CS 470

Artificial Intelligence

Final Project

Presented by

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1. What was the problem?

The problem that I chose for my final project was the maze runner. I decided to do just a basic BFS for the algorithm to figure out how to get from one end of the maze to the other.

1. What was the solution you were looking for?

The solution that I was looking for was being able to take in an image of a maze and then turn that maze into a graph that I can then traverse using breadth first search to find the answer of solving the maze. I figured this path would hit every single node along the way and I thought this would be the most interesting because it would how well I was able to turn the maze into a graph and still have an accurate search function. I want to manually put in the start node and end node for the maze in the code instead of clicking it.

1. How was success of finding that solution to be defined (shortest path, greatest fitness, ...)?

The success of find this solution should be defined as finding the end. Using Breadth first search I think you know right away that you are most likely not going to have the shortest path. In order to have the shortest path it would probably be best to use either depth first or A\* because in a maze there are normally a lot of walls separating the entrance to the exit.

1. What data was provided, and how was it formatted?

The data that was provided was three different images of mazes. One easy, one medium, and one difficult. These mazes being in an image format made it difficult to start and understand how to breakdown the problem. We could manually plant out nodes on the maze and create a simple text file for it, but this would be very tedious and long on the user.

1. How did you approach the problem?

My approach to this problem first was start with trying to get the maze to become a graph. This was extremely difficult to wrap my head around at first, until I slowly walked through it with the first easy maze. I could count the number of vertical and horizontal nodes would be in the maze which would give me the total number of nodes in that maze. I then decide to use Matplotlib ginput as suggest by Dr Winfree. This allowed me to load the image into python. Being able to load the image into python allowed me to turn the image into an array of pixels breakdowns and be able to plot points on the graph using my mouse. Using the ginput I was able to click the four corners of the maze and then prompt the user to ask how many nodes are horizontally and vertically in the maze. Once I had this from the user, I created a function that created an array to house our graph of the maze. This array house searchNodes that had the name of the node starting AA and spread out, the x and y coordinate as well, their depth, children nodes and parent nodes.

From there I implemented my BFS as a basic skeleton knowing how the algorithm worked and them went and implemented the functions that I would need for this project. The toughest function to implement was my adjacent Nodes function which found all the adjacent Nodes for a given node. In this function not only did I need to figure out if a node was inside the graph, but I also had to figure out if the node was actually connected to the given node or blocked by a wall. To do the first one I just created a basic function that tested to see if the node was inside the graph and it would return the index of that node so I could properly connect them. The next one was a lot trickier. I decide to crop the picture, so it was just the node to the adjacent node and then I summed all the pixels between those two nodes. If this sum was 0 then I knew that there were no walls between them, and the nodes were truly connected. This allowed me to implement my open list function and everything else seamlessly.

1. Why did you select the algorithm that you did?  If one was recommended, why is that one a good fit for the problem?  What others could have been used?

I decide to select the BFS algorithm because I found turning the image into a graph very interesting because I have done nothing like this before in a python. By choosing BFS this allowed my search algorithm to hit most of the nodes inside of the maze, so I truly got to see that implemented my functions correctly. I do not think this is a good fit for this problem because you do end up hitting a lot of the nodes meaning you are going to be in the maze for a while. Other algorithms that we could have used is depth first and A\* search. I think both these search functions would do a lot better at find the exit of the maze a lot faster because in the mazes the entrance and exit are on completely other side of the map. It would be very easy to implement depth first by just switching how we append nodes to our open list.

1. How did your attempt work out?  What challenges did you encounter?

My attempt was a little frustrating at times, but it turned out successful. The biggest challenged that I faced was turning the maze image into a graph database to use. I could not wrap my head around cropping the image to add all of the pixels together inside of the image to find if there are any non-white pixels, meaning there is a wall between 2 nodes. Once I had this figured out everything else seemed to fall into place.

**Code for Main Class:**

\_\_author\_\_= "Zach Kaufman"

import math

from graphPlotter import mapGraph

class Searcher:

def \_\_init\_\_(self, fileName):

graphPlt = mapGraph(fileName)

if \_\_name\_\_ == '\_\_main\_\_':

z = Searcher("maze-make-it-difficult3.jpeg")

**Code for Maze Solver file:**

\_\_author\_\_= "Zach Kaufman"

import math

from matplotlib import pyplot as plt

import numpy as np

# Function that checks to makes sure a given node is in

# a given list of nodes

def inList(node, listNodes):

if (listNodes != []):

for items in listNodes:

if node.nodeName == items.nodeName:

return bool(True)

return bool(False)

# maze runner class to create graph and run BFS

class mapGraph:

# the maze image displayed in an array format

mazeImage = []

# this is the four corners that we get from clicking

corners = []

# this is the number of verticle nodes in the maze

verticleNodes = 0

# this is the number of horizontal nodes in the maze

horizontalNodes = 0

# the start node

startNode = None

# the end node that we need to find

endNode = None

# the clicks for the end and start node

endStart = []

# the addition to the y addition to get the next

# y coordinate

yAddition = 0

# the addition to the y addition to get the next

# x coordinate

xAddition = 0

# the graph that we get from the maze that we use at the start

graph = []

# the amount of nodes open at a given time

openList = []

# wiether you want to show every step of the solver

verboseType = bool(False)

# the currentnode the solver is on

currentNode = None

# all the nodes in the given graph

allNodes = []

# incrementer

x = 0

# incrementer

y = 0

# the list that a node is expanding

nodeExpansion = []

# the number of nodes that is searched

numberofSearchNodes = 0

# Simple search Node class

# class is imbeded inside this class

class searchNode:

# creates a new search node with the nodename

def \_\_init\_\_(self, nodeName, xLocation, yLocation):

self.nodeName = nodeName

self.xLocation = xLocation

self.yLocation = yLocation

self.nodeChildren = []

self.depth= -1

self.parentNode = []

# the constructor class for the maze

def \_\_init\_\_(self, imageFile):

print("Solving: ", imageFile, " with Breadth First Search:")

self.mazeImage = plt.imread(imageFile) # loads the image into python

plt.imshow(self.mazeImage) # gets the array of pixels of the image

self.corners = plt.ginput(4) # the amount of clicks we get from the image, corners

self.endStart = plt.ginput(2) # the end and start node, not implemented

self.verticleHorizontalNodes()

#self.startNode = self.endStart[0] if implement this

#self.endNode = self.endStart[1]

self.xAddition = (self.corners[0][0] + self.corners[1][0])/int(self.horizontalNodes)

self.yAddition = (self.corners[0][1] + self.corners[2][1])/int(self.verticleNodes)

self.convertToUsAble()

self.BFS(self.graph[17\*30], self.graph[9\*30 - 1])

self.printSearchStats()

# gets the number of veritcle and horizontal squares from the user

# to split up the graph into an equal amount of squares

def verticleHorizontalNodes(self):

print("Enter the number of verticle Nodes: ")

self.verticleNodes = input()

print("Enter the number of horizontal Nodes: ")

self.horizontalNodes = input()

# starts to convert the image into a useable graph

# gets all the nodes from the maze and turns into a graph

def convertToUsAble(self):

self.x = 0

self.y = 0

while( self.y < int(self.verticleNodes)):

while( self.x < int(self.horizontalNodes) ):

# gets the nodes for the maze by adding the y and x additions to the corners

nodeName = (chr(ord('A') + self.x)) + chr(ord('A') + self.y)

self.graph.append(self.searchNode(nodeName, self.corners[0][0] + (self.xAddition \* self.x)

, self.corners[0][1] + (self.yAddition \* self.y)))

self.x = self.x + 1

self.y = self.y + 1

self.x = 0

# sees if the given location is inside of the graph

def contains(self, xLocation, yLocation):

index = 0

for i in self.graph:

if int(i.xLocation) == int(xLocation) and int(i.yLocation) == int(yLocation):

return index

index = index + 1

return -1

# data dump of all the nodes in the graph

def printNodes(self):

i = 0

while( i < len(self.graph)):

print (self.graph[i].nodeName, ", ", self.graph[i].xLocation, ", ", self.graph[i].yLocation)

i = i + 1

# gets the children of the given parent node

def adjacentNodes(self, parentNode):

addNode = None

upIndex = self.contains(parentNode.xLocation, parentNode.yLocation - self.yAddition) # if a node is uptop

downIndex = self.contains(parentNode.xLocation, parentNode.yLocation + self.yAddition) # if a node is below

leftIndex = self.contains(parentNode.xLocation - self.xAddition, parentNode.yLocation) # if a node is left

rightIndex = self.contains(parentNode.xLocation + self.xAddition, parentNode.yLocation) # if a node is right

indexes = [upIndex, downIndex, leftIndex, rightIndex]

index = 0

while index < 4:

if indexes[index] != -1: # checks to see if the node is actually in the maze

# creates a crop between the given node and potential children

img\_crop = self.mazeImage[int(parentNode.xLocation):int(self.graph[indexes[index]].xLocation),

int(parentNode.yLocation):int(self.graph[indexes[index]].yLocation), : ]

# checks to see if all the pixels are white between the two points

isWhite = np.sum(img\_crop)

if (isWhite == 0):

if not inList(self.graph[indexes[index]], parentNode.parentNode):

self.graph[indexes[index]].depth = parentNode.depth + 1

self.graph[indexes[index]].parentNode.append(parentNode)

parentNode.nodeChildren.append(self.graph[indexes[index]])

index = index + 1

# checks to see if 2 nodes are equal to eachother

def equalTo(self, node1, node2):

if (node1.nodeName == node2.nodeName):

return True

else:

return False

# The same BFS algorithm that we used on the second project

# nothing super special here

def BFS(self, startNode, endNode):

self.startNode = startNode

self.startNode.depth = 0

self.endNode = endNode

self.openList.append(self.startNode)

self.currentNode = self.startNode

if self.verboseType:

self.displayOpenList()

while not self.equalTo(self.currentNode, self.endNode):

if self.verboseType:

print("\nExploring Node: ", self.currentNode.nodeName)

if self.currentNode.nodeName not in self.nodeExpansion:

self.nodeExpansion.append(self.currentNode)

self.numberofSearchNodes = self.numberofSearchNodes + 1

self.adjacentNodes(self.currentNode)

self.insertToOpen(self.currentNode.nodeChildren, self.currentNode)

self.currentNode = self.openList[0]

# my insert to open function that inserts new children to the open list

# this is the same algorithm as before where it adds to the end of list

def insertToOpen(self, addToList, parentNode):

if self.verboseType and parentNode != '':

print ("Inserting New Children:", end = " ")

index = 0

for children in parentNode.nodeChildren:

if not inList(children, self.nodeExpansion):

print(children.nodeName, end = ", ")

index = index + 1

if inList(parentNode, self.openList):

self.openList.remove(parentNode)

index = 0

if parentNode != '':

for children in parentNode.nodeChildren:

if not inList(children, self.nodeExpansion):

index = index + 1

for child in addToList:

if not inList(child, self.openList) and not inList(child, self.nodeExpansion):

self.openList.append(child)

if self.verboseType:

self.displayOpenList()

# displays the open list for the verbose mode only

def displayOpenList(self):

print("")

index = 0

while index < len(self.openList):

print("( ", self.openList[index].nodeName, ", ", self.openList[index].depth, end = "),")

index = index + 1

# prints the final stats of the maze and algorithm

def printSearchStats(self):

print("\n\n-----------------------------------------------")

print("Search Summary Stats:")

print("Start Node: ", self.startNode.nodeName)

print("End Node: ", self.endNode.nodeName)

print("search total of ", self.numberofSearchNodes,

" out of total of ", int(self.verticleNodes)\*int(self.horizontalNodes))

print("Ended at Node: ", self.currentNode.nodeName)

print("Node Expansion:", end = "[")

for nodes in self.nodeExpansion:

print(nodes.nodeName, end = ",")

print("]")

**Results for the first Maze:**

Solving: Maze\_simple.jpeg with Breadth First Search:

Enter the number of verticle Nodes:

5

Enter the number of horizontal Nodes:

10

( AA , 0),

Exploring Node: AA

Inserting New Children: AB, BA,

( AB , 1),( BA , 1),

Exploring Node: AB

Inserting New Children: AC, BB,

( BA , 1),( AC , 2),( BB , 2),

Exploring Node: BA

Inserting New Children: BB, CA,

( AC , 2),( BB , 2),( CA , 2),

Exploring Node: AC

Inserting New Children: AD, BC,

( BB , 2),( CA , 2),( AD , 3),( BC , 3),

Exploring Node: BB

Inserting New Children: BC, CB,

( CA , 2),( AD , 3),( BC , 3),( CB , 3),

Exploring Node: CA

Inserting New Children: CB, DA,

( AD , 3),( BC , 3),( CB , 3),( DA , 3),

Exploring Node: AD

Inserting New Children: AE, BD,

( BC , 3),( CB , 3),( DA , 3),( AE , 4),( BD , 4),

Exploring Node: BC

Inserting New Children: BD, CC,

( CB , 3),( DA , 3),( AE , 4),( BD , 4),( CC , 4),

Exploring Node: CB

Inserting New Children: CC, DB,

( DA , 3),( AE , 4),( BD , 4),( CC , 4),( DB , 4),

Exploring Node: DA

Inserting New Children: DB, EA,

( AE , 4),( BD , 4),( CC , 4),( DB , 4),( EA , 4),

Exploring Node: AE

Inserting New Children: BE,

( BD , 4),( CC , 4),( DB , 4),( EA , 4),( BE , 5),

Exploring Node: BD

Inserting New Children: BE, CD,

( CC , 4),( DB , 4),( EA , 4),( BE , 5),( CD , 5),

Exploring Node: CC

Inserting New Children: CD, DC,

( DB , 4),( EA , 4),( BE , 5),( CD , 5),( DC , 5),

Exploring Node: DB

Inserting New Children: DC, EB,

( EA , 4),( BE , 5),( CD , 5),( DC , 5),( EB , 5),

Exploring Node: EA

Inserting New Children: EB, FA,

( BE , 5),( CD , 5),( DC , 5),( EB , 5),( FA , 5),

Exploring Node: BE

Inserting New Children: CE,

( CD , 5),( DC , 5),( EB , 5),( FA , 5),( CE , 6),

Exploring Node: CD

Inserting New Children: CE, DD,

( DC , 5),( EB , 5),( FA , 5),( CE , 6),( DD , 6),

Exploring Node: DC

Inserting New Children: DD, EC,

( EB , 5),( FA , 5),( CE , 6),( DD , 6),( EC , 6),

Exploring Node: EB

Inserting New Children: EC, FB,

( FA , 5),( CE , 6),( DD , 6),( EC , 6),( FB , 6),

Exploring Node: FA

Inserting New Children: FB, GA,

( CE , 6),( DD , 6),( EC , 6),( FB , 6),( GA , 6),

Exploring Node: CE

Inserting New Children: DE,

( DD , 6),( EC , 6),( FB , 6),( GA , 6),( DE , 7),

Exploring Node: DD

Inserting New Children: DE, ED,

( EC , 6),( FB , 6),( GA , 6),( DE , 7),( ED , 7),

Exploring Node: EC

Inserting New Children: ED, FC,

( FB , 6),( GA , 6),( DE , 7),( ED , 7),( FC , 7),

Exploring Node: FB

Inserting New Children: FC, GB,

( GA , 6),( DE , 7),( ED , 7),( FC , 7),( GB , 7),

Exploring Node: GA

Inserting New Children: GB, HA,

( DE , 7),( ED , 7),( FC , 7),( GB , 7),( HA , 7),

Exploring Node: DE

Inserting New Children: EE,

( ED , 7),( FC , 7),( GB , 7),( HA , 7),( EE , 8),

Exploring Node: ED

Inserting New Children: EE, FD,

( FC , 7),( GB , 7),( HA , 7),( EE , 8),( FD , 8),

Exploring Node: FC

Inserting New Children: FD, GC,

( GB , 7),( HA , 7),( EE , 8),( FD , 8),( GC , 8),

Exploring Node: GB

Inserting New Children: GC, HB,

( HA , 7),( EE , 8),( FD , 8),( GC , 8),( HB , 8),

Exploring Node: HA

Inserting New Children: HB, IA,

( EE , 8),( FD , 8),( GC , 8),( HB , 8),( IA , 8),

Exploring Node: EE

Inserting New Children: FE,

( FD , 8),( GC , 8),( HB , 8),( IA , 8),( FE , 9),

Exploring Node: FD

Inserting New Children: FE, GD,

( GC , 8),( HB , 8),( IA , 8),( FE , 9),( GD , 9),

Exploring Node: GC

Inserting New Children: GD, HC,

( HB , 8),( IA , 8),( FE , 9),( GD , 9),( HC , 9),

Exploring Node: HB

Inserting New Children: HC, IB,

( IA , 8),( FE , 9),( GD , 9),( HC , 9),( IB , 9),

Exploring Node: IA

Inserting New Children: IB, JA,

( FE , 9),( GD , 9),( HC , 9),( IB , 9),( JA , 9),

Exploring Node: FE

Inserting New Children: GE,

( GD , 9),( HC , 9),( IB , 9),( JA , 9),( GE , 10),

Exploring Node: GD

Inserting New Children: GE, HD,

( HC , 9),( IB , 9),( JA , 9),( GE , 10),( HD , 10),

Exploring Node: HC

Inserting New Children: HD, IC,

( IB , 9),( JA , 9),( GE , 10),( HD , 10),( IC , 10),

Exploring Node: IB

Inserting New Children: IC, JB,

( JA , 9),( GE , 10),( HD , 10),( IC , 10),( JB , 10),

Exploring Node: JA

Inserting New Children: JB,

( GE , 10),( HD , 10),( IC , 10),( JB , 10),

Exploring Node: GE

Inserting New Children: HE,

( HD , 10),( IC , 10),( JB , 10),( HE , 11),

Exploring Node: HD

Inserting New Children: HE, ID,

( IC , 10),( JB , 10),( HE , 11),( ID , 11),

Exploring Node: IC

Inserting New Children: ID, JC,

( JB , 10),( HE , 11),( ID , 11),( JC , 11),

Exploring Node: JB

Inserting New Children: JC,

( HE , 11),( ID , 11),( JC , 11),

Exploring Node: HE

Inserting New Children: IE,

( ID , 11),( JC , 11),( IE , 12),

Exploring Node: ID

Inserting New Children: IE, JD,

( JC , 11),( IE , 12),( JD , 12),

Exploring Node: JC

Inserting New Children: JD,

( IE , 12),( JD , 12),

Exploring Node: IE

Inserting New Children: JE,

( JD , 12),( JE , 13),

Exploring Node: JD

Inserting New Children: JE,

( JE , 13),

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Search Summary Stats:

