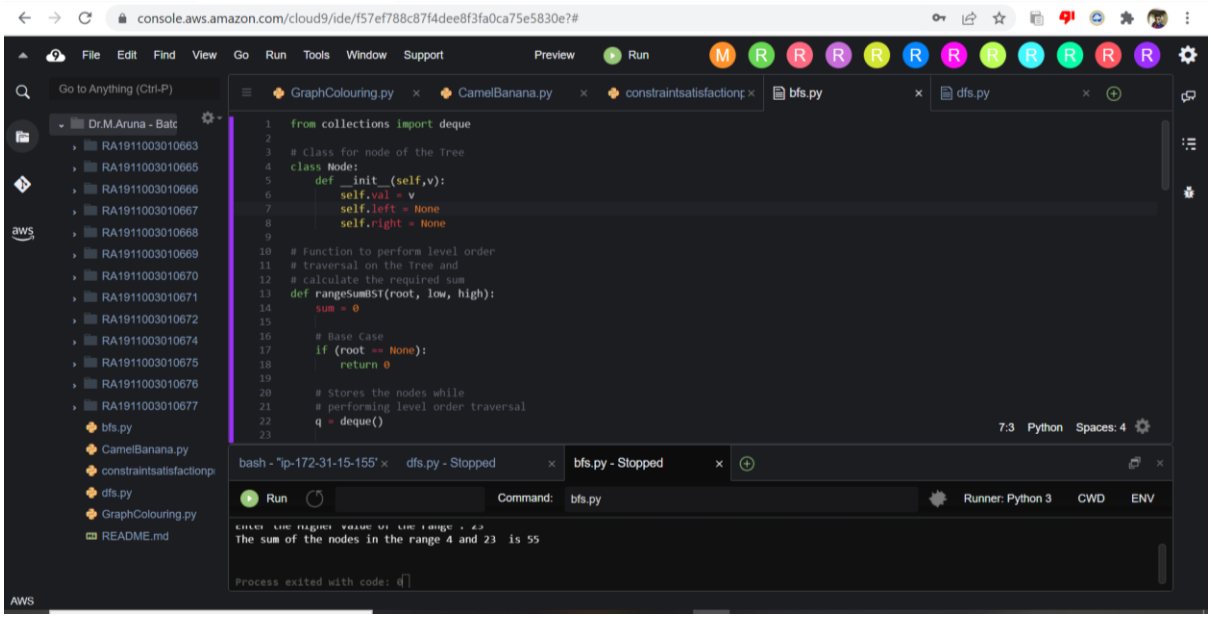
console.aws.amazon.com/cloud9/ide/f57ef788c87f4dee8f3fa0ca75e5830e?#
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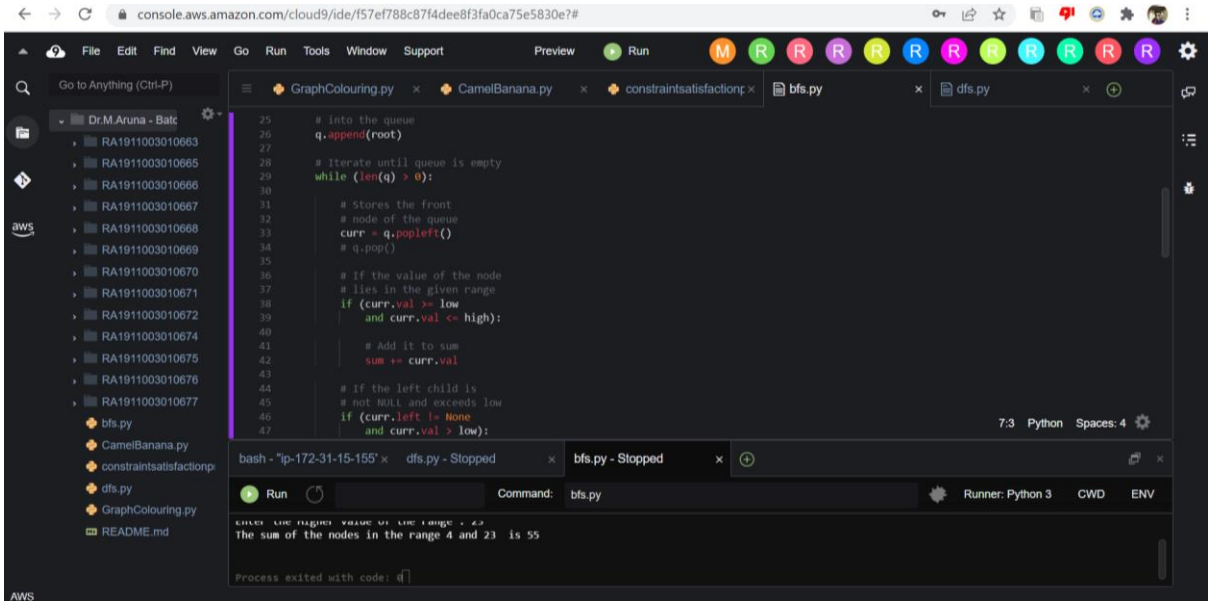
from collections import deque
# Class for node of the Tree
class Node:
def __init__(self,v):
self.val = v
self.left = None
self.right = None
# Function to perform level order
# traversal on the Tree and
# calculate the required sum
def rangeSumBST(root, low, high):
sum = 0
# Base Case
if (root == None):
return 0
# Stores the nodes while
# performing level order traversal
q = deque()
7:3 Python Spaces: 4
bash - "ip-172-31-15-155" dfs.py - Stopped bfs.py - Stopped
Run Command: bfs.py Runner: Python 3 CWD ENV
The sum of the nodes in the range 4 and 23 is 55
