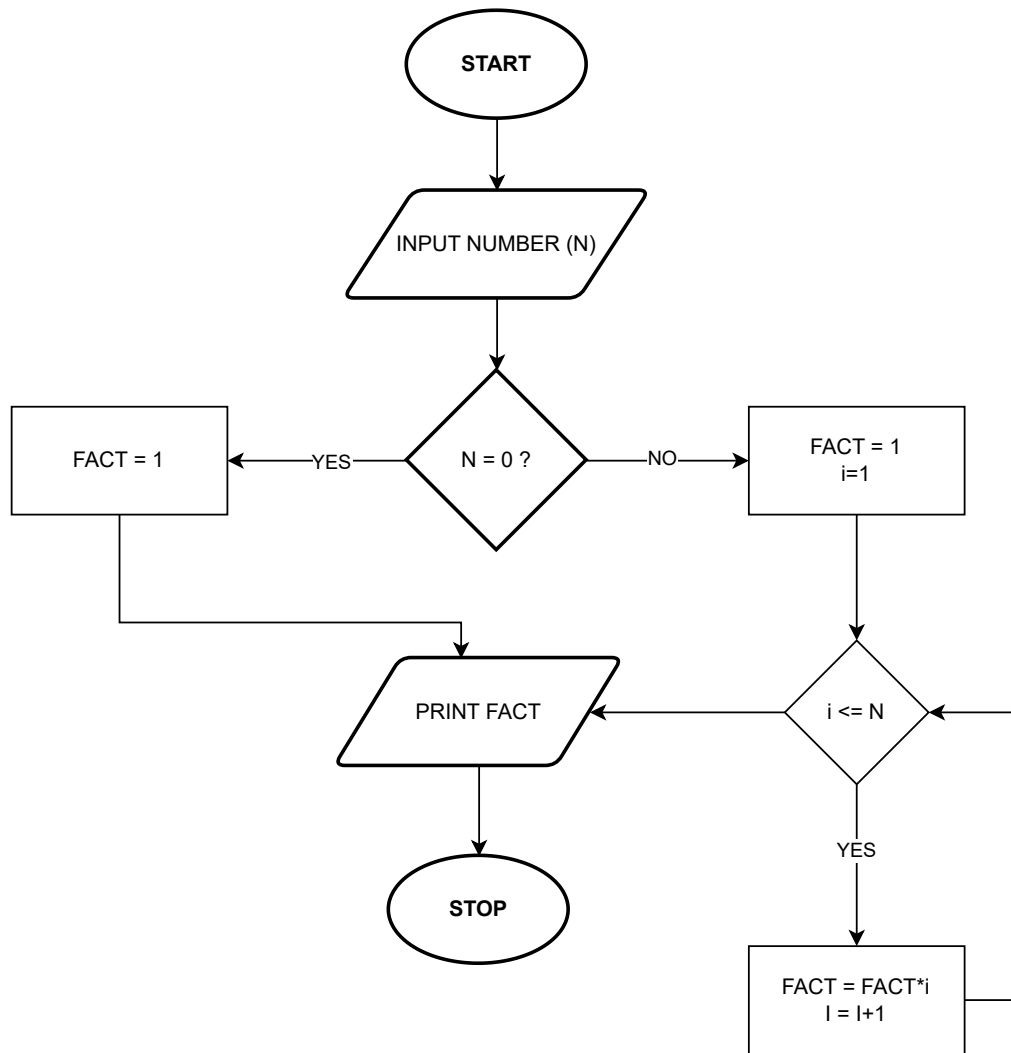
Java:

- **Strengths:**
 - Strong performance and scalability, well-suited for large applications.
 - Object-oriented and platform-independent (Write Once, Run Anywhere).
 - Strong community, robust frameworks, and libraries (e.g., Spring, Hibernate).
- **Weaknesses:**
 - More verbose syntax, harder to learn than Python.
 - Slower development time compared to Python for quick projects.
 - Requires more memory compared to Python for similar tasks.

3. **Compilation vs. Interpretation:**

- **Compilation:** A compiler translates the entire source code into machine code in one go before execution. The compiled program is independent of the source code and can be run multiple times. Example: C, C++.
 - **Advantages:** Faster execution after compilation, optimized machine code.
 - **Disadvantages:** Compilation step is time-consuming.
- **Interpretation:** An interpreter translates the source code into machine code line-by-line during execution. The program must be re-interpreted every time it runs. Example: Python, JavaScript.
 - **Advantages:** Easier debugging and testing, no separate compilation step.
 - **Disadvantages:** Slower execution because the code is translated every time.

4. FACTORIAL OF A NUMBER



5 Function to calculate the area of a rectangle in Python:

```
def calculate_area(length, width):  
    return length * width
```

Example usage

```
length = 5  
width = 10  
area = calculate_area(length, width)  
print(f"The area of the rectangle is: {area}")
```