Start Node: AA

End Node: JE

search total of 49 out of total of 50

Ended at Node: JE

Node Expansion:[AA,AB,BA,AC,BB,CA,AD,BC,CB,DA,AE,BD,CC,DB,EA,BE,CD,DC,EB,FA,CE,DD,EC,FB,GA,DE,ED,FC,GB,HA,EE,FD,GC,HB,IA,FE,GD,HC,IB,JA,GE,HD,IC,JB,HE,ID,JC,IE,JD,]

**Results for the Second Maze:**

Solving: maze-vector-image-2.jpeg with Breadth First Search:

Enter the number of verticle Nodes:

20

Enter the number of horizontal Nodes:

20

( JA , 0),

Exploring Node: JA

Inserting New Children: JB, IA, KA,

( JB , 1),( IA , 1),( KA , 1),

Exploring Node: JB

Inserting New Children: JC, IB, KB,

( IA , 1),( KA , 1),( JC , 2),( IB , 2),( KB , 2),

Exploring Node: IA

Inserting New Children: IB, HA,

( KA , 1),( JC , 2),( IB , 2),( KB , 2),( HA , 2),

Exploring Node: KA

Inserting New Children: KB, LA,

( JC , 2),( IB , 2),( KB , 2),( HA , 2),( LA , 2),

Exploring Node: JC

Inserting New Children: JD, IC, KC,

( IB , 2),( KB , 2),( HA , 2),( LA , 2),( JD , 3),( IC , 3),( KC , 3),

Exploring Node: IB

Inserting New Children: IC, HB,

( KB , 2),( HA , 2),( LA , 2),( JD , 3),( IC , 3),( KC , 3),( HB , 3),

Exploring Node: KB

Inserting New Children: KC, LB,

( HA , 2),( LA , 2),( JD , 3),( IC , 3),( KC , 3),( HB , 3),( LB , 3),

Exploring Node: HA

Inserting New Children: HB, GA,

( LA , 2),( JD , 3),( IC , 3),( KC , 3),( HB , 3),( LB , 3),( GA , 3),

Exploring Node: LA

Inserting New Children: LB, MA,

( JD , 3),( IC , 3),( KC , 3),( HB , 3),( LB , 3),( GA , 3),( MA , 3),

Exploring Node: JD

Inserting New Children: JE, ID, KD,

( IC , 3),( KC , 3),( HB , 3),( LB , 3),( GA , 3),( MA , 3),( JE , 4),( ID , 4),( KD , 4),

Exploring Node: IC

Inserting New Children: ID, HC,

( KC , 3),( HB , 3),( LB , 3),( GA , 3),( MA , 3),( JE , 4),( ID , 4),( KD , 4),( HC , 4),

Exploring Node: KC

Inserting New Children: KD, LC,

( HB , 3),( LB , 3),( GA , 3),( MA , 3),( JE , 4),( ID , 4),( KD , 4),( HC , 4),( LC , 4),

Exploring Node: HB

Inserting New Children: HC, GB,

( LB , 3),( GA , 3),( MA , 3),( JE , 4),( ID , 4),( KD , 4),( HC , 4),( LC , 4),( GB , 4),

Exploring Node: LB

Inserting New Children: LC, MB,

( GA , 3),( MA , 3),( JE , 4),( ID , 4),( KD , 4),( HC , 4),( LC , 4),( GB , 4),( MB , 4),

Exploring Node: GA

Inserting New Children: GB, FA,

( MA , 3),( JE , 4),( ID , 4),( KD , 4),( HC , 4),( LC , 4),( GB , 4),( MB , 4),( FA , 4),

Exploring Node: MA

Inserting New Children: MB, NA,

( JE , 4),( ID , 4),( KD , 4),( HC , 4),( LC , 4),( GB , 4),( MB , 4),( FA , 4),( NA , 4),

Exploring Node: JE

Inserting New Children: JF, IE, KE,

( ID , 4),( KD , 4),( HC , 4),( LC , 4),( GB , 4),( MB , 4),( FA , 4),( NA , 4),( JF , 5),( IE , 5),( KE , 5),

Exploring Node: ID

Inserting New Children: IE, HD,

( KD , 4),( HC , 4),( LC , 4),( GB , 4),( MB , 4),( FA , 4),( NA , 4),( JF , 5),( IE , 5),( KE , 5),( HD , 5),

Exploring Node: KD

Inserting New Children: KE, LD,

( HC , 4),( LC , 4),( GB , 4),( MB , 4),( FA , 4),( NA , 4),( JF , 5),( IE , 5),( KE , 5),( HD , 5),( LD , 5),

Exploring Node: HC

Inserting New Children: HD, GC,

( LC , 4),( GB , 4),( MB , 4),( FA , 4),( NA , 4),( JF , 5),( IE , 5),( KE , 5),( HD , 5),( LD , 5),( GC , 5),

Exploring Node: LC

Inserting New Children: LD, MC,

( GB , 4),( MB , 4),( FA , 4),( NA , 4),( JF , 5),( IE , 5),( KE , 5),( HD , 5),( LD , 5),( GC , 5),( MC , 5),

Exploring Node: GB

Inserting New Children: GC, FB,

( MB , 4),( FA , 4),( NA , 4),( JF , 5),( IE , 5),( KE , 5),( HD , 5),( LD , 5),( GC , 5),( MC , 5),( FB , 5),

Exploring Node: MB

Inserting New Children: MC, NB,

( FA , 4),( NA , 4),( JF , 5),( IE , 5),( KE , 5),( HD , 5),( LD , 5),( GC , 5),( MC , 5),( FB , 5),( NB , 5),

Exploring Node: FA

Inserting New Children: FB, EA,

( NA , 4),( JF , 5),( IE , 5),( KE , 5),( HD , 5),( LD , 5),( GC , 5),( MC , 5),( FB , 5),( NB , 5),( EA , 5),

Exploring Node: NA

Inserting New Children: NB, OA,

( JF , 5),( IE , 5),( KE , 5),( HD , 5),( LD , 5),( GC , 5),( MC , 5),( FB , 5),( NB , 5),( EA , 5),( OA , 5),

Exploring Node: JF

Inserting New Children: JG, IF, KF,

( IE , 5),( KE , 5),( HD , 5),( LD , 5),( GC , 5),( MC , 5),( FB , 5),( NB , 5),( EA , 5),( OA , 5),( JG , 6),( IF , 6),( KF , 6),

Exploring Node: IE

Inserting New Children: IF, HE,

( KE , 5),( HD , 5),( LD , 5),( GC , 5),( MC , 5),( FB , 5),( NB , 5),( EA , 5),( OA , 5),( JG , 6),( IF , 6),( KF , 6),( HE , 6),

Exploring Node: KE

Inserting New Children: KF, LE,

( HD , 5),( LD , 5),( GC , 5),( MC , 5),( FB , 5),( NB , 5),( EA , 5),( OA , 5),( JG , 6),( IF , 6),( KF , 6),( HE , 6),( LE , 6),

Exploring Node: HD

Inserting New Children: HE, GD,

( LD , 5),( GC , 5),( MC , 5),( FB , 5),( NB , 5),( EA , 5),( OA , 5),( JG , 6),( IF , 6),( KF , 6),( HE , 6),( LE , 6),( GD , 6),

Exploring Node: LD

Inserting New Children: LE, MD,

( GC , 5),( MC , 5),( FB , 5),( NB , 5),( EA , 5),( OA , 5),( JG , 6),( IF , 6),( KF , 6),( HE , 6),( LE , 6),( GD , 6),( MD , 6),

Exploring Node: GC

Inserting New Children: GD, FC,

( MC , 5),( FB , 5),( NB , 5),( EA , 5),( OA , 5),( JG , 6),( IF , 6),( KF , 6),( HE , 6),( LE , 6),( GD , 6),( MD , 6),( FC , 6),

Exploring Node: MC

Inserting New Children: MD, NC,

( FB , 5),( NB , 5),( EA , 5),( OA , 5),( JG , 6),( IF , 6),( KF , 6),( HE , 6),( LE , 6),( GD , 6),( MD , 6),( FC , 6),( NC , 6),

Exploring Node: FB

Inserting New Children: FC, EB,

( NB , 5),( EA , 5),( OA , 5),( JG , 6),( IF , 6),( KF , 6),( HE , 6),( LE , 6),( GD , 6),( MD , 6),( FC , 6),( NC , 6),( EB , 6),

Exploring Node: NB

Inserting New Children: NC, OB,

( EA , 5),( OA , 5),( JG , 6),( IF , 6),( KF , 6),( HE , 6),( LE , 6),( GD , 6),( MD , 6),( FC , 6),( NC , 6),( EB , 6),( OB , 6),

Exploring Node: EA

Inserting New Children: EB, DA,

( OA , 5),( JG , 6),( IF , 6),( KF , 6),( HE , 6),( LE , 6),( GD , 6),( MD , 6),( FC , 6),( NC , 6),( EB , 6),( OB , 6),( DA , 6),

Exploring Node: OA

Inserting New Children: OB, PA,

( JG , 6),( IF , 6),( KF , 6),( HE , 6),( LE , 6),( GD , 6),( MD , 6),( FC , 6),( NC , 6),( EB , 6),( OB , 6),( DA , 6),( PA , 6),

Exploring Node: JG

Inserting New Children: JH, IG, KG,

( IF , 6),( KF , 6),( HE , 6),( LE , 6),( GD , 6),( MD , 6),( FC , 6),( NC , 6),( EB , 6),( OB , 6),( DA , 6),( PA , 6),( JH , 7),( IG , 7),( KG , 7),

Exploring Node: IF

Inserting New Children: IG, HF,

( KF , 6),( HE , 6),( LE , 6),( GD , 6),( MD , 6),( FC , 6),( NC , 6),( EB , 6),( OB , 6),( DA , 6),( PA , 6),( JH , 7),( IG , 7),( KG , 7),( HF , 7),

Exploring Node: KF

Inserting New Children: KG, LF,

( HE , 6),( LE , 6),( GD , 6),( MD , 6),( FC , 6),( NC , 6),( EB , 6),( OB , 6),( DA , 6),( PA , 6),( JH , 7),( IG , 7),( KG , 7),( HF , 7),( LF , 7),

Exploring Node: HE

Inserting New Children: HF, GE,

( LE , 6),( GD , 6),( MD , 6),( FC , 6),( NC , 6),( EB , 6),( OB , 6),( DA , 6),( PA , 6),( JH , 7),( IG , 7),( KG , 7),( HF , 7),( LF , 7),( GE , 7),

Exploring Node: LE

Inserting New Children: LF, ME,

( GD , 6),( MD , 6),( FC , 6),( NC , 6),( EB , 6),( OB , 6),( DA , 6),( PA , 6),( JH , 7),( IG , 7),( KG , 7),( HF , 7),( LF , 7),( GE , 7),( ME , 7),

Exploring Node: GD

Inserting New Children: GE, FD,

( MD , 6),( FC , 6),( NC , 6),( EB , 6),( OB , 6),( DA , 6),( PA , 6),( JH , 7),( IG , 7),( KG , 7),( HF , 7),( LF , 7),( GE , 7),( ME , 7),( FD , 7),

Exploring Node: MD

Inserting New Children: ME, ND,

( FC , 6),( NC , 6),( EB , 6),( OB , 6),( DA , 6),( PA , 6),( JH , 7),( IG , 7),( KG , 7),( HF , 7),( LF , 7),( GE , 7),( ME , 7),( FD , 7),( ND , 7),

Exploring Node: FC

Inserting New Children: FD, EC,

( NC , 6),( EB , 6),( OB , 6),( DA , 6),( PA , 6),( JH , 7),( IG , 7),( KG , 7),( HF , 7),( LF , 7),( GE , 7),( ME , 7),( FD , 7),( ND , 7),( EC , 7),

Exploring Node: NC

Inserting New Children: ND, OC,

( EB , 6),( OB , 6),( DA , 6),( PA , 6),( JH , 7),( IG , 7),( KG , 7),( HF , 7),( LF , 7),( GE , 7),( ME , 7),( FD , 7),( ND , 7),( EC , 7),( OC , 7),

Exploring Node: EB

Inserting New Children: EC, DB,

( OB , 6),( DA , 6),( PA , 6),( JH , 7),( IG , 7),( KG , 7),( HF , 7),( LF , 7),( GE , 7),( ME , 7),( FD , 7),( ND , 7),( EC , 7),( OC , 7),( DB , 7),

Exploring Node: OB

Inserting New Children: OC, PB,

( DA , 6),( PA , 6),( JH , 7),( IG , 7),( KG , 7),( HF , 7),( LF , 7),( GE , 7),( ME , 7),( FD , 7),( ND , 7),( EC , 7),( OC , 7),( DB , 7),( PB , 7),

Exploring Node: DA

Inserting New Children: DB, CA,

( PA , 6),( JH , 7),( IG , 7),( KG , 7),( HF , 7),( LF , 7),( GE , 7),( ME , 7),( FD , 7),( ND , 7),( EC , 7),( OC , 7),( DB , 7),( PB , 7),( CA , 7),

Exploring Node: PA

Inserting New Children: PB, QA,

( JH , 7),( IG , 7),( KG , 7),( HF , 7),( LF , 7),( GE , 7),( ME , 7),( FD , 7),( ND , 7),( EC , 7),( OC , 7),( DB , 7),( PB , 7),( CA , 7),( QA , 7),

Exploring Node: JH

Inserting New Children: JI, IH, KH,

( IG , 7),( KG , 7),( HF , 7),( LF , 7),( GE , 7),( ME , 7),( FD , 7),( ND , 7),( EC , 7),( OC , 7),( DB , 7),( PB , 7),( CA , 7),( QA , 7),( JI , 8),( IH , 8),( KH , 8),

Exploring Node: IG

Inserting New Children: IH, HG,

( KG , 7),( HF , 7),( LF , 7),( GE , 7),( ME , 7),( FD , 7),( ND , 7),( EC , 7),( OC , 7),( DB , 7),( PB , 7),( CA , 7),( QA , 7),( JI , 8),( IH , 8),( KH , 8),( HG , 8),

Exploring Node: KG

Inserting New Children: KH, LG,

( HF , 7),( LF , 7),( GE , 7),( ME , 7),( FD , 7),( ND , 7),( EC , 7),( OC , 7),( DB , 7),( PB , 7),( CA , 7),( QA , 7),( JI , 8),( IH , 8),( KH , 8),( HG , 8),( LG , 8),

Exploring Node: HF

Inserting New Children: HG, GF,

( LF , 7),( GE , 7),( ME , 7),( FD , 7),( ND , 7),( EC , 7),( OC , 7),( DB , 7),( PB , 7),( CA , 7),( QA , 7),( JI , 8),( IH , 8),( KH , 8),( HG , 8),( LG , 8),( GF , 8),

Exploring Node: LF

Inserting New Children: LG, MF,

( GE , 7),( ME , 7),( FD , 7),( ND , 7),( EC , 7),( OC , 7),( DB , 7),( PB , 7),( CA , 7),( QA , 7),( JI , 8),( IH , 8),( KH , 8),( HG , 8),( LG , 8),( GF , 8),( MF , 8),

Exploring Node: GE

Inserting New Children: GF, FE,

( ME , 7),( FD , 7),( ND , 7),( EC , 7),( OC , 7),( DB , 7),( PB , 7),( CA , 7),( QA , 7),( JI , 8),( IH , 8),( KH , 8),( HG , 8),( LG , 8),( GF , 8),( MF , 8),( FE , 8),

Exploring Node: ME

Inserting New Children: MF, NE,

( FD , 7),( ND , 7),( EC , 7),( OC , 7),( DB , 7),( PB , 7),( CA , 7),( QA , 7),( JI , 8),( IH , 8),( KH , 8),( HG , 8),( LG , 8),( GF , 8),( MF , 8),( FE , 8),( NE , 8),

Exploring Node: FD

Inserting New Children: FE, ED,

( ND , 7),( EC , 7),( OC , 7),( DB , 7),( PB , 7),( CA , 7),( QA , 7),( JI , 8),( IH , 8),( KH , 8),( HG , 8),( LG , 8),( GF , 8),( MF , 8),( FE , 8),( NE , 8),( ED , 8),

Exploring Node: ND

Inserting New Children: NE, OD,

( EC , 7),( OC , 7),( DB , 7),( PB , 7),( CA , 7),( QA , 7),( JI , 8),( IH , 8),( KH , 8),( HG , 8),( LG , 8),( GF , 8),( MF , 8),( FE , 8),( NE , 8),( ED , 8),( OD , 8),