Process exited with code: 0
AWS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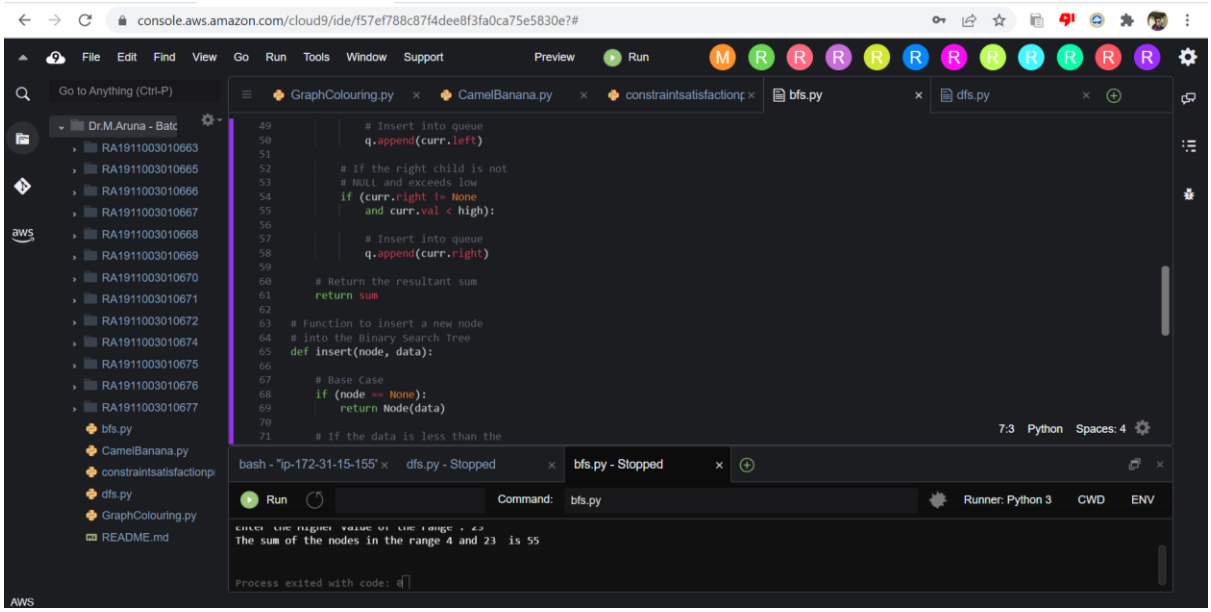
# into the queue
q.append(root)
# Iterate until queue is empty
while (len(q) > 0):
# Stores the front
# node of the queue
curr = q.popleft()
# q.pop()
# If the value of the node
# lies in the given range
if (curr.val >= low
and curr.val <= high):
# Add it to sum
sum += curr.val
# If the left child is
# not NULL and exceeds low
if (curr.left != None
and curr.val > low):
7:3 Python Spaces: 4
bash - "ip-172-31-15-155" dfs.py - Stopped bfs.py - Stopped
Run Command: bfs.py Runner: Python 3 CWD ENV
The sum of the nodes in the range 4 and 23 is 55
Process exited with code: 0
AWS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# Insert into queue
