Misconceptions

Module-5	
Misconception 1.	**All trees, including Binary Trees, possess an intrinsic property of beingsorted.**
Correct Explanation	Certain varieties of trees, such as Binary Search Trees (BSTs), are capable ofpreserving a sorted arrangement. General binary trees do not possess any specific limitations.
Misconception 2.	**HashTables and HashMaps are equivalent data structures.**
Correct Explanation	Both HashTables and HashMaps are data structures that store key-value pairsand use hashing techniques. However, there are notable distinctions betweenthe two. HashTables are synchronised, meaning they are designed to be thread-safe, whereas HashMaps are unsynchronised. Additionally, HashTables do not support the use of null keys or values, but HashMapsallow for the inclusion of null keys and values.
Misconception 3.	**AVL Trees consistently exhibit optimal search performance across all usescenarios.**

Correct Explanation	AVL trees provide a mechanism for maintaining balance in terms of height, hence providing efficient search times that follow a logarithmic growth pattern. Nevertheless, the expense associated with maintaining balance might result in reduced efficiency for scenarios involving frequent insertions and deletions, in comparison to other self-balancing tree structures.
Misconception 4.	**Priority queues and ordinary queues exhibit similar functionality.**
Correct Explanation	In contrast to conventional queues that adhere to the First-In-First-Out (FIFO)concept, Priority Queues prioritise the removal of components based on their priority rather than their location within the line.
Misconception 5.	**Heaps are only used for the purpose of data sorting.**
Correct Explanation	Although heaps may be used in sorting algorithms such as heap sort, theirmajor function is in rapidly identifying the largest or lowest element. Priority-based storage and retrieval algorithms often use them.