Exploring Node: EC

Inserting New Children: ED, DC,

( OC , 7),( DB , 7),( PB , 7),( CA , 7),( QA , 7),( JI , 8),( IH , 8),( KH , 8),( HG , 8),( LG , 8),( GF , 8),( MF , 8),( FE , 8),( NE , 8),( ED , 8),( OD , 8),( DC , 8),

Exploring Node: OC

Inserting New Children: OD, PC,

( DB , 7),( PB , 7),( CA , 7),( QA , 7),( JI , 8),( IH , 8),( KH , 8),( HG , 8),( LG , 8),( GF , 8),( MF , 8),( FE , 8),( NE , 8),( ED , 8),( OD , 8),( DC , 8),( PC , 8),

Exploring Node: DB

Inserting New Children: DC, CB,

( PB , 7),( CA , 7),( QA , 7),( JI , 8),( IH , 8),( KH , 8),( HG , 8),( LG , 8),( GF , 8),( MF , 8),( FE , 8),( NE , 8),( ED , 8),( OD , 8),( DC , 8),( PC , 8),( CB , 8),

Exploring Node: PB

Inserting New Children: PC, QB,

( CA , 7),( QA , 7),( JI , 8),( IH , 8),( KH , 8),( HG , 8),( LG , 8),( GF , 8),( MF , 8),( FE , 8),( NE , 8),( ED , 8),( OD , 8),( DC , 8),( PC , 8),( CB , 8),( QB , 8),

Exploring Node: CA

Inserting New Children: CB, BA,

( QA , 7),( JI , 8),( IH , 8),( KH , 8),( HG , 8),( LG , 8),( GF , 8),( MF , 8),( FE , 8),( NE , 8),( ED , 8),( OD , 8),( DC , 8),( PC , 8),( CB , 8),( QB , 8),( BA , 8),

Exploring Node: QA

Inserting New Children: QB, RA,

( JI , 8),( IH , 8),( KH , 8),( HG , 8),( LG , 8),( GF , 8),( MF , 8),( FE , 8),( NE , 8),( ED , 8),( OD , 8),( DC , 8),( PC , 8),( CB , 8),( QB , 8),( BA , 8),( RA , 8),

Exploring Node: JI

Inserting New Children: JJ, II, KI,

( IH , 8),( KH , 8),( HG , 8),( LG , 8),( GF , 8),( MF , 8),( FE , 8),( NE , 8),( ED , 8),( OD , 8),( DC , 8),( PC , 8),( CB , 8),( QB , 8),( BA , 8),( RA , 8),( JJ , 9),( II , 9),( KI , 9),

Exploring Node: IH

Inserting New Children: II, HH,

( KH , 8),( HG , 8),( LG , 8),( GF , 8),( MF , 8),( FE , 8),( NE , 8),( ED , 8),( OD , 8),( DC , 8),( PC , 8),( CB , 8),( QB , 8),( BA , 8),( RA , 8),( JJ , 9),( II , 9),( KI , 9),( HH , 9),

Exploring Node: KH

Inserting New Children: KI, LH,

( HG , 8),( LG , 8),( GF , 8),( MF , 8),( FE , 8),( NE , 8),( ED , 8),( OD , 8),( DC , 8),( PC , 8),( CB , 8),( QB , 8),( BA , 8),( RA , 8),( JJ , 9),( II , 9),( KI , 9),( HH , 9),( LH , 9),

Exploring Node: HG

Inserting New Children: HH, GG,

( LG , 8),( GF , 8),( MF , 8),( FE , 8),( NE , 8),( ED , 8),( OD , 8),( DC , 8),( PC , 8),( CB , 8),( QB , 8),( BA , 8),( RA , 8),( JJ , 9),( II , 9),( KI , 9),( HH , 9),( LH , 9),( GG , 9),

Exploring Node: LG

Inserting New Children: LH, MG,

( GF , 8),( MF , 8),( FE , 8),( NE , 8),( ED , 8),( OD , 8),( DC , 8),( PC , 8),( CB , 8),( QB , 8),( BA , 8),( RA , 8),( JJ , 9),( II , 9),( KI , 9),( HH , 9),( LH , 9),( GG , 9),( MG , 9),

Exploring Node: GF

Inserting New Children: GG, FF,

( MF , 8),( FE , 8),( NE , 8),( ED , 8),( OD , 8),( DC , 8),( PC , 8),( CB , 8),( QB , 8),( BA , 8),( RA , 8),( JJ , 9),( II , 9),( KI , 9),( HH , 9),( LH , 9),( GG , 9),( MG , 9),( FF , 9),

Exploring Node: MF

Inserting New Children: MG, NF,

( FE , 8),( NE , 8),( ED , 8),( OD , 8),( DC , 8),( PC , 8),( CB , 8),( QB , 8),( BA , 8),( RA , 8),( JJ , 9),( II , 9),( KI , 9),( HH , 9),( LH , 9),( GG , 9),( MG , 9),( FF , 9),( NF , 9),

Exploring Node: FE

Inserting New Children: FF, EE,

( NE , 8),( ED , 8),( OD , 8),( DC , 8),( PC , 8),( CB , 8),( QB , 8),( BA , 8),( RA , 8),( JJ , 9),( II , 9),( KI , 9),( HH , 9),( LH , 9),( GG , 9),( MG , 9),( FF , 9),( NF , 9),( EE , 9),

Exploring Node: NE

Inserting New Children: NF, OE,

( ED , 8),( OD , 8),( DC , 8),( PC , 8),( CB , 8),( QB , 8),( BA , 8),( RA , 8),( JJ , 9),( II , 9),( KI , 9),( HH , 9),( LH , 9),( GG , 9),( MG , 9),( FF , 9),( NF , 9),( EE , 9),( OE , 9),

Exploring Node: ED

Inserting New Children: EE, DD,

( OD , 8),( DC , 8),( PC , 8),( CB , 8),( QB , 8),( BA , 8),( RA , 8),( JJ , 9),( II , 9),( KI , 9),( HH , 9),( LH , 9),( GG , 9),( MG , 9),( FF , 9),( NF , 9),( EE , 9),( OE , 9),( DD , 9),

Exploring Node: OD

Inserting New Children: OE, PD,

( DC , 8),( PC , 8),( CB , 8),( QB , 8),( BA , 8),( RA , 8),( JJ , 9),( II , 9),( KI , 9),( HH , 9),( LH , 9),( GG , 9),( MG , 9),( FF , 9),( NF , 9),( EE , 9),( OE , 9),( DD , 9),( PD , 9),

Exploring Node: DC

Inserting New Children: DD, CC,

( PC , 8),( CB , 8),( QB , 8),( BA , 8),( RA , 8),( JJ , 9),( II , 9),( KI , 9),( HH , 9),( LH , 9),( GG , 9),( MG , 9),( FF , 9),( NF , 9),( EE , 9),( OE , 9),( DD , 9),( PD , 9),( CC , 9),

Exploring Node: PC

Inserting New Children: PD, QC,

( CB , 8),( QB , 8),( BA , 8),( RA , 8),( JJ , 9),( II , 9),( KI , 9),( HH , 9),( LH , 9),( GG , 9),( MG , 9),( FF , 9),( NF , 9),( EE , 9),( OE , 9),( DD , 9),( PD , 9),( CC , 9),( QC , 9),

Exploring Node: CB

Inserting New Children: CC, BB,

( QB , 8),( BA , 8),( RA , 8),( JJ , 9),( II , 9),( KI , 9),( HH , 9),( LH , 9),( GG , 9),( MG , 9),( FF , 9),( NF , 9),( EE , 9),( OE , 9),( DD , 9),( PD , 9),( CC , 9),( QC , 9),( BB , 9),

Exploring Node: QB

Inserting New Children: QC, RB,

( BA , 8),( RA , 8),( JJ , 9),( II , 9),( KI , 9),( HH , 9),( LH , 9),( GG , 9),( MG , 9),( FF , 9),( NF , 9),( EE , 9),( OE , 9),( DD , 9),( PD , 9),( CC , 9),( QC , 9),( BB , 9),( RB , 9),

Exploring Node: BA

Inserting New Children: BB, AA,

( RA , 8),( JJ , 9),( II , 9),( KI , 9),( HH , 9),( LH , 9),( GG , 9),( MG , 9),( FF , 9),( NF , 9),( EE , 9),( OE , 9),( DD , 9),( PD , 9),( CC , 9),( QC , 9),( BB , 9),( RB , 9),( AA , 9),

Exploring Node: RA

Inserting New Children: RB, SA,

( JJ , 9),( II , 9),( KI , 9),( HH , 9),( LH , 9),( GG , 9),( MG , 9),( FF , 9),( NF , 9),( EE , 9),( OE , 9),( DD , 9),( PD , 9),( CC , 9),( QC , 9),( BB , 9),( RB , 9),( AA , 9),( SA , 9),

Exploring Node: JJ

Inserting New Children: JK, IJ, KJ,

( II , 9),( KI , 9),( HH , 9),( LH , 9),( GG , 9),( MG , 9),( FF , 9),( NF , 9),( EE , 9),( OE , 9),( DD , 9),( PD , 9),( CC , 9),( QC , 9),( BB , 9),( RB , 9),( AA , 9),( SA , 9),( JK , 10),( IJ , 10),( KJ , 10),

Exploring Node: II

Inserting New Children: IJ, HI,

( KI , 9),( HH , 9),( LH , 9),( GG , 9),( MG , 9),( FF , 9),( NF , 9),( EE , 9),( OE , 9),( DD , 9),( PD , 9),( CC , 9),( QC , 9),( BB , 9),( RB , 9),( AA , 9),( SA , 9),( JK , 10),( IJ , 10),( KJ , 10),( HI , 10),

Exploring Node: KI

Inserting New Children: KJ, LI,

( HH , 9),( LH , 9),( GG , 9),( MG , 9),( FF , 9),( NF , 9),( EE , 9),( OE , 9),( DD , 9),( PD , 9),( CC , 9),( QC , 9),( BB , 9),( RB , 9),( AA , 9),( SA , 9),( JK , 10),( IJ , 10),( KJ , 10),( HI , 10),( LI , 10),

Exploring Node: HH

Inserting New Children: HI, GH,

( LH , 9),( GG , 9),( MG , 9),( FF , 9),( NF , 9),( EE , 9),( OE , 9),( DD , 9),( PD , 9),( CC , 9),( QC , 9),( BB , 9),( RB , 9),( AA , 9),( SA , 9),( JK , 10),( IJ , 10),( KJ , 10),( HI , 10),( LI , 10),( GH , 10),

Exploring Node: LH

Inserting New Children: LI, MH,

( GG , 9),( MG , 9),( FF , 9),( NF , 9),( EE , 9),( OE , 9),( DD , 9),( PD , 9),( CC , 9),( QC , 9),( BB , 9),( RB , 9),( AA , 9),( SA , 9),( JK , 10),( IJ , 10),( KJ , 10),( HI , 10),( LI , 10),( GH , 10),( MH , 10),

Exploring Node: GG

Inserting New Children: GH, FG,

( MG , 9),( FF , 9),( NF , 9),( EE , 9),( OE , 9),( DD , 9),( PD , 9),( CC , 9),( QC , 9),( BB , 9),( RB , 9),( AA , 9),( SA , 9),( JK , 10),( IJ , 10),( KJ , 10),( HI , 10),( LI , 10),( GH , 10),( MH , 10),( FG , 10),

Exploring Node: MG

Inserting New Children: MH, NG,

( FF , 9),( NF , 9),( EE , 9),( OE , 9),( DD , 9),( PD , 9),( CC , 9),( QC , 9),( BB , 9),( RB , 9),( AA , 9),( SA , 9),( JK , 10),( IJ , 10),( KJ , 10),( HI , 10),( LI , 10),( GH , 10),( MH , 10),( FG , 10),( NG , 10),

Exploring Node: FF

Inserting New Children: FG, EF,

( NF , 9),( EE , 9),( OE , 9),( DD , 9),( PD , 9),( CC , 9),( QC , 9),( BB , 9),( RB , 9),( AA , 9),( SA , 9),( JK , 10),( IJ , 10),( KJ , 10),( HI , 10),( LI , 10),( GH , 10),( MH , 10),( FG , 10),( NG , 10),( EF , 10),

Exploring Node: NF

Inserting New Children: NG, OF,

( EE , 9),( OE , 9),( DD , 9),( PD , 9),( CC , 9),( QC , 9),( BB , 9),( RB , 9),( AA , 9),( SA , 9),( JK , 10),( IJ , 10),( KJ , 10),( HI , 10),( LI , 10),( GH , 10),( MH , 10),( FG , 10),( NG , 10),( EF , 10),( OF , 10),

Exploring Node: EE

Inserting New Children: EF, DE,

( OE , 9),( DD , 9),( PD , 9),( CC , 9),( QC , 9),( BB , 9),( RB , 9),( AA , 9),( SA , 9),( JK , 10),( IJ , 10),( KJ , 10),( HI , 10),( LI , 10),( GH , 10),( MH , 10),( FG , 10),( NG , 10),( EF , 10),( OF , 10),( DE , 10),

Exploring Node: OE

Inserting New Children: OF, PE,

( DD , 9),( PD , 9),( CC , 9),( QC , 9),( BB , 9),( RB , 9),( AA , 9),( SA , 9),( JK , 10),( IJ , 10),( KJ , 10),( HI , 10),( LI , 10),( GH , 10),( MH , 10),( FG , 10),( NG , 10),( EF , 10),( OF , 10),( DE , 10),( PE , 10),

Exploring Node: DD

Inserting New Children: DE, CD,

( PD , 9),( CC , 9),( QC , 9),( BB , 9),( RB , 9),( AA , 9),( SA , 9),( JK , 10),( IJ , 10),( KJ , 10),( HI , 10),( LI , 10),( GH , 10),( MH , 10),( FG , 10),( NG , 10),( EF , 10),( OF , 10),( DE , 10),( PE , 10),( CD , 10),

Exploring Node: PD

Inserting New Children: PE, QD,

( CC , 9),( QC , 9),( BB , 9),( RB , 9),( AA , 9),( SA , 9),( JK , 10),( IJ , 10),( KJ , 10),( HI , 10),( LI , 10),( GH , 10),( MH , 10),( FG , 10),( NG , 10),( EF , 10),( OF , 10),( DE , 10),( PE , 10),( CD , 10),( QD , 10),

Exploring Node: CC

Inserting New Children: CD, BC,

( QC , 9),( BB , 9),( RB , 9),( AA , 9),( SA , 9),( JK , 10),( IJ , 10),( KJ , 10),( HI , 10),( LI , 10),( GH , 10),( MH , 10),( FG , 10),( NG , 10),( EF , 10),( OF , 10),( DE , 10),( PE , 10),( CD , 10),( QD , 10),( BC , 10),

Exploring Node: QC

Inserting New Children: QD, RC,

( BB , 9),( RB , 9),( AA , 9),( SA , 9),( JK , 10),( IJ , 10),( KJ , 10),( HI , 10),( LI , 10),( GH , 10),( MH , 10),( FG , 10),( NG , 10),( EF , 10),( OF , 10),( DE , 10),( PE , 10),( CD , 10),( QD , 10),( BC , 10),( RC , 10),

Exploring Node: BB

Inserting New Children: BC, AB,

( RB , 9),( AA , 9),( SA , 9),( JK , 10),( IJ , 10),( KJ , 10),( HI , 10),( LI , 10),( GH , 10),( MH , 10),( FG , 10),( NG , 10),( EF , 10),( OF , 10),( DE , 10),( PE , 10),( CD , 10),( QD , 10),( BC , 10),( RC , 10),( AB , 10),

Exploring Node: RB

Inserting New Children: RC, SB,

( AA , 9),( SA , 9),( JK , 10),( IJ , 10),( KJ , 10),( HI , 10),( LI , 10),( GH , 10),( MH , 10),( FG , 10),( NG , 10),( EF , 10),( OF , 10),( DE , 10),( PE , 10),( CD , 10),( QD , 10),( BC , 10),( RC , 10),( AB , 10),( SB , 10),

Exploring Node: AA

Inserting New Children: AB,

( SA , 9),( JK , 10),( IJ , 10),( KJ , 10),( HI , 10),( LI , 10),( GH , 10),( MH , 10),( FG , 10),( NG , 10),( EF , 10),( OF , 10),( DE , 10),( PE , 10),( CD , 10),( QD , 10),( BC , 10),( RC , 10),( AB , 10),( SB , 10),

Exploring Node: SA

Inserting New Children: SB, TA,

( JK , 10),( IJ , 10),( KJ , 10),( HI , 10),( LI , 10),( GH , 10),( MH , 10),( FG , 10),( NG , 10),( EF , 10),( OF , 10),( DE , 10),( PE , 10),( CD , 10),( QD , 10),( BC , 10),( RC , 10),( AB , 10),( SB , 10),( TA , 10),

Exploring Node: JK

Inserting New Children: JL, IK, KK,

( IJ , 10),( KJ , 10),( HI , 10),( LI , 10),( GH , 10),( MH , 10),( FG , 10),( NG , 10),( EF , 10),( OF , 10),( DE , 10),( PE , 10),( CD , 10),( QD , 10),( BC , 10),( RC , 10),( AB , 10),( SB , 10),( TA , 10),( JL , 11),( IK , 11),( KK , 11),