q.append(curr.left)
# If the right child is not
# NULL and exceeds low
if (curr.right != None
and curr.val < high):
# Insert into queue
q.append(curr.right)
# Return the resultant sum
return sum
# Function to insert a new node
# into the Binary Search Tree
def insert(node, data):
# Base Case
if (node == None):
return Node(data)
# If the data is less than the
7:3 Python Spaces: 4
bash - "ip-172-31-15-155" dfs.py - Stopped bfs.py - Stopped
Run Command: bfs.py Runner: Python 3 CWD ENV
The sum of the nodes in the range 4 and 23 is 55
Process exited with code: 0
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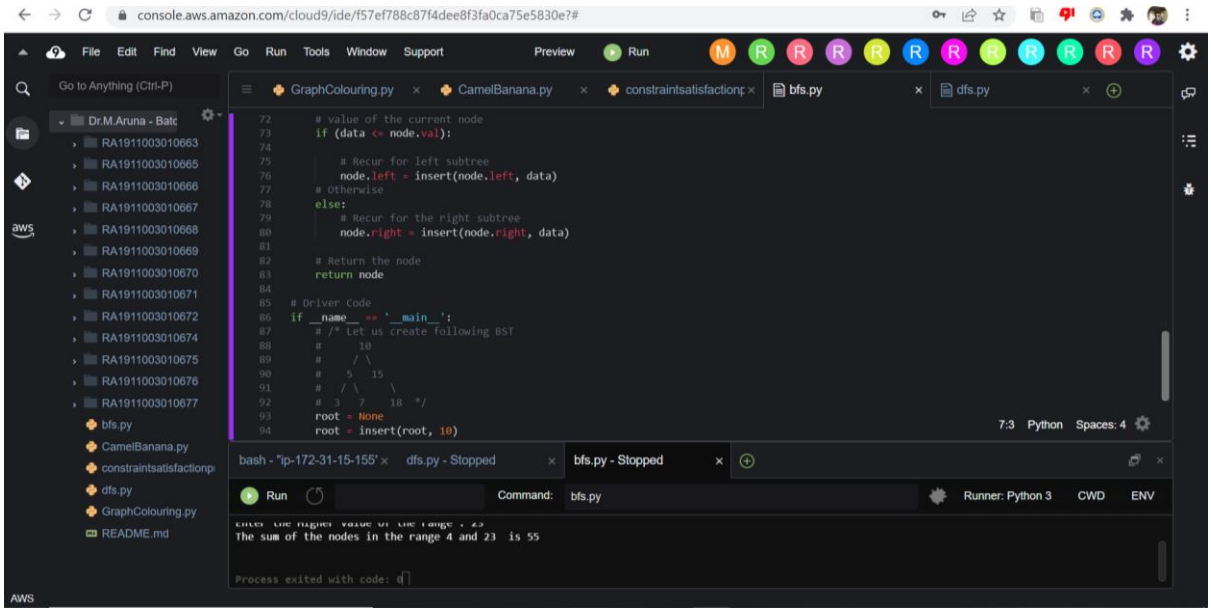
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# value of the current node
if (data <= node.val):
