**UNDERSTAND RECURSIVE ALGORITHMS**

1. Explain the concept of recursion and how it can simplify certain problems

Ans: Recursion is a programming technique where a function calls itself to solve smaller instances of the same problem . Recursion simplifies complex tasks by breaking them down into smaller sub parts forming it ideal for calculations. Every recursive function needs base case and recursive case that reduces the size of the problem .

While recursion produces clean intuitive code that often mirrors mathematical logic it uses more memory than loops . It is best for problems with repetitive patterns but should be avoided for very large inputs to prevent stack overflow . For efficiency some languages optimize tail recursion to reduce memory overhead.