Exploring Node: IJ

Inserting New Children: IK, HJ,

( KJ , 10),( HI , 10),( LI , 10),( GH , 10),( MH , 10),( FG , 10),( NG , 10),( EF , 10),( OF , 10),( DE , 10),( PE , 10),( CD , 10),( QD , 10),( BC , 10),( RC , 10),( AB , 10),( SB , 10),( TA , 10),( JL , 11),( IK , 11),( KK , 11),( HJ , 11),

Exploring Node: KJ

Inserting New Children: KK, LJ,

( HI , 10),( LI , 10),( GH , 10),( MH , 10),( FG , 10),( NG , 10),( EF , 10),( OF , 10),( DE , 10),( PE , 10),( CD , 10),( QD , 10),( BC , 10),( RC , 10),( AB , 10),( SB , 10),( TA , 10),( JL , 11),( IK , 11),( KK , 11),( HJ , 11),( LJ , 11),

Exploring Node: HI

Inserting New Children: HJ, GI,

( LI , 10),( GH , 10),( MH , 10),( FG , 10),( NG , 10),( EF , 10),( OF , 10),( DE , 10),( PE , 10),( CD , 10),( QD , 10),( BC , 10),( RC , 10),( AB , 10),( SB , 10),( TA , 10),( JL , 11),( IK , 11),( KK , 11),( HJ , 11),( LJ , 11),( GI , 11),

Exploring Node: LI

Inserting New Children: LJ, MI,

( GH , 10),( MH , 10),( FG , 10),( NG , 10),( EF , 10),( OF , 10),( DE , 10),( PE , 10),( CD , 10),( QD , 10),( BC , 10),( RC , 10),( AB , 10),( SB , 10),( TA , 10),( JL , 11),( IK , 11),( KK , 11),( HJ , 11),( LJ , 11),( GI , 11),( MI , 11),

Exploring Node: GH

Inserting New Children: GI, FH,

( MH , 10),( FG , 10),( NG , 10),( EF , 10),( OF , 10),( DE , 10),( PE , 10),( CD , 10),( QD , 10),( BC , 10),( RC , 10),( AB , 10),( SB , 10),( TA , 10),( JL , 11),( IK , 11),( KK , 11),( HJ , 11),( LJ , 11),( GI , 11),( MI , 11),( FH , 11),

Exploring Node: MH

Inserting New Children: MI, NH,

( FG , 10),( NG , 10),( EF , 10),( OF , 10),( DE , 10),( PE , 10),( CD , 10),( QD , 10),( BC , 10),( RC , 10),( AB , 10),( SB , 10),( TA , 10),( JL , 11),( IK , 11),( KK , 11),( HJ , 11),( LJ , 11),( GI , 11),( MI , 11),( FH , 11),( NH , 11),

Exploring Node: FG

Inserting New Children: FH, EG,

( NG , 10),( EF , 10),( OF , 10),( DE , 10),( PE , 10),( CD , 10),( QD , 10),( BC , 10),( RC , 10),( AB , 10),( SB , 10),( TA , 10),( JL , 11),( IK , 11),( KK , 11),( HJ , 11),( LJ , 11),( GI , 11),( MI , 11),( FH , 11),( NH , 11),( EG , 11),

Exploring Node: NG

Inserting New Children: NH, OG,

( EF , 10),( OF , 10),( DE , 10),( PE , 10),( CD , 10),( QD , 10),( BC , 10),( RC , 10),( AB , 10),( SB , 10),( TA , 10),( JL , 11),( IK , 11),( KK , 11),( HJ , 11),( LJ , 11),( GI , 11),( MI , 11),( FH , 11),( NH , 11),( EG , 11),( OG , 11),

Exploring Node: EF

Inserting New Children: EG, DF,

( OF , 10),( DE , 10),( PE , 10),( CD , 10),( QD , 10),( BC , 10),( RC , 10),( AB , 10),( SB , 10),( TA , 10),( JL , 11),( IK , 11),( KK , 11),( HJ , 11),( LJ , 11),( GI , 11),( MI , 11),( FH , 11),( NH , 11),( EG , 11),( OG , 11),( DF , 11),

Exploring Node: OF

Inserting New Children: OG, PF,

( DE , 10),( PE , 10),( CD , 10),( QD , 10),( BC , 10),( RC , 10),( AB , 10),( SB , 10),( TA , 10),( JL , 11),( IK , 11),( KK , 11),( HJ , 11),( LJ , 11),( GI , 11),( MI , 11),( FH , 11),( NH , 11),( EG , 11),( OG , 11),( DF , 11),( PF , 11),

Exploring Node: DE

Inserting New Children: DF, CE,

( PE , 10),( CD , 10),( QD , 10),( BC , 10),( RC , 10),( AB , 10),( SB , 10),( TA , 10),( JL , 11),( IK , 11),( KK , 11),( HJ , 11),( LJ , 11),( GI , 11),( MI , 11),( FH , 11),( NH , 11),( EG , 11),( OG , 11),( DF , 11),( PF , 11),( CE , 11),

Exploring Node: PE

Inserting New Children: PF, QE,

( CD , 10),( QD , 10),( BC , 10),( RC , 10),( AB , 10),( SB , 10),( TA , 10),( JL , 11),( IK , 11),( KK , 11),( HJ , 11),( LJ , 11),( GI , 11),( MI , 11),( FH , 11),( NH , 11),( EG , 11),( OG , 11),( DF , 11),( PF , 11),( CE , 11),( QE , 11),

Exploring Node: CD

Inserting New Children: CE, BD,

( QD , 10),( BC , 10),( RC , 10),( AB , 10),( SB , 10),( TA , 10),( JL , 11),( IK , 11),( KK , 11),( HJ , 11),( LJ , 11),( GI , 11),( MI , 11),( FH , 11),( NH , 11),( EG , 11),( OG , 11),( DF , 11),( PF , 11),( CE , 11),( QE , 11),( BD , 11),

Exploring Node: QD

Inserting New Children: QE, RD,

( BC , 10),( RC , 10),( AB , 10),( SB , 10),( TA , 10),( JL , 11),( IK , 11),( KK , 11),( HJ , 11),( LJ , 11),( GI , 11),( MI , 11),( FH , 11),( NH , 11),( EG , 11),( OG , 11),( DF , 11),( PF , 11),( CE , 11),( QE , 11),( BD , 11),( RD , 11),

Exploring Node: BC

Inserting New Children: BD, AC,

( RC , 10),( AB , 10),( SB , 10),( TA , 10),( JL , 11),( IK , 11),( KK , 11),( HJ , 11),( LJ , 11),( GI , 11),( MI , 11),( FH , 11),( NH , 11),( EG , 11),( OG , 11),( DF , 11),( PF , 11),( CE , 11),( QE , 11),( BD , 11),( RD , 11),( AC , 11),

Exploring Node: RC

Inserting New Children: RD, SC,

( AB , 10),( SB , 10),( TA , 10),( JL , 11),( IK , 11),( KK , 11),( HJ , 11),( LJ , 11),( GI , 11),( MI , 11),( FH , 11),( NH , 11),( EG , 11),( OG , 11),( DF , 11),( PF , 11),( CE , 11),( QE , 11),( BD , 11),( RD , 11),( AC , 11),( SC , 11),

Exploring Node: AB

Inserting New Children: AC,

( SB , 10),( TA , 10),( JL , 11),( IK , 11),( KK , 11),( HJ , 11),( LJ , 11),( GI , 11),( MI , 11),( FH , 11),( NH , 11),( EG , 11),( OG , 11),( DF , 11),( PF , 11),( CE , 11),( QE , 11),( BD , 11),( RD , 11),( AC , 11),( SC , 11),

Exploring Node: SB

Inserting New Children: SC, TB,

( TA , 10),( JL , 11),( IK , 11),( KK , 11),( HJ , 11),( LJ , 11),( GI , 11),( MI , 11),( FH , 11),( NH , 11),( EG , 11),( OG , 11),( DF , 11),( PF , 11),( CE , 11),( QE , 11),( BD , 11),( RD , 11),( AC , 11),( SC , 11),( TB , 11),

Exploring Node: TA

Inserting New Children: TB,

( JL , 11),( IK , 11),( KK , 11),( HJ , 11),( LJ , 11),( GI , 11),( MI , 11),( FH , 11),( NH , 11),( EG , 11),( OG , 11),( DF , 11),( PF , 11),( CE , 11),( QE , 11),( BD , 11),( RD , 11),( AC , 11),( SC , 11),( TB , 11),

Exploring Node: JL

Inserting New Children: JM, IL, KL,

( IK , 11),( KK , 11),( HJ , 11),( LJ , 11),( GI , 11),( MI , 11),( FH , 11),( NH , 11),( EG , 11),( OG , 11),( DF , 11),( PF , 11),( CE , 11),( QE , 11),( BD , 11),( RD , 11),( AC , 11),( SC , 11),( TB , 11),( JM , 12),( IL , 12),( KL , 12),

Exploring Node: IK

Inserting New Children: IL, HK,

( KK , 11),( HJ , 11),( LJ , 11),( GI , 11),( MI , 11),( FH , 11),( NH , 11),( EG , 11),( OG , 11),( DF , 11),( PF , 11),( CE , 11),( QE , 11),( BD , 11),( RD , 11),( AC , 11),( SC , 11),( TB , 11),( JM , 12),( IL , 12),( KL , 12),( HK , 12),

Exploring Node: KK

Inserting New Children: KL, LK,

( HJ , 11),( LJ , 11),( GI , 11),( MI , 11),( FH , 11),( NH , 11),( EG , 11),( OG , 11),( DF , 11),( PF , 11),( CE , 11),( QE , 11),( BD , 11),( RD , 11),( AC , 11),( SC , 11),( TB , 11),( JM , 12),( IL , 12),( KL , 12),( HK , 12),( LK , 12),

Exploring Node: HJ

Inserting New Children: HK, GJ,

( LJ , 11),( GI , 11),( MI , 11),( FH , 11),( NH , 11),( EG , 11),( OG , 11),( DF , 11),( PF , 11),( CE , 11),( QE , 11),( BD , 11),( RD , 11),( AC , 11),( SC , 11),( TB , 11),( JM , 12),( IL , 12),( KL , 12),( HK , 12),( LK , 12),( GJ , 12),

Exploring Node: LJ

Inserting New Children: LK, MJ,

( GI , 11),( MI , 11),( FH , 11),( NH , 11),( EG , 11),( OG , 11),( DF , 11),( PF , 11),( CE , 11),( QE , 11),( BD , 11),( RD , 11),( AC , 11),( SC , 11),( TB , 11),( JM , 12),( IL , 12),( KL , 12),( HK , 12),( LK , 12),( GJ , 12),( MJ , 12),

Exploring Node: GI

Inserting New Children: GJ, FI,

( MI , 11),( FH , 11),( NH , 11),( EG , 11),( OG , 11),( DF , 11),( PF , 11),( CE , 11),( QE , 11),( BD , 11),( RD , 11),( AC , 11),( SC , 11),( TB , 11),( JM , 12),( IL , 12),( KL , 12),( HK , 12),( LK , 12),( GJ , 12),( MJ , 12),( FI , 12),

Exploring Node: MI

Inserting New Children: MJ, NI,

( FH , 11),( NH , 11),( EG , 11),( OG , 11),( DF , 11),( PF , 11),( CE , 11),( QE , 11),( BD , 11),( RD , 11),( AC , 11),( SC , 11),( TB , 11),( JM , 12),( IL , 12),( KL , 12),( HK , 12),( LK , 12),( GJ , 12),( MJ , 12),( FI , 12),( NI , 12),

Exploring Node: FH

Inserting New Children: FI, EH,

( NH , 11),( EG , 11),( OG , 11),( DF , 11),( PF , 11),( CE , 11),( QE , 11),( BD , 11),( RD , 11),( AC , 11),( SC , 11),( TB , 11),( JM , 12),( IL , 12),( KL , 12),( HK , 12),( LK , 12),( GJ , 12),( MJ , 12),( FI , 12),( NI , 12),( EH , 12),

Exploring Node: NH

Inserting New Children: NI, OH,

( EG , 11),( OG , 11),( DF , 11),( PF , 11),( CE , 11),( QE , 11),( BD , 11),( RD , 11),( AC , 11),( SC , 11),( TB , 11),( JM , 12),( IL , 12),( KL , 12),( HK , 12),( LK , 12),( GJ , 12),( MJ , 12),( FI , 12),( NI , 12),( EH , 12),( OH , 12),

Exploring Node: EG

Inserting New Children: EH, DG,

( OG , 11),( DF , 11),( PF , 11),( CE , 11),( QE , 11),( BD , 11),( RD , 11),( AC , 11),( SC , 11),( TB , 11),( JM , 12),( IL , 12),( KL , 12),( HK , 12),( LK , 12),( GJ , 12),( MJ , 12),( FI , 12),( NI , 12),( EH , 12),( OH , 12),( DG , 12),

Exploring Node: OG

Inserting New Children: OH, PG,

( DF , 11),( PF , 11),( CE , 11),( QE , 11),( BD , 11),( RD , 11),( AC , 11),( SC , 11),( TB , 11),( JM , 12),( IL , 12),( KL , 12),( HK , 12),( LK , 12),( GJ , 12),( MJ , 12),( FI , 12),( NI , 12),( EH , 12),( OH , 12),( DG , 12),( PG , 12),

Exploring Node: DF

Inserting New Children: DG, CF,

( PF , 11),( CE , 11),( QE , 11),( BD , 11),( RD , 11),( AC , 11),( SC , 11),( TB , 11),( JM , 12),( IL , 12),( KL , 12),( HK , 12),( LK , 12),( GJ , 12),( MJ , 12),( FI , 12),( NI , 12),( EH , 12),( OH , 12),( DG , 12),( PG , 12),( CF , 12),

Exploring Node: PF

Inserting New Children: PG, QF,

( CE , 11),( QE , 11),( BD , 11),( RD , 11),( AC , 11),( SC , 11),( TB , 11),( JM , 12),( IL , 12),( KL , 12),( HK , 12),( LK , 12),( GJ , 12),( MJ , 12),( FI , 12),( NI , 12),( EH , 12),( OH , 12),( DG , 12),( PG , 12),( CF , 12),( QF , 12),

Exploring Node: CE

Inserting New Children: CF, BE,

( QE , 11),( BD , 11),( RD , 11),( AC , 11),( SC , 11),( TB , 11),( JM , 12),( IL , 12),( KL , 12),( HK , 12),( LK , 12),( GJ , 12),( MJ , 12),( FI , 12),( NI , 12),( EH , 12),( OH , 12),( DG , 12),( PG , 12),( CF , 12),( QF , 12),( BE , 12),

Exploring Node: QE

Inserting New Children: QF, RE,

( BD , 11),( RD , 11),( AC , 11),( SC , 11),( TB , 11),( JM , 12),( IL , 12),( KL , 12),( HK , 12),( LK , 12),( GJ , 12),( MJ , 12),( FI , 12),( NI , 12),( EH , 12),( OH , 12),( DG , 12),( PG , 12),( CF , 12),( QF , 12),( BE , 12),( RE , 12),

Exploring Node: BD

Inserting New Children: BE, AD,

( RD , 11),( AC , 11),( SC , 11),( TB , 11),( JM , 12),( IL , 12),( KL , 12),( HK , 12),( LK , 12),( GJ , 12),( MJ , 12),( FI , 12),( NI , 12),( EH , 12),( OH , 12),( DG , 12),( PG , 12),( CF , 12),( QF , 12),( BE , 12),( RE , 12),( AD , 12),

Exploring Node: RD

Inserting New Children: RE, SD,

( AC , 11),( SC , 11),( TB , 11),( JM , 12),( IL , 12),( KL , 12),( HK , 12),( LK , 12),( GJ , 12),( MJ , 12),( FI , 12),( NI , 12),( EH , 12),( OH , 12),( DG , 12),( PG , 12),( CF , 12),( QF , 12),( BE , 12),( RE , 12),( AD , 12),( SD , 12),

Exploring Node: AC

Inserting New Children: AD,

( SC , 11),( TB , 11),( JM , 12),( IL , 12),( KL , 12),( HK , 12),( LK , 12),( GJ , 12),( MJ , 12),( FI , 12),( NI , 12),( EH , 12),( OH , 12),( DG , 12),( PG , 12),( CF , 12),( QF , 12),( BE , 12),( RE , 12),( AD , 12),( SD , 12),

Exploring Node: SC

Inserting New Children: SD, TC,

( TB , 11),( JM , 12),( IL , 12),( KL , 12),( HK , 12),( LK , 12),( GJ , 12),( MJ , 12),( FI , 12),( NI , 12),( EH , 12),( OH , 12),( DG , 12),( PG , 12),( CF , 12),( QF , 12),( BE , 12),( RE , 12),( AD , 12),( SD , 12),( TC , 12),

Exploring Node: TB

Inserting New Children: TC,

( JM , 12),( IL , 12),( KL , 12),( HK , 12),( LK , 12),( GJ , 12),( MJ , 12),( FI , 12),( NI , 12),( EH , 12),( OH , 12),( DG , 12),( PG , 12),( CF , 12),( QF , 12),( BE , 12),( RE , 12),( AD , 12),( SD , 12),( TC , 12),

Exploring Node: JM

Inserting New Children: JN, IM, KM,

( IL , 12),( KL , 12),( HK , 12),( LK , 12),( GJ , 12),( MJ , 12),( FI , 12),( NI , 12),( EH , 12),( OH , 12),( DG , 12),( PG , 12),( CF , 12),( QF , 12),( BE , 12),( RE , 12),( AD , 12),( SD , 12),( TC , 12),( JN , 13),( IM , 13),( KM , 13),