# Recur for left subtree
node.left = insert(node.left, data)
# Otherwise
else:
# Recur for the right subtree
node.right = insert(node.right, data)
# Return the node
return node
# Driver Code
if __name__ == '__main__':
# /* Let us create following BST
# 10
# / \
# 5 15
# / \ \
# 3 7 18 */
root = None
root = insert(root, 10)
7:3 Python Spaces: 4
bash - "ip-172-31-15-155" dfs.py - Stopped bfs.py - Stopped
Run Command: bfs.py Runner: Python 3 CWD ENV
The sum of the nodes in the range 4 and 23 is 55
Process exited with code: 0
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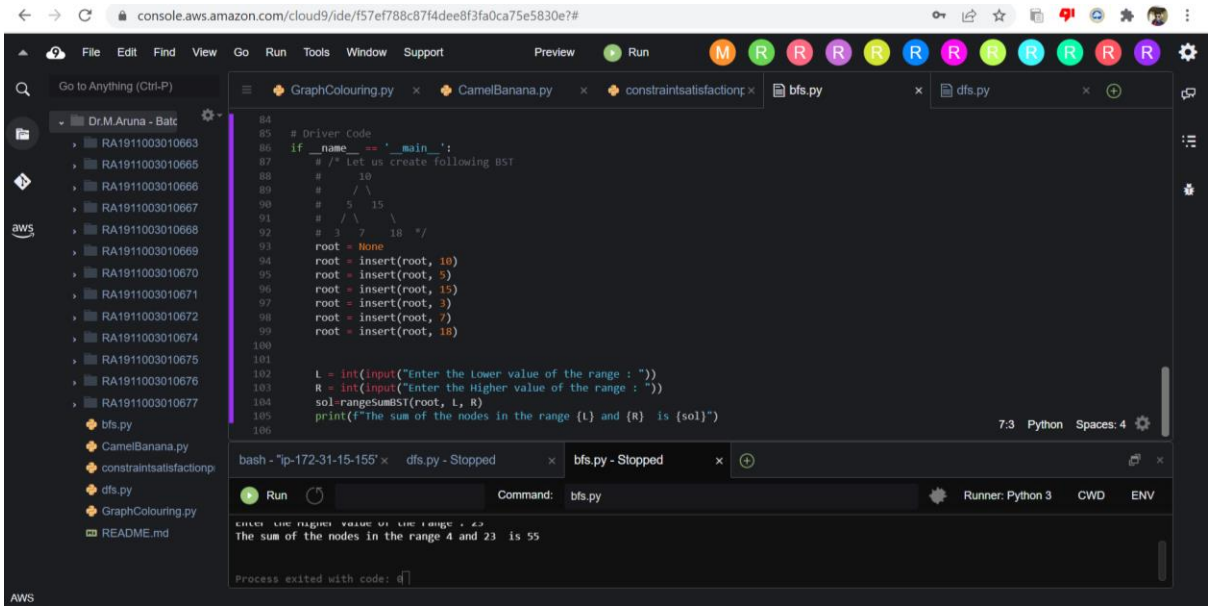
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README.md
# Driver Code
if __name__ == '__main__':
# /* Let us create following BST
# 10
# / \
# 5 15
# / \ \
# 3 7 18 */
root = None
