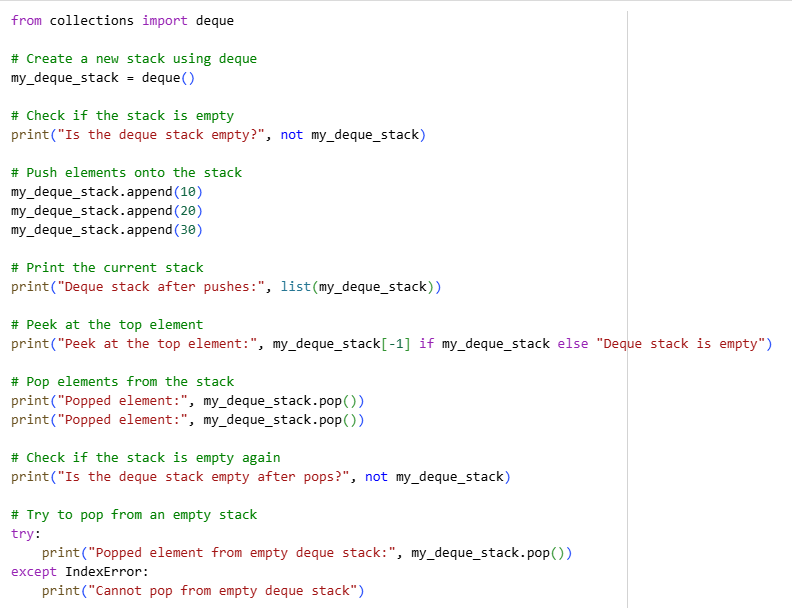
AI LAB ASSIGNMENT 11.4:

NAME:M.VARSHITHA

HALLTICKET NO:2403A52342

TASK 1: write a python class named as a stack and perform various operations like push(),pop(),peek(),and is\_empty().perform stack operations with an example. perform optimisation & alternatives by using collections,deque.

CODE:



OUTPUT:

A screenshot of a computer

AI-generated content may be incorrect.

TASK2: Write a python class named as a queue and perform enque,dequeue,and is\_empty().suggest more efficient implementation using collection.deque.

CODE:

A screenshot of a computer code

AI-generated content may be incorrect.

OUTPUT:

A white background with black text

AI-generated content may be incorrect.

TASK3: write a python class named as a singly linked list and perform insert\_at\_end(),delete\_value(),and traverse().generate inline comments explaining pointer updates (which are non-trivial). suggest test cases to validate all operations

CODE:

A screenshot of a computer program

AI-generated content may be incorrect.

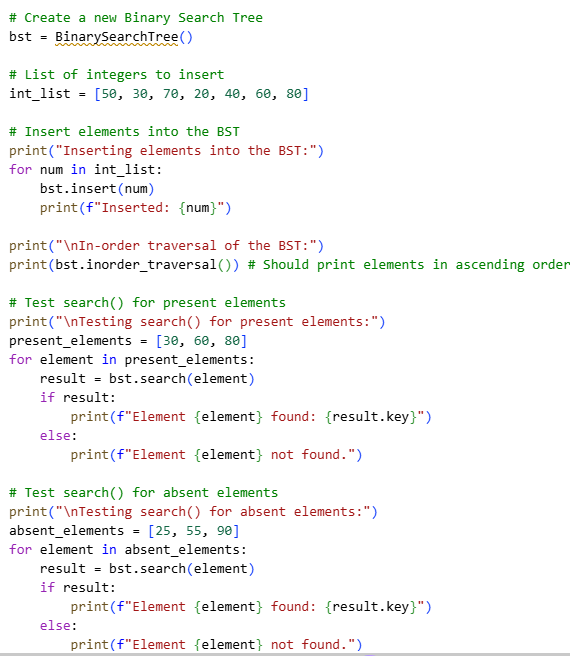
OUTPUT:

A screenshot of a computer program

AI-generated content may be incorrect.

TASK4:   
write a python class named as a binary search tree and perform insert(),search(),and inorder\_traversal().complete missing methods and add docstrings to the code. test with a list of integers and compare outputs of search() for present vs absent elements.

CODE:



OUTPUT:

A screenshot of a computer

AI-generated content may be incorrect.

TASK5: write a python class named as a graph using an adjacency list,with traversal methods bfs() and dfs().generate BFS and DFS implementations with inline comments. Compare recursive vs iterative DFS.

CODE:

A screenshot of a computer program

AI-generated content may be incorrect.

A computer code with colorful text

AI-generated content may be incorrect.

OUTPUT:

A black text on a white background

AI-generated content may be incorrect.