Exploring Node: IL

Inserting New Children: IM, HL,

( KL , 12),( HK , 12),( LK , 12),( GJ , 12),( MJ , 12),( FI , 12),( NI , 12),( EH , 12),( OH , 12),( DG , 12),( PG , 12),( CF , 12),( QF , 12),( BE , 12),( RE , 12),( AD , 12),( SD , 12),( TC , 12),( JN , 13),( IM , 13),( KM , 13),( HL , 13),

Exploring Node: KL

Inserting New Children: KM, LL,

( HK , 12),( LK , 12),( GJ , 12),( MJ , 12),( FI , 12),( NI , 12),( EH , 12),( OH , 12),( DG , 12),( PG , 12),( CF , 12),( QF , 12),( BE , 12),( RE , 12),( AD , 12),( SD , 12),( TC , 12),( JN , 13),( IM , 13),( KM , 13),( HL , 13),( LL , 13),

Exploring Node: HK

Inserting New Children: HL, GK,

( LK , 12),( GJ , 12),( MJ , 12),( FI , 12),( NI , 12),( EH , 12),( OH , 12),( DG , 12),( PG , 12),( CF , 12),( QF , 12),( BE , 12),( RE , 12),( AD , 12),( SD , 12),( TC , 12),( JN , 13),( IM , 13),( KM , 13),( HL , 13),( LL , 13),( GK , 13),

Exploring Node: LK

Inserting New Children: LL, MK,

( GJ , 12),( MJ , 12),( FI , 12),( NI , 12),( EH , 12),( OH , 12),( DG , 12),( PG , 12),( CF , 12),( QF , 12),( BE , 12),( RE , 12),( AD , 12),( SD , 12),( TC , 12),( JN , 13),( IM , 13),( KM , 13),( HL , 13),( LL , 13),( GK , 13),( MK , 13),

Exploring Node: GJ

Inserting New Children: GK, FJ,

( MJ , 12),( FI , 12),( NI , 12),( EH , 12),( OH , 12),( DG , 12),( PG , 12),( CF , 12),( QF , 12),( BE , 12),( RE , 12),( AD , 12),( SD , 12),( TC , 12),( JN , 13),( IM , 13),( KM , 13),( HL , 13),( LL , 13),( GK , 13),( MK , 13),( FJ , 13),

Exploring Node: MJ

Inserting New Children: MK, NJ,

( FI , 12),( NI , 12),( EH , 12),( OH , 12),( DG , 12),( PG , 12),( CF , 12),( QF , 12),( BE , 12),( RE , 12),( AD , 12),( SD , 12),( TC , 12),( JN , 13),( IM , 13),( KM , 13),( HL , 13),( LL , 13),( GK , 13),( MK , 13),( FJ , 13),( NJ , 13),

Exploring Node: FI

Inserting New Children: FJ, EI,

( NI , 12),( EH , 12),( OH , 12),( DG , 12),( PG , 12),( CF , 12),( QF , 12),( BE , 12),( RE , 12),( AD , 12),( SD , 12),( TC , 12),( JN , 13),( IM , 13),( KM , 13),( HL , 13),( LL , 13),( GK , 13),( MK , 13),( FJ , 13),( NJ , 13),( EI , 13),

Exploring Node: NI

Inserting New Children: NJ, OI,

( EH , 12),( OH , 12),( DG , 12),( PG , 12),( CF , 12),( QF , 12),( BE , 12),( RE , 12),( AD , 12),( SD , 12),( TC , 12),( JN , 13),( IM , 13),( KM , 13),( HL , 13),( LL , 13),( GK , 13),( MK , 13),( FJ , 13),( NJ , 13),( EI , 13),( OI , 13),

Exploring Node: EH

Inserting New Children: EI, DH,

( OH , 12),( DG , 12),( PG , 12),( CF , 12),( QF , 12),( BE , 12),( RE , 12),( AD , 12),( SD , 12),( TC , 12),( JN , 13),( IM , 13),( KM , 13),( HL , 13),( LL , 13),( GK , 13),( MK , 13),( FJ , 13),( NJ , 13),( EI , 13),( OI , 13),( DH , 13),

Exploring Node: OH

Inserting New Children: OI, PH,

( DG , 12),( PG , 12),( CF , 12),( QF , 12),( BE , 12),( RE , 12),( AD , 12),( SD , 12),( TC , 12),( JN , 13),( IM , 13),( KM , 13),( HL , 13),( LL , 13),( GK , 13),( MK , 13),( FJ , 13),( NJ , 13),( EI , 13),( OI , 13),( DH , 13),( PH , 13),

Exploring Node: DG

Inserting New Children: DH, CG,

( PG , 12),( CF , 12),( QF , 12),( BE , 12),( RE , 12),( AD , 12),( SD , 12),( TC , 12),( JN , 13),( IM , 13),( KM , 13),( HL , 13),( LL , 13),( GK , 13),( MK , 13),( FJ , 13),( NJ , 13),( EI , 13),( OI , 13),( DH , 13),( PH , 13),( CG , 13),

Exploring Node: PG

Inserting New Children: PH, QG,

( CF , 12),( QF , 12),( BE , 12),( RE , 12),( AD , 12),( SD , 12),( TC , 12),( JN , 13),( IM , 13),( KM , 13),( HL , 13),( LL , 13),( GK , 13),( MK , 13),( FJ , 13),( NJ , 13),( EI , 13),( OI , 13),( DH , 13),( PH , 13),( CG , 13),( QG , 13),

Exploring Node: CF

Inserting New Children: CG, BF,

( QF , 12),( BE , 12),( RE , 12),( AD , 12),( SD , 12),( TC , 12),( JN , 13),( IM , 13),( KM , 13),( HL , 13),( LL , 13),( GK , 13),( MK , 13),( FJ , 13),( NJ , 13),( EI , 13),( OI , 13),( DH , 13),( PH , 13),( CG , 13),( QG , 13),( BF , 13),

Exploring Node: QF

Inserting New Children: QG, RF,

( BE , 12),( RE , 12),( AD , 12),( SD , 12),( TC , 12),( JN , 13),( IM , 13),( KM , 13),( HL , 13),( LL , 13),( GK , 13),( MK , 13),( FJ , 13),( NJ , 13),( EI , 13),( OI , 13),( DH , 13),( PH , 13),( CG , 13),( QG , 13),( BF , 13),( RF , 13),

Exploring Node: BE

Inserting New Children: BF, AE,

( RE , 12),( AD , 12),( SD , 12),( TC , 12),( JN , 13),( IM , 13),( KM , 13),( HL , 13),( LL , 13),( GK , 13),( MK , 13),( FJ , 13),( NJ , 13),( EI , 13),( OI , 13),( DH , 13),( PH , 13),( CG , 13),( QG , 13),( BF , 13),( RF , 13),( AE , 13),

Exploring Node: RE

Inserting New Children: RF, SE,

( AD , 12),( SD , 12),( TC , 12),( JN , 13),( IM , 13),( KM , 13),( HL , 13),( LL , 13),( GK , 13),( MK , 13),( FJ , 13),( NJ , 13),( EI , 13),( OI , 13),( DH , 13),( PH , 13),( CG , 13),( QG , 13),( BF , 13),( RF , 13),( AE , 13),( SE , 13),

Exploring Node: AD

Inserting New Children: AE,

( SD , 12),( TC , 12),( JN , 13),( IM , 13),( KM , 13),( HL , 13),( LL , 13),( GK , 13),( MK , 13),( FJ , 13),( NJ , 13),( EI , 13),( OI , 13),( DH , 13),( PH , 13),( CG , 13),( QG , 13),( BF , 13),( RF , 13),( AE , 13),( SE , 13),

Exploring Node: SD

Inserting New Children: SE, TD,

( TC , 12),( JN , 13),( IM , 13),( KM , 13),( HL , 13),( LL , 13),( GK , 13),( MK , 13),( FJ , 13),( NJ , 13),( EI , 13),( OI , 13),( DH , 13),( PH , 13),( CG , 13),( QG , 13),( BF , 13),( RF , 13),( AE , 13),( SE , 13),( TD , 13),

Exploring Node: TC

Inserting New Children: TD,

( JN , 13),( IM , 13),( KM , 13),( HL , 13),( LL , 13),( GK , 13),( MK , 13),( FJ , 13),( NJ , 13),( EI , 13),( OI , 13),( DH , 13),( PH , 13),( CG , 13),( QG , 13),( BF , 13),( RF , 13),( AE , 13),( SE , 13),( TD , 13),

Exploring Node: JN

Inserting New Children: JO, IN, KN,

( IM , 13),( KM , 13),( HL , 13),( LL , 13),( GK , 13),( MK , 13),( FJ , 13),( NJ , 13),( EI , 13),( OI , 13),( DH , 13),( PH , 13),( CG , 13),( QG , 13),( BF , 13),( RF , 13),( AE , 13),( SE , 13),( TD , 13),( JO , 14),( IN , 14),( KN , 14),

Exploring Node: IM

Inserting New Children: IN, HM,

( KM , 13),( HL , 13),( LL , 13),( GK , 13),( MK , 13),( FJ , 13),( NJ , 13),( EI , 13),( OI , 13),( DH , 13),( PH , 13),( CG , 13),( QG , 13),( BF , 13),( RF , 13),( AE , 13),( SE , 13),( TD , 13),( JO , 14),( IN , 14),( KN , 14),( HM , 14),

Exploring Node: KM

Inserting New Children: KN, LM,

( HL , 13),( LL , 13),( GK , 13),( MK , 13),( FJ , 13),( NJ , 13),( EI , 13),( OI , 13),( DH , 13),( PH , 13),( CG , 13),( QG , 13),( BF , 13),( RF , 13),( AE , 13),( SE , 13),( TD , 13),( JO , 14),( IN , 14),( KN , 14),( HM , 14),( LM , 14),

Exploring Node: HL

Inserting New Children: HM, GL,

( LL , 13),( GK , 13),( MK , 13),( FJ , 13),( NJ , 13),( EI , 13),( OI , 13),( DH , 13),( PH , 13),( CG , 13),( QG , 13),( BF , 13),( RF , 13),( AE , 13),( SE , 13),( TD , 13),( JO , 14),( IN , 14),( KN , 14),( HM , 14),( LM , 14),( GL , 14),

Exploring Node: LL

Inserting New Children: LM, ML,

( GK , 13),( MK , 13),( FJ , 13),( NJ , 13),( EI , 13),( OI , 13),( DH , 13),( PH , 13),( CG , 13),( QG , 13),( BF , 13),( RF , 13),( AE , 13),( SE , 13),( TD , 13),( JO , 14),( IN , 14),( KN , 14),( HM , 14),( LM , 14),( GL , 14),( ML , 14),

Exploring Node: GK

Inserting New Children: GL, FK,

( MK , 13),( FJ , 13),( NJ , 13),( EI , 13),( OI , 13),( DH , 13),( PH , 13),( CG , 13),( QG , 13),( BF , 13),( RF , 13),( AE , 13),( SE , 13),( TD , 13),( JO , 14),( IN , 14),( KN , 14),( HM , 14),( LM , 14),( GL , 14),( ML , 14),( FK , 14),

Exploring Node: MK

Inserting New Children: ML, NK,

( FJ , 13),( NJ , 13),( EI , 13),( OI , 13),( DH , 13),( PH , 13),( CG , 13),( QG , 13),( BF , 13),( RF , 13),( AE , 13),( SE , 13),( TD , 13),( JO , 14),( IN , 14),( KN , 14),( HM , 14),( LM , 14),( GL , 14),( ML , 14),( FK , 14),( NK , 14),

Exploring Node: FJ

Inserting New Children: FK, EJ,

( NJ , 13),( EI , 13),( OI , 13),( DH , 13),( PH , 13),( CG , 13),( QG , 13),( BF , 13),( RF , 13),( AE , 13),( SE , 13),( TD , 13),( JO , 14),( IN , 14),( KN , 14),( HM , 14),( LM , 14),( GL , 14),( ML , 14),( FK , 14),( NK , 14),( EJ , 14),

Exploring Node: NJ

Inserting New Children: NK, OJ,

( EI , 13),( OI , 13),( DH , 13),( PH , 13),( CG , 13),( QG , 13),( BF , 13),( RF , 13),( AE , 13),( SE , 13),( TD , 13),( JO , 14),( IN , 14),( KN , 14),( HM , 14),( LM , 14),( GL , 14),( ML , 14),( FK , 14),( NK , 14),( EJ , 14),( OJ , 14),

Exploring Node: EI

Inserting New Children: EJ, DI,

( OI , 13),( DH , 13),( PH , 13),( CG , 13),( QG , 13),( BF , 13),( RF , 13),( AE , 13),( SE , 13),( TD , 13),( JO , 14),( IN , 14),( KN , 14),( HM , 14),( LM , 14),( GL , 14),( ML , 14),( FK , 14),( NK , 14),( EJ , 14),( OJ , 14),( DI , 14),

Exploring Node: OI

Inserting New Children: OJ, PI,

( DH , 13),( PH , 13),( CG , 13),( QG , 13),( BF , 13),( RF , 13),( AE , 13),( SE , 13),( TD , 13),( JO , 14),( IN , 14),( KN , 14),( HM , 14),( LM , 14),( GL , 14),( ML , 14),( FK , 14),( NK , 14),( EJ , 14),( OJ , 14),( DI , 14),( PI , 14),

Exploring Node: DH

Inserting New Children: DI, CH,

( PH , 13),( CG , 13),( QG , 13),( BF , 13),( RF , 13),( AE , 13),( SE , 13),( TD , 13),( JO , 14),( IN , 14),( KN , 14),( HM , 14),( LM , 14),( GL , 14),( ML , 14),( FK , 14),( NK , 14),( EJ , 14),( OJ , 14),( DI , 14),( PI , 14),( CH , 14),

Exploring Node: PH

Inserting New Children: PI, QH,

( CG , 13),( QG , 13),( BF , 13),( RF , 13),( AE , 13),( SE , 13),( TD , 13),( JO , 14),( IN , 14),( KN , 14),( HM , 14),( LM , 14),( GL , 14),( ML , 14),( FK , 14),( NK , 14),( EJ , 14),( OJ , 14),( DI , 14),( PI , 14),( CH , 14),( QH , 14),

Exploring Node: CG

Inserting New Children: CH, BG,

( QG , 13),( BF , 13),( RF , 13),( AE , 13),( SE , 13),( TD , 13),( JO , 14),( IN , 14),( KN , 14),( HM , 14),( LM , 14),( GL , 14),( ML , 14),( FK , 14),( NK , 14),( EJ , 14),( OJ , 14),( DI , 14),( PI , 14),( CH , 14),( QH , 14),( BG , 14),

Exploring Node: QG

Inserting New Children: QH, RG,

( BF , 13),( RF , 13),( AE , 13),( SE , 13),( TD , 13),( JO , 14),( IN , 14),( KN , 14),( HM , 14),( LM , 14),( GL , 14),( ML , 14),( FK , 14),( NK , 14),( EJ , 14),( OJ , 14),( DI , 14),( PI , 14),( CH , 14),( QH , 14),( BG , 14),( RG , 14),

Exploring Node: BF

Inserting New Children: BG, AF,

( RF , 13),( AE , 13),( SE , 13),( TD , 13),( JO , 14),( IN , 14),( KN , 14),( HM , 14),( LM , 14),( GL , 14),( ML , 14),( FK , 14),( NK , 14),( EJ , 14),( OJ , 14),( DI , 14),( PI , 14),( CH , 14),( QH , 14),( BG , 14),( RG , 14),( AF , 14),

Exploring Node: RF

Inserting New Children: RG, SF,

( AE , 13),( SE , 13),( TD , 13),( JO , 14),( IN , 14),( KN , 14),( HM , 14),( LM , 14),( GL , 14),( ML , 14),( FK , 14),( NK , 14),( EJ , 14),( OJ , 14),( DI , 14),( PI , 14),( CH , 14),( QH , 14),( BG , 14),( RG , 14),( AF , 14),( SF , 14),

Exploring Node: AE

Inserting New Children: AF,

( SE , 13),( TD , 13),( JO , 14),( IN , 14),( KN , 14),( HM , 14),( LM , 14),( GL , 14),( ML , 14),( FK , 14),( NK , 14),( EJ , 14),( OJ , 14),( DI , 14),( PI , 14),( CH , 14),( QH , 14),( BG , 14),( RG , 14),( AF , 14),( SF , 14),

Exploring Node: SE

Inserting New Children: SF, TE,

( TD , 13),( JO , 14),( IN , 14),( KN , 14),( HM , 14),( LM , 14),( GL , 14),( ML , 14),( FK , 14),( NK , 14),( EJ , 14),( OJ , 14),( DI , 14),( PI , 14),( CH , 14),( QH , 14),( BG , 14),( RG , 14),( AF , 14),( SF , 14),( TE , 14),

Exploring Node: TD

Inserting New Children: TE,

( JO , 14),( IN , 14),( KN , 14),( HM , 14),( LM , 14),( GL , 14),( ML , 14),( FK , 14),( NK , 14),( EJ , 14),( OJ , 14),( DI , 14),( PI , 14),( CH , 14),( QH , 14),( BG , 14),( RG , 14),( AF , 14),( SF , 14),( TE , 14),

