Task 1 => Scheduling algorithms are essential components of operating systems and computer systems that determine the order in which tasks or processes are executed on a CPU. These algorithms play a crucial role in managing system resources efficiently and ensuring fair and effective utilization of the CPU.

1- Process Queue

2- Dispatcher

3- Scheduling Criteria

4- Pre-emption

5- Context Switching Context Switching

6- Algorithm Selection

Task 2 => A Red-Black Tree is a self-balancing binary search tree (BST) that maintains balance through a set of rules and properties. Red-Black Trees are widely used in various computer science applications, including in the implementation of balanced data structures such as sets, maps, and associative arrays.

1- Binary Search Tree
2- Balancing Roles:
    - Every node is either red or black.
    - The root and leaves (NIL's) are black.
    - If a node is red, then its parent is black.
    - All simple paths from any node x to a descendant leave have the number of black nodes.
3- Operations:
    - Insertion
    - Deletion
    - Search
4- Complexity is O(log n)

Task 3 => A HashMap is a data structure used in computer science to store and manage key-value pairs. It provides efficient insertion, deletion, and retrieval of data by using a hashing function to map keys to specific locations in an array or storage structure.

Task 4 => Clean Code:

1- Meaningful Names
2- Small Functions/Methods
3- Single Responsibility Principle (SRP)
4- Descriptive Comments
5- Consistent Formatting
6- DRY (Don't Repeat Yourself)
7- Unit Testing
8- Keep It Simple
9- Error Handling
10- Code Reviews
11- Adhere to SOLID Principles
12- Code Documentation