root = insert(root, 10)
root = insert(root, 5)
root = insert(root, 15)
root = insert(root, 3)
root = insert(root, 7)
root = insert(root, 18)
L = int(input("Enter the Lower value of the range : "))
R = int(input("Enter the Higher value of the range : "))
sol=rangeSumBST(root, L, R)
print(f"The sum of the nodes in the range {L} and {R} is {sol}")
7:3 Python Spaces: 4
bash - "ip-172-31-15-155" x
dfs.py - Stopped
bfs.py - Stopped
Run
Command: bfs.py
Runner: Python 3 CWD ENV
The sum of the nodes in the range 4 and 23 is 55
Process exited with code: 0
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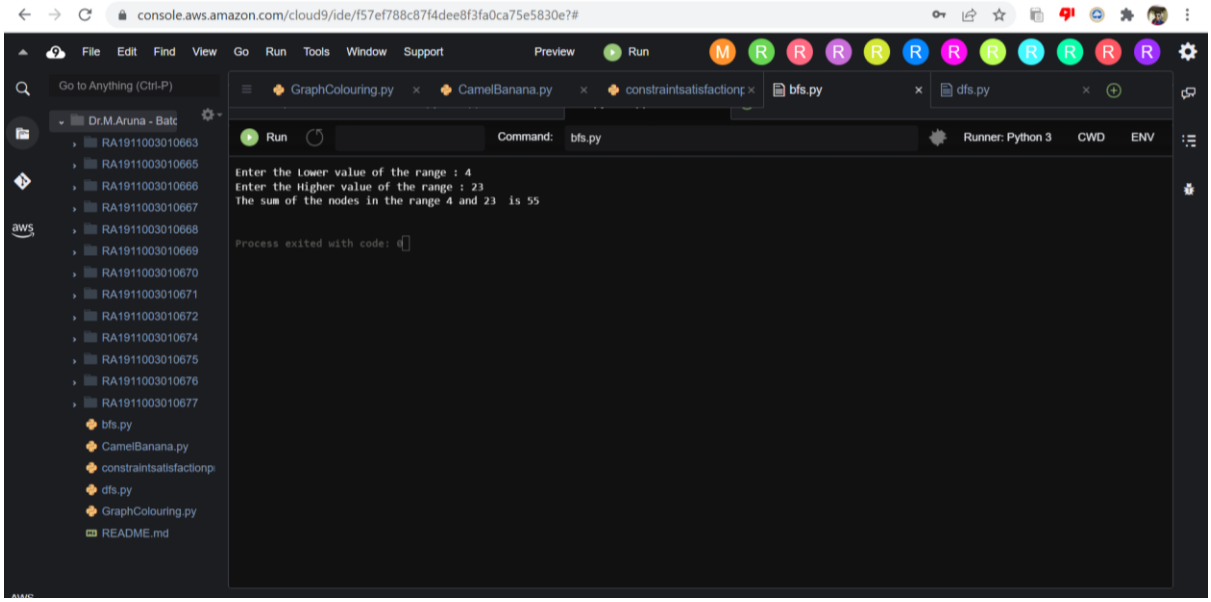
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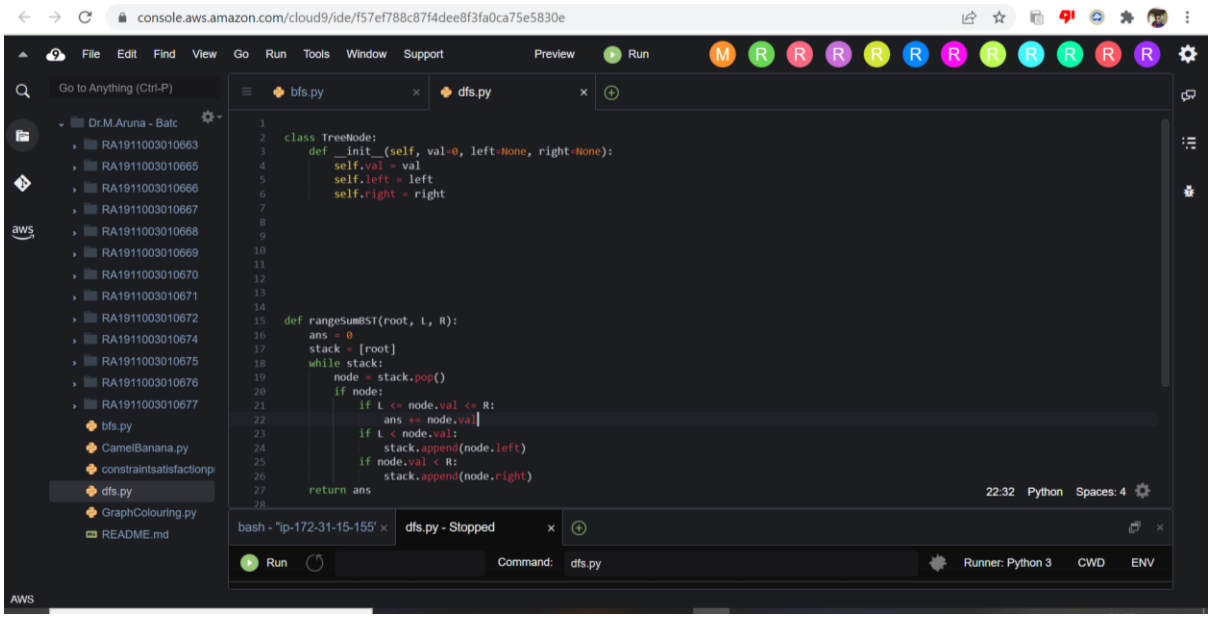
