1. Write a simple algorithm for writing the maximum of three numbers using pseudocode.

START

INPUT num1,num2,num3

If (num1>num2) and (num1>num3):

    Print "num1 is the largest"

Else if (num2>num3):

    Print "num2 is the largest"

Else:

    Print "num3 is the largest"

End If

2. Compare and Contrast two different programming languages, highlighting their strength and weaknesses.

	C	Java
Programming model	C is a procedural programming language	Java is an object-oriented programming language.
Platform dependence	C is platform-dependent. It is based on the concept of Write Once Compile Anywhere.	Java is platform-independent. It is based on the concept of Write Once Run Anywhere.
Type of language	C is a middle-level language as it binds the bridges between machine-level and high-level languages.	Java is a high-level language as the translation of Java code takes place into machine language, using a compiler or interpreter.
Compilation and Interpretation	C is only compiled and not interpreted.	Java is both compiled and interpreted.
Pointers	C has support for pointers.	Java does not support pointers.
Threading	C is not intrinsically a multithreaded language; however, there are many libraries that add threading functionality.	Java supports threading.
Garbage Collection	In C, Garbage Collection needs to be done manually.	In Java, Garbage Collector automatically does the Garbage Collection.

Memory Allocation	In order to do memory allocation in C, functions like malloc(), calloc(), etc. can be used. But there is no ‘new’ keyword in C.	In order to do memory allocation in Java, the ‘new’ keyword can be used.
Support for call by reference	C has support for both call by value and call by reference.	Java has support for the only call by value.
Application	The C programming language is used for both system programming as well as Application programming.	Java can be used only for Application programming and not for system programming.
Functional Units	In C, mostly the functional units are functions as it is a procedural programming language.	In Java, mostly the functional units are objects as it is an object-oriented programming language.

3. Explain Compilation and how it differs from interpretation.

Compilation and interpretation are computer programs that translate human-readable code into machine code so that computers can understand it. The main difference between the two is when they translate the code:

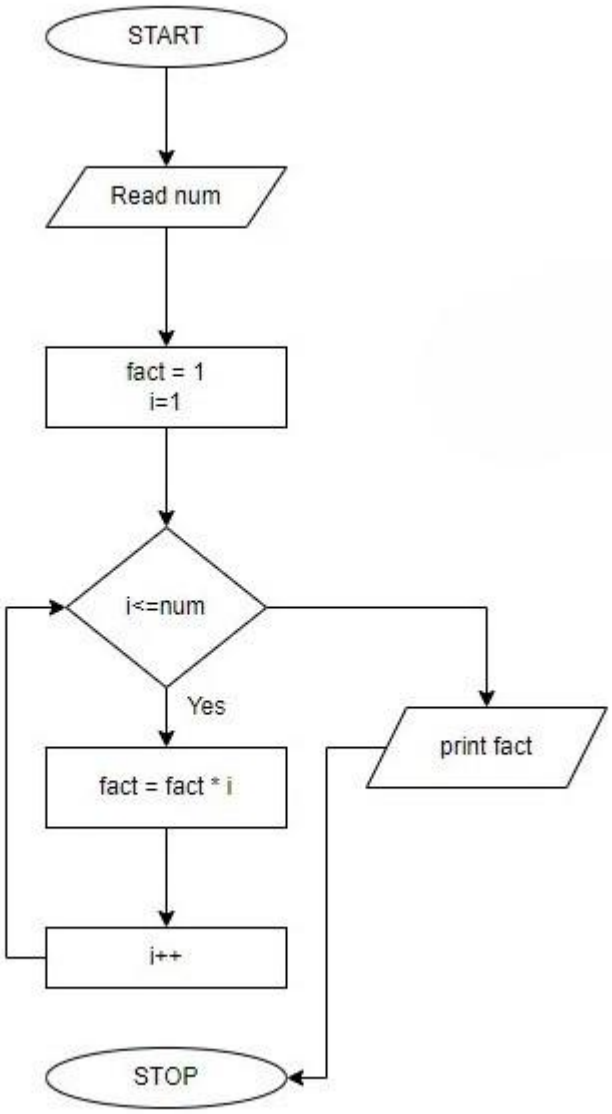
- Compilers

Translate code before the program runs, converting it into a lower-level language like assembly language, object code, or machine code. Compiled code is faster than interpreted code, but it's not platform agnostic and isn't human readable.

- Interpreters

Translate code line-by-line while the program is running. Interpreted code is compiled into an intermediary form that can run on any architecture, and it's easier to debug and revise than compiled code

4. Create a flowchart for a program that calculates the factorial of a given number.



5. Write a function in your preferred programming language to calculate the area of a rectangle.

```
def area_of_rectangle(length, breadth):
    return length * breadth
```