Exploring Node: JO

Inserting New Children: JP, IO, KO,

( IN , 14),( KN , 14),( HM , 14),( LM , 14),( GL , 14),( ML , 14),( FK , 14),( NK , 14),( EJ , 14),( OJ , 14),( DI , 14),( PI , 14),( CH , 14),( QH , 14),( BG , 14),( RG , 14),( AF , 14),( SF , 14),( TE , 14),( JP , 15),( IO , 15),( KO , 15),

Exploring Node: IN

Inserting New Children: IO, HN,

( KN , 14),( HM , 14),( LM , 14),( GL , 14),( ML , 14),( FK , 14),( NK , 14),( EJ , 14),( OJ , 14),( DI , 14),( PI , 14),( CH , 14),( QH , 14),( BG , 14),( RG , 14),( AF , 14),( SF , 14),( TE , 14),( JP , 15),( IO , 15),( KO , 15),( HN , 15),

Exploring Node: KN

Inserting New Children: KO, LN,

( HM , 14),( LM , 14),( GL , 14),( ML , 14),( FK , 14),( NK , 14),( EJ , 14),( OJ , 14),( DI , 14),( PI , 14),( CH , 14),( QH , 14),( BG , 14),( RG , 14),( AF , 14),( SF , 14),( TE , 14),( JP , 15),( IO , 15),( KO , 15),( HN , 15),( LN , 15),

Exploring Node: HM

Inserting New Children: HN, GM,

( LM , 14),( GL , 14),( ML , 14),( FK , 14),( NK , 14),( EJ , 14),( OJ , 14),( DI , 14),( PI , 14),( CH , 14),( QH , 14),( BG , 14),( RG , 14),( AF , 14),( SF , 14),( TE , 14),( JP , 15),( IO , 15),( KO , 15),( HN , 15),( LN , 15),( GM , 15),

Exploring Node: LM

Inserting New Children: LN, MM,

( GL , 14),( ML , 14),( FK , 14),( NK , 14),( EJ , 14),( OJ , 14),( DI , 14),( PI , 14),( CH , 14),( QH , 14),( BG , 14),( RG , 14),( AF , 14),( SF , 14),( TE , 14),( JP , 15),( IO , 15),( KO , 15),( HN , 15),( LN , 15),( GM , 15),( MM , 15),

Exploring Node: GL

Inserting New Children: GM, FL,

( ML , 14),( FK , 14),( NK , 14),( EJ , 14),( OJ , 14),( DI , 14),( PI , 14),( CH , 14),( QH , 14),( BG , 14),( RG , 14),( AF , 14),( SF , 14),( TE , 14),( JP , 15),( IO , 15),( KO , 15),( HN , 15),( LN , 15),( GM , 15),( MM , 15),( FL , 15),

Exploring Node: ML

Inserting New Children: MM, NL,

( FK , 14),( NK , 14),( EJ , 14),( OJ , 14),( DI , 14),( PI , 14),( CH , 14),( QH , 14),( BG , 14),( RG , 14),( AF , 14),( SF , 14),( TE , 14),( JP , 15),( IO , 15),( KO , 15),( HN , 15),( LN , 15),( GM , 15),( MM , 15),( FL , 15),( NL , 15),

Exploring Node: FK

Inserting New Children: FL, EK,

( NK , 14),( EJ , 14),( OJ , 14),( DI , 14),( PI , 14),( CH , 14),( QH , 14),( BG , 14),( RG , 14),( AF , 14),( SF , 14),( TE , 14),( JP , 15),( IO , 15),( KO , 15),( HN , 15),( LN , 15),( GM , 15),( MM , 15),( FL , 15),( NL , 15),( EK , 15),

Exploring Node: NK

Inserting New Children: NL, OK,

( EJ , 14),( OJ , 14),( DI , 14),( PI , 14),( CH , 14),( QH , 14),( BG , 14),( RG , 14),( AF , 14),( SF , 14),( TE , 14),( JP , 15),( IO , 15),( KO , 15),( HN , 15),( LN , 15),( GM , 15),( MM , 15),( FL , 15),( NL , 15),( EK , 15),( OK , 15),

Exploring Node: EJ

Inserting New Children: EK, DJ,

( OJ , 14),( DI , 14),( PI , 14),( CH , 14),( QH , 14),( BG , 14),( RG , 14),( AF , 14),( SF , 14),( TE , 14),( JP , 15),( IO , 15),( KO , 15),( HN , 15),( LN , 15),( GM , 15),( MM , 15),( FL , 15),( NL , 15),( EK , 15),( OK , 15),( DJ , 15),

Exploring Node: OJ

Inserting New Children: OK, PJ,

( DI , 14),( PI , 14),( CH , 14),( QH , 14),( BG , 14),( RG , 14),( AF , 14),( SF , 14),( TE , 14),( JP , 15),( IO , 15),( KO , 15),( HN , 15),( LN , 15),( GM , 15),( MM , 15),( FL , 15),( NL , 15),( EK , 15),( OK , 15),( DJ , 15),( PJ , 15),

Exploring Node: DI

Inserting New Children: DJ, CI,

( PI , 14),( CH , 14),( QH , 14),( BG , 14),( RG , 14),( AF , 14),( SF , 14),( TE , 14),( JP , 15),( IO , 15),( KO , 15),( HN , 15),( LN , 15),( GM , 15),( MM , 15),( FL , 15),( NL , 15),( EK , 15),( OK , 15),( DJ , 15),( PJ , 15),( CI , 15),

Exploring Node: PI

Inserting New Children: PJ, QI,

( CH , 14),( QH , 14),( BG , 14),( RG , 14),( AF , 14),( SF , 14),( TE , 14),( JP , 15),( IO , 15),( KO , 15),( HN , 15),( LN , 15),( GM , 15),( MM , 15),( FL , 15),( NL , 15),( EK , 15),( OK , 15),( DJ , 15),( PJ , 15),( CI , 15),( QI , 15),

Exploring Node: CH

Inserting New Children: CI, BH,

( QH , 14),( BG , 14),( RG , 14),( AF , 14),( SF , 14),( TE , 14),( JP , 15),( IO , 15),( KO , 15),( HN , 15),( LN , 15),( GM , 15),( MM , 15),( FL , 15),( NL , 15),( EK , 15),( OK , 15),( DJ , 15),( PJ , 15),( CI , 15),( QI , 15),( BH , 15),

Exploring Node: QH

Inserting New Children: QI, RH,

( BG , 14),( RG , 14),( AF , 14),( SF , 14),( TE , 14),( JP , 15),( IO , 15),( KO , 15),( HN , 15),( LN , 15),( GM , 15),( MM , 15),( FL , 15),( NL , 15),( EK , 15),( OK , 15),( DJ , 15),( PJ , 15),( CI , 15),( QI , 15),( BH , 15),( RH , 15),

Exploring Node: BG

Inserting New Children: BH, AG,

( RG , 14),( AF , 14),( SF , 14),( TE , 14),( JP , 15),( IO , 15),( KO , 15),( HN , 15),( LN , 15),( GM , 15),( MM , 15),( FL , 15),( NL , 15),( EK , 15),( OK , 15),( DJ , 15),( PJ , 15),( CI , 15),( QI , 15),( BH , 15),( RH , 15),( AG , 15),

Exploring Node: RG

Inserting New Children: RH, SG,

( AF , 14),( SF , 14),( TE , 14),( JP , 15),( IO , 15),( KO , 15),( HN , 15),( LN , 15),( GM , 15),( MM , 15),( FL , 15),( NL , 15),( EK , 15),( OK , 15),( DJ , 15),( PJ , 15),( CI , 15),( QI , 15),( BH , 15),( RH , 15),( AG , 15),( SG , 15),

Exploring Node: AF

Inserting New Children: AG,

( SF , 14),( TE , 14),( JP , 15),( IO , 15),( KO , 15),( HN , 15),( LN , 15),( GM , 15),( MM , 15),( FL , 15),( NL , 15),( EK , 15),( OK , 15),( DJ , 15),( PJ , 15),( CI , 15),( QI , 15),( BH , 15),( RH , 15),( AG , 15),( SG , 15),

Exploring Node: SF

Inserting New Children: SG, TF,

( TE , 14),( JP , 15),( IO , 15),( KO , 15),( HN , 15),( LN , 15),( GM , 15),( MM , 15),( FL , 15),( NL , 15),( EK , 15),( OK , 15),( DJ , 15),( PJ , 15),( CI , 15),( QI , 15),( BH , 15),( RH , 15),( AG , 15),( SG , 15),( TF , 15),

Exploring Node: TE

Inserting New Children: TF,

( JP , 15),( IO , 15),( KO , 15),( HN , 15),( LN , 15),( GM , 15),( MM , 15),( FL , 15),( NL , 15),( EK , 15),( OK , 15),( DJ , 15),( PJ , 15),( CI , 15),( QI , 15),( BH , 15),( RH , 15),( AG , 15),( SG , 15),( TF , 15),

Exploring Node: JP

Inserting New Children: JQ, IP, KP,

( IO , 15),( KO , 15),( HN , 15),( LN , 15),( GM , 15),( MM , 15),( FL , 15),( NL , 15),( EK , 15),( OK , 15),( DJ , 15),( PJ , 15),( CI , 15),( QI , 15),( BH , 15),( RH , 15),( AG , 15),( SG , 15),( TF , 15),( JQ , 16),( IP , 16),( KP , 16),

Exploring Node: IO

Inserting New Children: IP, HO,

( KO , 15),( HN , 15),( LN , 15),( GM , 15),( MM , 15),( FL , 15),( NL , 15),( EK , 15),( OK , 15),( DJ , 15),( PJ , 15),( CI , 15),( QI , 15),( BH , 15),( RH , 15),( AG , 15),( SG , 15),( TF , 15),( JQ , 16),( IP , 16),( KP , 16),( HO , 16),

Exploring Node: KO

Inserting New Children: KP, LO,

( HN , 15),( LN , 15),( GM , 15),( MM , 15),( FL , 15),( NL , 15),( EK , 15),( OK , 15),( DJ , 15),( PJ , 15),( CI , 15),( QI , 15),( BH , 15),( RH , 15),( AG , 15),( SG , 15),( TF , 15),( JQ , 16),( IP , 16),( KP , 16),( HO , 16),( LO , 16),

Exploring Node: HN

Inserting New Children: HO, GN,

( LN , 15),( GM , 15),( MM , 15),( FL , 15),( NL , 15),( EK , 15),( OK , 15),( DJ , 15),( PJ , 15),( CI , 15),( QI , 15),( BH , 15),( RH , 15),( AG , 15),( SG , 15),( TF , 15),( JQ , 16),( IP , 16),( KP , 16),( HO , 16),( LO , 16),( GN , 16),

Exploring Node: LN

Inserting New Children: LO, MN,

( GM , 15),( MM , 15),( FL , 15),( NL , 15),( EK , 15),( OK , 15),( DJ , 15),( PJ , 15),( CI , 15),( QI , 15),( BH , 15),( RH , 15),( AG , 15),( SG , 15),( TF , 15),( JQ , 16),( IP , 16),( KP , 16),( HO , 16),( LO , 16),( GN , 16),( MN , 16),

Exploring Node: GM

Inserting New Children: GN, FM,

( MM , 15),( FL , 15),( NL , 15),( EK , 15),( OK , 15),( DJ , 15),( PJ , 15),( CI , 15),( QI , 15),( BH , 15),( RH , 15),( AG , 15),( SG , 15),( TF , 15),( JQ , 16),( IP , 16),( KP , 16),( HO , 16),( LO , 16),( GN , 16),( MN , 16),( FM , 16),

Exploring Node: MM

Inserting New Children: MN, NM,

( FL , 15),( NL , 15),( EK , 15),( OK , 15),( DJ , 15),( PJ , 15),( CI , 15),( QI , 15),( BH , 15),( RH , 15),( AG , 15),( SG , 15),( TF , 15),( JQ , 16),( IP , 16),( KP , 16),( HO , 16),( LO , 16),( GN , 16),( MN , 16),( FM , 16),( NM , 16),

Exploring Node: FL

Inserting New Children: FM, EL,

( NL , 15),( EK , 15),( OK , 15),( DJ , 15),( PJ , 15),( CI , 15),( QI , 15),( BH , 15),( RH , 15),( AG , 15),( SG , 15),( TF , 15),( JQ , 16),( IP , 16),( KP , 16),( HO , 16),( LO , 16),( GN , 16),( MN , 16),( FM , 16),( NM , 16),( EL , 16),

Exploring Node: NL

Inserting New Children: NM, OL,

( EK , 15),( OK , 15),( DJ , 15),( PJ , 15),( CI , 15),( QI , 15),( BH , 15),( RH , 15),( AG , 15),( SG , 15),( TF , 15),( JQ , 16),( IP , 16),( KP , 16),( HO , 16),( LO , 16),( GN , 16),( MN , 16),( FM , 16),( NM , 16),( EL , 16),( OL , 16),

Exploring Node: EK

Inserting New Children: EL, DK,

( OK , 15),( DJ , 15),( PJ , 15),( CI , 15),( QI , 15),( BH , 15),( RH , 15),( AG , 15),( SG , 15),( TF , 15),( JQ , 16),( IP , 16),( KP , 16),( HO , 16),( LO , 16),( GN , 16),( MN , 16),( FM , 16),( NM , 16),( EL , 16),( OL , 16),( DK , 16),

Exploring Node: OK

Inserting New Children: OL, PK,

( DJ , 15),( PJ , 15),( CI , 15),( QI , 15),( BH , 15),( RH , 15),( AG , 15),( SG , 15),( TF , 15),( JQ , 16),( IP , 16),( KP , 16),( HO , 16),( LO , 16),( GN , 16),( MN , 16),( FM , 16),( NM , 16),( EL , 16),( OL , 16),( DK , 16),( PK , 16),

Exploring Node: DJ

Inserting New Children: DK, CJ,

( PJ , 15),( CI , 15),( QI , 15),( BH , 15),( RH , 15),( AG , 15),( SG , 15),( TF , 15),( JQ , 16),( IP , 16),( KP , 16),( HO , 16),( LO , 16),( GN , 16),( MN , 16),( FM , 16),( NM , 16),( EL , 16),( OL , 16),( DK , 16),( PK , 16),( CJ , 16),

Exploring Node: PJ

Inserting New Children: PK, QJ,

( CI , 15),( QI , 15),( BH , 15),( RH , 15),( AG , 15),( SG , 15),( TF , 15),( JQ , 16),( IP , 16),( KP , 16),( HO , 16),( LO , 16),( GN , 16),( MN , 16),( FM , 16),( NM , 16),( EL , 16),( OL , 16),( DK , 16),( PK , 16),( CJ , 16),( QJ , 16),

Exploring Node: CI

Inserting New Children: CJ, BI,

( QI , 15),( BH , 15),( RH , 15),( AG , 15),( SG , 15),( TF , 15),( JQ , 16),( IP , 16),( KP , 16),( HO , 16),( LO , 16),( GN , 16),( MN , 16),( FM , 16),( NM , 16),( EL , 16),( OL , 16),( DK , 16),( PK , 16),( CJ , 16),( QJ , 16),( BI , 16),

Exploring Node: QI

Inserting New Children: QJ, RI,

( BH , 15),( RH , 15),( AG , 15),( SG , 15),( TF , 15),( JQ , 16),( IP , 16),( KP , 16),( HO , 16),( LO , 16),( GN , 16),( MN , 16),( FM , 16),( NM , 16),( EL , 16),( OL , 16),( DK , 16),( PK , 16),( CJ , 16),( QJ , 16),( BI , 16),( RI , 16),

Exploring Node: BH

Inserting New Children: BI, AH,

( RH , 15),( AG , 15),( SG , 15),( TF , 15),( JQ , 16),( IP , 16),( KP , 16),( HO , 16),( LO , 16),( GN , 16),( MN , 16),( FM , 16),( NM , 16),( EL , 16),( OL , 16),( DK , 16),( PK , 16),( CJ , 16),( QJ , 16),( BI , 16),( RI , 16),( AH , 16),

Exploring Node: RH

Inserting New Children: RI, SH,

( AG , 15),( SG , 15),( TF , 15),( JQ , 16),( IP , 16),( KP , 16),( HO , 16),( LO , 16),( GN , 16),( MN , 16),( FM , 16),( NM , 16),( EL , 16),( OL , 16),( DK , 16),( PK , 16),( CJ , 16),( QJ , 16),( BI , 16),( RI , 16),( AH , 16),( SH , 16),

Exploring Node: AG

Inserting New Children: AH,

( SG , 15),( TF , 15),( JQ , 16),( IP , 16),( KP , 16),( HO , 16),( LO , 16),( GN , 16),( MN , 16),( FM , 16),( NM , 16),( EL , 16),( OL , 16),( DK , 16),( PK , 16),( CJ , 16),( QJ , 16),( BI , 16),( RI , 16),( AH , 16),( SH , 16),

Exploring Node: SG

Inserting New Children: SH, TG,

( TF , 15),( JQ , 16),( IP , 16),( KP , 16),( HO , 16),( LO , 16),( GN , 16),( MN , 16),( FM , 16),( NM , 16),( EL , 16),( OL , 16),( DK , 16),( PK , 16),( CJ , 16),( QJ , 16),( BI , 16),( RI , 16),( AH , 16),( SH , 16),( TG , 16),

Exploring Node: TF

Inserting New Children: TG,

( JQ , 16),( IP , 16),( KP , 16),( HO , 16),( LO , 16),( GN , 16),( MN , 16),( FM , 16),( NM , 16),( EL , 16),( OL , 16),( DK , 16),( PK , 16),( CJ , 16),( QJ , 16),( BI , 16),( RI , 16),( AH , 16),( SH , 16),( TG , 16),