bfs.py
CamelBanana.py
constraintsatisfactionp
dfs.py
GraphColouring.py
README.md
Run
Command: bfs.py
Runner: Python 3 CWD ENV
Enter the Lower value of the range : 4
Enter the Higher value of the range : 23
The sum of the nodes in the range 4 and 23 is 55
Process exited with code: 0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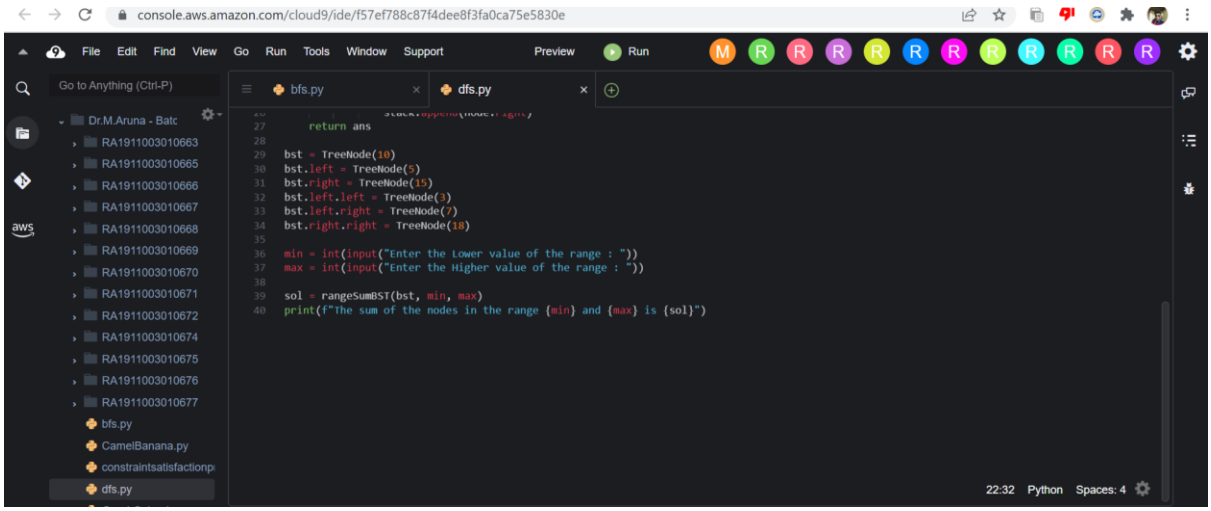
bfs.py
dfs.py
class TreeNode:
def __init__(self, val=0, left=None, right=None):
self.val = val
self.left = left
self.right = right
def rangeSumBST(root, L, R):
ans = 0
stack = [root]
while stack:
node = stack.pop()
if node:
if L <= node.val <= R:
ans += node.val
if L < node.val:
stack.append(node.left)
if node.val < R:
stack.append(node.right)
return ans
22:32 Python Spaces: 4
bash - "ip-172-31-15-155'
dfs.py - Stopped
Run
Command: dfs.py
Runner: Python 3
CWD
ENV
AWS


console.aws.amazon.com/cloud9/ide/f57ef788c87f4dee8f3fa0ca75e5830e
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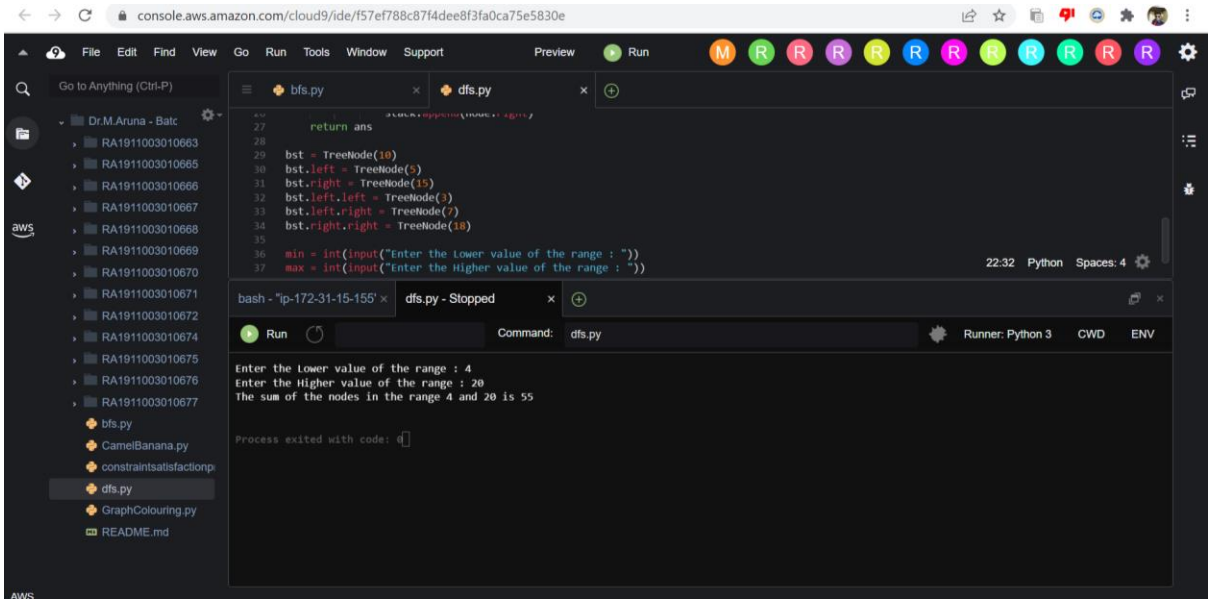
bfs.py
dfs.py
return ans
bst = TreeNode(10)
bst.left = TreeNode(5)
bst.right = TreeNode(15)
bst.left.left = TreeNode(3)
bst.left.right = TreeNode(7)
bst.right.right = TreeNode(18)
min = int(input("Enter the Lower value of the range : "))
max = int(input("Enter the Higher value of the range : "))
sol = rangeSumBST(bst, min, max)
print(f"The sum of the nodes in the range {min} and {max} is {sol}")
22:32 Python Spaces: 4




Result:-

The DFS and BFS on a real world problems has been successfully implemented.