Exploring Node: JQ

Inserting New Children: JR, IQ, KQ,

( IP , 16),( KP , 16),( HO , 16),( LO , 16),( GN , 16),( MN , 16),( FM , 16),( NM , 16),( EL , 16),( OL , 16),( DK , 16),( PK , 16),( CJ , 16),( QJ , 16),( BI , 16),( RI , 16),( AH , 16),( SH , 16),( TG , 16),( JR , 17),( IQ , 17),( KQ , 17),

Exploring Node: IP

Inserting New Children: IQ, HP,

( KP , 16),( HO , 16),( LO , 16),( GN , 16),( MN , 16),( FM , 16),( NM , 16),( EL , 16),( OL , 16),( DK , 16),( PK , 16),( CJ , 16),( QJ , 16),( BI , 16),( RI , 16),( AH , 16),( SH , 16),( TG , 16),( JR , 17),( IQ , 17),( KQ , 17),( HP , 17),

Exploring Node: KP

Inserting New Children: KQ, LP,

( HO , 16),( LO , 16),( GN , 16),( MN , 16),( FM , 16),( NM , 16),( EL , 16),( OL , 16),( DK , 16),( PK , 16),( CJ , 16),( QJ , 16),( BI , 16),( RI , 16),( AH , 16),( SH , 16),( TG , 16),( JR , 17),( IQ , 17),( KQ , 17),( HP , 17),( LP , 17),

Exploring Node: HO

Inserting New Children: HP, GO,

( LO , 16),( GN , 16),( MN , 16),( FM , 16),( NM , 16),( EL , 16),( OL , 16),( DK , 16),( PK , 16),( CJ , 16),( QJ , 16),( BI , 16),( RI , 16),( AH , 16),( SH , 16),( TG , 16),( JR , 17),( IQ , 17),( KQ , 17),( HP , 17),( LP , 17),( GO , 17),

Exploring Node: LO

Inserting New Children: LP, MO,

( GN , 16),( MN , 16),( FM , 16),( NM , 16),( EL , 16),( OL , 16),( DK , 16),( PK , 16),( CJ , 16),( QJ , 16),( BI , 16),( RI , 16),( AH , 16),( SH , 16),( TG , 16),( JR , 17),( IQ , 17),( KQ , 17),( HP , 17),( LP , 17),( GO , 17),( MO , 17),

Exploring Node: GN

Inserting New Children: GO, FN,

( MN , 16),( FM , 16),( NM , 16),( EL , 16),( OL , 16),( DK , 16),( PK , 16),( CJ , 16),( QJ , 16),( BI , 16),( RI , 16),( AH , 16),( SH , 16),( TG , 16),( JR , 17),( IQ , 17),( KQ , 17),( HP , 17),( LP , 17),( GO , 17),( MO , 17),( FN , 17),

Exploring Node: MN

Inserting New Children: MO, NN,

( FM , 16),( NM , 16),( EL , 16),( OL , 16),( DK , 16),( PK , 16),( CJ , 16),( QJ , 16),( BI , 16),( RI , 16),( AH , 16),( SH , 16),( TG , 16),( JR , 17),( IQ , 17),( KQ , 17),( HP , 17),( LP , 17),( GO , 17),( MO , 17),( FN , 17),( NN , 17),

Exploring Node: FM

Inserting New Children: FN, EM,

( NM , 16),( EL , 16),( OL , 16),( DK , 16),( PK , 16),( CJ , 16),( QJ , 16),( BI , 16),( RI , 16),( AH , 16),( SH , 16),( TG , 16),( JR , 17),( IQ , 17),( KQ , 17),( HP , 17),( LP , 17),( GO , 17),( MO , 17),( FN , 17),( NN , 17),( EM , 17),

Exploring Node: NM

Inserting New Children: NN, OM,

( EL , 16),( OL , 16),( DK , 16),( PK , 16),( CJ , 16),( QJ , 16),( BI , 16),( RI , 16),( AH , 16),( SH , 16),( TG , 16),( JR , 17),( IQ , 17),( KQ , 17),( HP , 17),( LP , 17),( GO , 17),( MO , 17),( FN , 17),( NN , 17),( EM , 17),( OM , 17),

Exploring Node: EL

Inserting New Children: EM, DL,

( OL , 16),( DK , 16),( PK , 16),( CJ , 16),( QJ , 16),( BI , 16),( RI , 16),( AH , 16),( SH , 16),( TG , 16),( JR , 17),( IQ , 17),( KQ , 17),( HP , 17),( LP , 17),( GO , 17),( MO , 17),( FN , 17),( NN , 17),( EM , 17),( OM , 17),( DL , 17),

Exploring Node: OL

Inserting New Children: OM, PL,

( DK , 16),( PK , 16),( CJ , 16),( QJ , 16),( BI , 16),( RI , 16),( AH , 16),( SH , 16),( TG , 16),( JR , 17),( IQ , 17),( KQ , 17),( HP , 17),( LP , 17),( GO , 17),( MO , 17),( FN , 17),( NN , 17),( EM , 17),( OM , 17),( DL , 17),( PL , 17),

Exploring Node: DK

Inserting New Children: DL, CK,

( PK , 16),( CJ , 16),( QJ , 16),( BI , 16),( RI , 16),( AH , 16),( SH , 16),( TG , 16),( JR , 17),( IQ , 17),( KQ , 17),( HP , 17),( LP , 17),( GO , 17),( MO , 17),( FN , 17),( NN , 17),( EM , 17),( OM , 17),( DL , 17),( PL , 17),( CK , 17),

Exploring Node: PK

Inserting New Children: PL, QK,

( CJ , 16),( QJ , 16),( BI , 16),( RI , 16),( AH , 16),( SH , 16),( TG , 16),( JR , 17),( IQ , 17),( KQ , 17),( HP , 17),( LP , 17),( GO , 17),( MO , 17),( FN , 17),( NN , 17),( EM , 17),( OM , 17),( DL , 17),( PL , 17),( CK , 17),( QK , 17),

Exploring Node: CJ

Inserting New Children: CK, BJ,

( QJ , 16),( BI , 16),( RI , 16),( AH , 16),( SH , 16),( TG , 16),( JR , 17),( IQ , 17),( KQ , 17),( HP , 17),( LP , 17),( GO , 17),( MO , 17),( FN , 17),( NN , 17),( EM , 17),( OM , 17),( DL , 17),( PL , 17),( CK , 17),( QK , 17),( BJ , 17),

Exploring Node: QJ

Inserting New Children: QK, RJ,

( BI , 16),( RI , 16),( AH , 16),( SH , 16),( TG , 16),( JR , 17),( IQ , 17),( KQ , 17),( HP , 17),( LP , 17),( GO , 17),( MO , 17),( FN , 17),( NN , 17),( EM , 17),( OM , 17),( DL , 17),( PL , 17),( CK , 17),( QK , 17),( BJ , 17),( RJ , 17),

Exploring Node: BI

Inserting New Children: BJ, AI,

( RI , 16),( AH , 16),( SH , 16),( TG , 16),( JR , 17),( IQ , 17),( KQ , 17),( HP , 17),( LP , 17),( GO , 17),( MO , 17),( FN , 17),( NN , 17),( EM , 17),( OM , 17),( DL , 17),( PL , 17),( CK , 17),( QK , 17),( BJ , 17),( RJ , 17),( AI , 17),

Exploring Node: RI

Inserting New Children: RJ, SI,

( AH , 16),( SH , 16),( TG , 16),( JR , 17),( IQ , 17),( KQ , 17),( HP , 17),( LP , 17),( GO , 17),( MO , 17),( FN , 17),( NN , 17),( EM , 17),( OM , 17),( DL , 17),( PL , 17),( CK , 17),( QK , 17),( BJ , 17),( RJ , 17),( AI , 17),( SI , 17),

Exploring Node: AH

Inserting New Children: AI,

( SH , 16),( TG , 16),( JR , 17),( IQ , 17),( KQ , 17),( HP , 17),( LP , 17),( GO , 17),( MO , 17),( FN , 17),( NN , 17),( EM , 17),( OM , 17),( DL , 17),( PL , 17),( CK , 17),( QK , 17),( BJ , 17),( RJ , 17),( AI , 17),( SI , 17),

Exploring Node: SH

Inserting New Children: SI, TH,

( TG , 16),( JR , 17),( IQ , 17),( KQ , 17),( HP , 17),( LP , 17),( GO , 17),( MO , 17),( FN , 17),( NN , 17),( EM , 17),( OM , 17),( DL , 17),( PL , 17),( CK , 17),( QK , 17),( BJ , 17),( RJ , 17),( AI , 17),( SI , 17),( TH , 17),

Exploring Node: TG

Inserting New Children: TH,

( JR , 17),( IQ , 17),( KQ , 17),( HP , 17),( LP , 17),( GO , 17),( MO , 17),( FN , 17),( NN , 17),( EM , 17),( OM , 17),( DL , 17),( PL , 17),( CK , 17),( QK , 17),( BJ , 17),( RJ , 17),( AI , 17),( SI , 17),( TH , 17),

Exploring Node: JR

Inserting New Children: JS, IR, KR,

( IQ , 17),( KQ , 17),( HP , 17),( LP , 17),( GO , 17),( MO , 17),( FN , 17),( NN , 17),( EM , 17),( OM , 17),( DL , 17),( PL , 17),( CK , 17),( QK , 17),( BJ , 17),( RJ , 17),( AI , 17),( SI , 17),( TH , 17),( JS , 18),( IR , 18),( KR , 18),

Exploring Node: IQ

Inserting New Children: IR, HQ,

( KQ , 17),( HP , 17),( LP , 17),( GO , 17),( MO , 17),( FN , 17),( NN , 17),( EM , 17),( OM , 17),( DL , 17),( PL , 17),( CK , 17),( QK , 17),( BJ , 17),( RJ , 17),( AI , 17),( SI , 17),( TH , 17),( JS , 18),( IR , 18),( KR , 18),( HQ , 18),

Exploring Node: KQ

Inserting New Children: KR, LQ,

( HP , 17),( LP , 17),( GO , 17),( MO , 17),( FN , 17),( NN , 17),( EM , 17),( OM , 17),( DL , 17),( PL , 17),( CK , 17),( QK , 17),( BJ , 17),( RJ , 17),( AI , 17),( SI , 17),( TH , 17),( JS , 18),( IR , 18),( KR , 18),( HQ , 18),( LQ , 18),

Exploring Node: HP

Inserting New Children: HQ, GP,

( LP , 17),( GO , 17),( MO , 17),( FN , 17),( NN , 17),( EM , 17),( OM , 17),( DL , 17),( PL , 17),( CK , 17),( QK , 17),( BJ , 17),( RJ , 17),( AI , 17),( SI , 17),( TH , 17),( JS , 18),( IR , 18),( KR , 18),( HQ , 18),( LQ , 18),( GP , 18),

Exploring Node: LP

Inserting New Children: LQ, MP,

( GO , 17),( MO , 17),( FN , 17),( NN , 17),( EM , 17),( OM , 17),( DL , 17),( PL , 17),( CK , 17),( QK , 17),( BJ , 17),( RJ , 17),( AI , 17),( SI , 17),( TH , 17),( JS , 18),( IR , 18),( KR , 18),( HQ , 18),( LQ , 18),( GP , 18),( MP , 18),

Exploring Node: GO

Inserting New Children: GP, FO,

( MO , 17),( FN , 17),( NN , 17),( EM , 17),( OM , 17),( DL , 17),( PL , 17),( CK , 17),( QK , 17),( BJ , 17),( RJ , 17),( AI , 17),( SI , 17),( TH , 17),( JS , 18),( IR , 18),( KR , 18),( HQ , 18),( LQ , 18),( GP , 18),( MP , 18),( FO , 18),

Exploring Node: MO

Inserting New Children: MP, NO,

( FN , 17),( NN , 17),( EM , 17),( OM , 17),( DL , 17),( PL , 17),( CK , 17),( QK , 17),( BJ , 17),( RJ , 17),( AI , 17),( SI , 17),( TH , 17),( JS , 18),( IR , 18),( KR , 18),( HQ , 18),( LQ , 18),( GP , 18),( MP , 18),( FO , 18),( NO , 18),

Exploring Node: FN

Inserting New Children: FO, EN,

( NN , 17),( EM , 17),( OM , 17),( DL , 17),( PL , 17),( CK , 17),( QK , 17),( BJ , 17),( RJ , 17),( AI , 17),( SI , 17),( TH , 17),( JS , 18),( IR , 18),( KR , 18),( HQ , 18),( LQ , 18),( GP , 18),( MP , 18),( FO , 18),( NO , 18),( EN , 18),

Exploring Node: NN

Inserting New Children: NO, ON,

( EM , 17),( OM , 17),( DL , 17),( PL , 17),( CK , 17),( QK , 17),( BJ , 17),( RJ , 17),( AI , 17),( SI , 17),( TH , 17),( JS , 18),( IR , 18),( KR , 18),( HQ , 18),( LQ , 18),( GP , 18),( MP , 18),( FO , 18),( NO , 18),( EN , 18),( ON , 18),

Exploring Node: EM

Inserting New Children: EN, DM,

( OM , 17),( DL , 17),( PL , 17),( CK , 17),( QK , 17),( BJ , 17),( RJ , 17),( AI , 17),( SI , 17),( TH , 17),( JS , 18),( IR , 18),( KR , 18),( HQ , 18),( LQ , 18),( GP , 18),( MP , 18),( FO , 18),( NO , 18),( EN , 18),( ON , 18),( DM , 18),

Exploring Node: OM

Inserting New Children: ON, PM,

( DL , 17),( PL , 17),( CK , 17),( QK , 17),( BJ , 17),( RJ , 17),( AI , 17),( SI , 17),( TH , 17),( JS , 18),( IR , 18),( KR , 18),( HQ , 18),( LQ , 18),( GP , 18),( MP , 18),( FO , 18),( NO , 18),( EN , 18),( ON , 18),( DM , 18),( PM , 18),

Exploring Node: DL

Inserting New Children: DM, CL,

( PL , 17),( CK , 17),( QK , 17),( BJ , 17),( RJ , 17),( AI , 17),( SI , 17),( TH , 17),( JS , 18),( IR , 18),( KR , 18),( HQ , 18),( LQ , 18),( GP , 18),( MP , 18),( FO , 18),( NO , 18),( EN , 18),( ON , 18),( DM , 18),( PM , 18),( CL , 18),

Exploring Node: PL

Inserting New Children: PM, QL,

( CK , 17),( QK , 17),( BJ , 17),( RJ , 17),( AI , 17),( SI , 17),( TH , 17),( JS , 18),( IR , 18),( KR , 18),( HQ , 18),( LQ , 18),( GP , 18),( MP , 18),( FO , 18),( NO , 18),( EN , 18),( ON , 18),( DM , 18),( PM , 18),( CL , 18),( QL , 18),

Exploring Node: CK

Inserting New Children: CL, BK,

( QK , 17),( BJ , 17),( RJ , 17),( AI , 17),( SI , 17),( TH , 17),( JS , 18),( IR , 18),( KR , 18),( HQ , 18),( LQ , 18),( GP , 18),( MP , 18),( FO , 18),( NO , 18),( EN , 18),( ON , 18),( DM , 18),( PM , 18),( CL , 18),( QL , 18),( BK , 18),

Exploring Node: QK

Inserting New Children: QL, RK,

( BJ , 17),( RJ , 17),( AI , 17),( SI , 17),( TH , 17),( JS , 18),( IR , 18),( KR , 18),( HQ , 18),( LQ , 18),( GP , 18),( MP , 18),( FO , 18),( NO , 18),( EN , 18),( ON , 18),( DM , 18),( PM , 18),( CL , 18),( QL , 18),( BK , 18),( RK , 18),

Exploring Node: BJ

Inserting New Children: BK, AJ,

( RJ , 17),( AI , 17),( SI , 17),( TH , 17),( JS , 18),( IR , 18),( KR , 18),( HQ , 18),( LQ , 18),( GP , 18),( MP , 18),( FO , 18),( NO , 18),( EN , 18),( ON , 18),( DM , 18),( PM , 18),( CL , 18),( QL , 18),( BK , 18),( RK , 18),( AJ , 18),

Exploring Node: RJ

Inserting New Children: RK, SJ,

( AI , 17),( SI , 17),( TH , 17),( JS , 18),( IR , 18),( KR , 18),( HQ , 18),( LQ , 18),( GP , 18),( MP , 18),( FO , 18),( NO , 18),( EN , 18),( ON , 18),( DM , 18),( PM , 18),( CL , 18),( QL , 18),( BK , 18),( RK , 18),( AJ , 18),( SJ , 18),

Exploring Node: AI

Inserting New Children: AJ,

( SI , 17),( TH , 17),( JS , 18),( IR , 18),( KR , 18),( HQ , 18),( LQ , 18),( GP , 18),( MP , 18),( FO , 18),( NO , 18),( EN , 18),( ON , 18),( DM , 18),( PM , 18),( CL , 18),( QL , 18),( BK , 18),( RK , 18),( AJ , 18),( SJ , 18),

Exploring Node: SI

Inserting New Children: SJ, TI,

( TH , 17),( JS , 18),( IR , 18),( KR , 18),( HQ , 18),( LQ , 18),( GP , 18),( MP , 18),( FO , 18),( NO , 18),( EN , 18),( ON , 18),( DM , 18),( PM , 18),( CL , 18),( QL , 18),( BK , 18),( RK , 18),( AJ , 18),( SJ , 18),( TI , 18),

Exploring Node: TH

Inserting New Children: TI,

( JS , 18),( IR , 18),( KR , 18),( HQ , 18),( LQ , 18),( GP , 18),( MP , 18),( FO , 18),( NO , 18),( EN , 18),( ON , 18),( DM , 18),( PM , 18),( CL , 18),( QL , 18),( BK , 18),( RK , 18),( AJ , 18),( SJ , 18),( TI , 18),

Exploring Node: JS

Inserting New Children: JT, IS, KS,

( IR , 18),( KR , 18),( HQ , 18),( LQ , 18),( GP , 18),( MP , 18),( FO , 18),( NO , 18),( EN , 18),( ON , 18),( DM , 18),( PM , 18),( CL , 18),( QL , 18),( BK , 18),( RK , 18),( AJ , 18),( SJ , 18),( TI , 18),( JT , 19),( IS , 19),( KS , 19),

Exploring Node: IR

Inserting New Children: IS, HR,

( KR , 18),( HQ , 18),( LQ , 18),( GP , 18),( MP , 18),( FO , 18),( NO , 18),( EN , 18),( ON , 18),( DM , 18),( PM , 18),( CL , 18),( QL , 18),( BK , 18),( RK , 18),( AJ , 18),( SJ , 18),( TI , 18),( JT , 19),( IS , 19),( KS , 19),( HR , 19),

Exploring Node: KR

Inserting New Children: KS, LR,

( HQ , 18),( LQ , 18),( GP , 18),( MP , 18),( FO , 18),( NO , 18),( EN , 18),( ON , 18),( DM , 18),( PM , 18),( CL , 18),( QL , 18),( BK , 18),( RK , 18),( AJ , 18),( SJ , 18),( TI , 18),( JT , 19),( IS , 19),( KS , 19),( HR , 19),( LR , 19),

Exploring Node: HQ

Inserting New Children: HR, GQ,

( LQ , 18),( GP , 18),( MP , 18),( FO , 18),( NO , 18),( EN , 18),( ON , 18),( DM , 18),( PM , 18),( CL , 18),( QL , 18),( BK , 18),( RK , 18),( AJ , 18),( SJ , 18),( TI , 18),( JT , 19),( IS , 19),( KS , 19),( HR , 19),( LR , 19),( GQ , 19),

Exploring Node: LQ

Inserting New Children: LR, MQ,

( GP , 18),( MP , 18),( FO , 18),( NO , 18),( EN , 18),( ON , 18),( DM , 18),( PM , 18),( CL , 18),( QL , 18),( BK , 18),( RK , 18),( AJ , 18),( SJ , 18),( TI , 18),( JT , 19),( IS , 19),( KS , 19),( HR , 19),( LR , 19),( GQ , 19),( MQ , 19),

Exploring Node: GP

Inserting New Children: GQ, FP,

( MP , 18),( FO , 18),( NO , 18),( EN , 18),( ON , 18),( DM , 18),( PM , 18),( CL , 18),( QL , 18),( BK , 18),( RK , 18),( AJ , 18),( SJ , 18),( TI , 18),( JT , 19),( IS , 19),( KS , 19),( HR , 19),( LR , 19),( GQ , 19),( MQ , 19),( FP , 19),

Exploring Node: MP

Inserting New Children: MQ, NP,

( FO , 18),( NO , 18),( EN , 18),( ON , 18),( DM , 18),( PM , 18),( CL , 18),( QL , 18),( BK , 18),( RK , 18),( AJ , 18),( SJ , 18),( TI , 18),( JT , 19),( IS , 19),( KS , 19),( HR , 19),( LR , 19),( GQ , 19),( MQ , 19),( FP , 19),( NP , 19),

Exploring Node: FO

Inserting New Children: FP, EO,

( NO , 18),( EN , 18),( ON , 18),( DM , 18),( PM , 18),( CL , 18),( QL , 18),( BK , 18),( RK , 18),( AJ , 18),( SJ , 18),( TI , 18),( JT , 19),( IS , 19),( KS , 19),( HR , 19),( LR , 19),( GQ , 19),( MQ , 19),( FP , 19),( NP , 19),( EO , 19),

Exploring Node: NO

Inserting New Children: NP, OO,

( EN , 18),( ON , 18),( DM , 18),( PM , 18),( CL , 18),( QL , 18),( BK , 18),( RK , 18),( AJ , 18),( SJ , 18),( TI , 18),( JT , 19),( IS , 19),( KS , 19),( HR , 19),( LR , 19),( GQ , 19),( MQ , 19),( FP , 19),( NP , 19),( EO , 19),( OO , 19),

Exploring Node: EN

Inserting New Children: EO, DN,

( ON , 18),( DM , 18),( PM , 18),( CL , 18),( QL , 18),( BK , 18),( RK , 18),( AJ , 18),( SJ , 18),( TI , 18),( JT , 19),( IS , 19),( KS , 19),( HR , 19),( LR , 19),( GQ , 19),( MQ , 19),( FP , 19),( NP , 19),( EO , 19),( OO , 19),( DN , 19),

Exploring Node: ON

Inserting New Children: OO, PN,

( DM , 18),( PM , 18),( CL , 18),( QL , 18),( BK , 18),( RK , 18),( AJ , 18),( SJ , 18),( TI , 18),( JT , 19),( IS , 19),( KS , 19),( HR , 19),( LR , 19),( GQ , 19),( MQ , 19),( FP , 19),( NP , 19),( EO , 19),( OO , 19),( DN , 19),( PN , 19),

Exploring Node: DM

Inserting New Children: DN, CM,

( PM , 18),( CL , 18),( QL , 18),( BK , 18),( RK , 18),( AJ , 18),( SJ , 18),( TI , 18),( JT , 19),( IS , 19),( KS , 19),( HR , 19),( LR , 19),( GQ , 19),( MQ , 19),( FP , 19),( NP , 19),( EO , 19),( OO , 19),( DN , 19),( PN , 19),( CM , 19),

Exploring Node: PM

Inserting New Children: PN, QM,

( CL , 18),( QL , 18),( BK , 18),( RK , 18),( AJ , 18),( SJ , 18),( TI , 18),( JT , 19),( IS , 19),( KS , 19),( HR , 19),( LR , 19),( GQ , 19),( MQ , 19),( FP , 19),( NP , 19),( EO , 19),( OO , 19),( DN , 19),( PN , 19),( CM , 19),( QM , 19),

Exploring Node: CL

Inserting New Children: CM, BL,

( QL , 18),( BK , 18),( RK , 18),( AJ , 18),( SJ , 18),( TI , 18),( JT , 19),( IS , 19),( KS , 19),( HR , 19),( LR , 19),( GQ , 19),( MQ , 19),( FP , 19),( NP , 19),( EO , 19),( OO , 19),( DN , 19),( PN , 19),( CM , 19),( QM , 19),( BL , 19),

Exploring Node: QL

Inserting New Children: QM, RL,

( BK , 18),( RK , 18),( AJ , 18),( SJ , 18),( TI , 18),( JT , 19),( IS , 19),( KS , 19),( HR , 19),( LR , 19),( GQ , 19),( MQ , 19),( FP , 19),( NP , 19),( EO , 19),( OO , 19),( DN , 19),( PN , 19),( CM , 19),( QM , 19),( BL , 19),( RL , 19),

Exploring Node: BK

Inserting New Children: BL, AK,

( RK , 18),( AJ , 18),( SJ , 18),( TI , 18),( JT , 19),( IS , 19),( KS , 19),( HR , 19),( LR , 19),( GQ , 19),( MQ , 19),( FP , 19),( NP , 19),( EO , 19),( OO , 19),( DN , 19),( PN , 19),( CM , 19),( QM , 19),( BL , 19),( RL , 19),( AK , 19),

Exploring Node: RK

Inserting New Children: RL, SK,

( AJ , 18),( SJ , 18),( TI , 18),( JT , 19),( IS , 19),( KS , 19),( HR , 19),( LR , 19),( GQ , 19),( MQ , 19),( FP , 19),( NP , 19),( EO , 19),( OO , 19),( DN , 19),( PN , 19),( CM , 19),( QM , 19),( BL , 19),( RL , 19),( AK , 19),( SK , 19),

Exploring Node: AJ

Inserting New Children: AK,

( SJ , 18),( TI , 18),( JT , 19),( IS , 19),( KS , 19),( HR , 19),( LR , 19),( GQ , 19),( MQ , 19),( FP , 19),( NP , 19),( EO , 19),( OO , 19),( DN , 19),( PN , 19),( CM , 19),( QM , 19),( BL , 19),( RL , 19),( AK , 19),( SK , 19),

Exploring Node: SJ

Inserting New Children: SK, TJ,

( TI , 18),( JT , 19),( IS , 19),( KS , 19),( HR , 19),( LR , 19),( GQ , 19),( MQ , 19),( FP , 19),( NP , 19),( EO , 19),( OO , 19),( DN , 19),( PN , 19),( CM , 19),( QM , 19),( BL , 19),( RL , 19),( AK , 19),( SK , 19),( TJ , 19),

Exploring Node: TI

Inserting New Children: TJ,

( JT , 19),( IS , 19),( KS , 19),( HR , 19),( LR , 19),( GQ , 19),( MQ , 19),( FP , 19),( NP , 19),( EO , 19),( OO , 19),( DN , 19),( PN , 19),( CM , 19),( QM , 19),( BL , 19),( RL , 19),( AK , 19),( SK , 19),( TJ , 19),

Exploring Node: JT

Inserting New Children: IT, KT,

( IS , 19),( KS , 19),( HR , 19),( LR , 19),( GQ , 19),( MQ , 19),( FP , 19),( NP , 19),( EO , 19),( OO , 19),( DN , 19),( PN , 19),( CM , 19),( QM , 19),( BL , 19),( RL , 19),( AK , 19),( SK , 19),( TJ , 19),( IT , 20),( KT , 20),

Exploring Node: IS

Inserting New Children: IT, HS,

( KS , 19),( HR , 19),( LR , 19),( GQ , 19),( MQ , 19),( FP , 19),( NP , 19),( EO , 19),( OO , 19),( DN , 19),( PN , 19),( CM , 19),( QM , 19),( BL , 19),( RL , 19),( AK , 19),( SK , 19),( TJ , 19),( IT , 20),( KT , 20),( HS , 20),

Exploring Node: KS

Inserting New Children: KT, LS,

( HR , 19),( LR , 19),( GQ , 19),( MQ , 19),( FP , 19),( NP , 19),( EO , 19),( OO , 19),( DN , 19),( PN , 19),( CM , 19),( QM , 19),( BL , 19),( RL , 19),( AK , 19),( SK , 19),( TJ , 19),( IT , 20),( KT , 20),( HS , 20),( LS , 20),

Exploring Node: HR

Inserting New Children: HS, GR,

( LR , 19),( GQ , 19),( MQ , 19),( FP , 19),( NP , 19),( EO , 19),( OO , 19),( DN , 19),( PN , 19),( CM , 19),( QM , 19),( BL , 19),( RL , 19),( AK , 19),( SK , 19),( TJ , 19),( IT , 20),( KT , 20),( HS , 20),( LS , 20),( GR , 20),

Exploring Node: LR

Inserting New Children: LS, MR,

( GQ , 19),( MQ , 19),( FP , 19),( NP , 19),( EO , 19),( OO , 19),( DN , 19),( PN , 19),( CM , 19),( QM , 19),( BL , 19),( RL , 19),( AK , 19),( SK , 19),( TJ , 19),( IT , 20),( KT , 20),( HS , 20),( LS , 20),( GR , 20),( MR , 20),

Exploring Node: GQ

Inserting New Children: GR, FQ,

( MQ , 19),( FP , 19),( NP , 19),( EO , 19),( OO , 19),( DN , 19),( PN , 19),( CM , 19),( QM , 19),( BL , 19),( RL , 19),( AK , 19),( SK , 19),( TJ , 19),( IT , 20),( KT , 20),( HS , 20),( LS , 20),( GR , 20),( MR , 20),( FQ , 20),

Exploring Node: MQ

Inserting New Children: MR, NQ,

( FP , 19),( NP , 19),( EO , 19),( OO , 19),( DN , 19),( PN , 19),( CM , 19),( QM , 19),( BL , 19),( RL , 19),( AK , 19),( SK , 19),( TJ , 19),( IT , 20),( KT , 20),( HS , 20),( LS , 20),( GR , 20),( MR , 20),( FQ , 20),( NQ , 20),

Exploring Node: FP

Inserting New Children: FQ, EP,

( NP , 19),( EO , 19),( OO , 19),( DN , 19),( PN , 19),( CM , 19),( QM , 19),( BL , 19),( RL , 19),( AK , 19),( SK , 19),( TJ , 19),( IT , 20),( KT , 20),( HS , 20),( LS , 20),( GR , 20),( MR , 20),( FQ , 20),( NQ , 20),( EP , 20),

Exploring Node: NP

Inserting New Children: NQ, OP,

( EO , 19),( OO , 19),( DN , 19),( PN , 19),( CM , 19),( QM , 19),( BL , 19),( RL , 19),( AK , 19),( SK , 19),( TJ , 19),( IT , 20),( KT , 20),( HS , 20),( LS , 20),( GR , 20),( MR , 20),( FQ , 20),( NQ , 20),( EP , 20),( OP , 20),

Exploring Node: EO

Inserting New Children: EP, DO,

( OO , 19),( DN , 19),( PN , 19),( CM , 19),( QM , 19),( BL , 19),( RL , 19),( AK , 19),( SK , 19),( TJ , 19),( IT , 20),( KT , 20),( HS , 20),( LS , 20),( GR , 20),( MR , 20),( FQ , 20),( NQ , 20),( EP , 20),( OP , 20),( DO , 20),

Exploring Node: OO

Inserting New Children: OP, PO,

( DN , 19),( PN , 19),( CM , 19),( QM , 19),( BL , 19),( RL , 19),( AK , 19),( SK , 19),( TJ , 19),( IT , 20),( KT , 20),( HS , 20),( LS , 20),( GR , 20),( MR , 20),( FQ , 20),( NQ , 20),( EP , 20),( OP , 20),( DO , 20),( PO , 20),

Exploring Node: DN

Inserting New Children: DO, CN,

( PN , 19),( CM , 19),( QM , 19),( BL , 19),( RL , 19),( AK , 19),( SK , 19),( TJ , 19),( IT , 20),( KT , 20),( HS , 20),( LS , 20),( GR , 20),( MR , 20),( FQ , 20),( NQ , 20),( EP , 20),( OP , 20),( DO , 20),( PO , 20),( CN , 20),

Exploring Node: PN

Inserting New Children: PO, QN,

( CM , 19),( QM , 19),( BL , 19),( RL , 19),( AK , 19),( SK , 19),( TJ , 19),( IT , 20),( KT , 20),( HS , 20),( LS , 20),( GR , 20),( MR , 20),( FQ , 20),( NQ , 20),( EP , 20),( OP , 20),( DO , 20),( PO , 20),( CN , 20),( QN , 20),

Exploring Node: CM

Inserting New Children: CN, BM,

( QM , 19),( BL , 19),( RL , 19),( AK , 19),( SK , 19),( TJ , 19),( IT , 20),( KT , 20),( HS , 20),( LS , 20),( GR , 20),( MR , 20),( FQ , 20),( NQ , 20),( EP , 20),( OP , 20),( DO , 20),( PO , 20),( CN , 20),( QN , 20),( BM , 20),

Exploring Node: QM

Inserting New Children: QN, RM,

( BL , 19),( RL , 19),( AK , 19),( SK , 19),( TJ , 19),( IT , 20),( KT , 20),( HS , 20),( LS , 20),( GR , 20),( MR , 20),( FQ , 20),( NQ , 20),( EP , 20),( OP , 20),( DO , 20),( PO , 20),( CN , 20),( QN , 20),( BM , 20),( RM , 20),

Exploring Node: BL

Inserting New Children: BM, AL,

( RL , 19),( AK , 19),( SK , 19),( TJ , 19),( IT , 20),( KT , 20),( HS , 20),( LS , 20),( GR , 20),( MR , 20),( FQ , 20),( NQ , 20),( EP , 20),( OP , 20),( DO , 20),( PO , 20),( CN , 20),( QN , 20),( BM , 20),( RM , 20),( AL , 20),

Exploring Node: RL

Inserting New Children: RM, SL,

( AK , 19),( SK , 19),( TJ , 19),( IT , 20),( KT , 20),( HS , 20),( LS , 20),( GR , 20),( MR , 20),( FQ , 20),( NQ , 20),( EP , 20),( OP , 20),( DO , 20),( PO , 20),( CN , 20),( QN , 20),( BM , 20),( RM , 20),( AL , 20),( SL , 20),

Exploring Node: AK

Inserting New Children: AL,

( SK , 19),( TJ , 19),( IT , 20),( KT , 20),( HS , 20),( LS , 20),( GR , 20),( MR , 20),( FQ , 20),( NQ , 20),( EP , 20),( OP , 20),( DO , 20),( PO , 20),( CN , 20),( QN , 20),( BM , 20),( RM , 20),( AL , 20),( SL , 20),

Exploring Node: SK

Inserting New Children: SL, TK,

( TJ , 19),( IT , 20),( KT , 20),( HS , 20),( LS , 20),( GR , 20),( MR , 20),( FQ , 20),( NQ , 20),( EP , 20),( OP , 20),( DO , 20),( PO , 20),( CN , 20),( QN , 20),( BM , 20),( RM , 20),( AL , 20),( SL , 20),( TK , 20),

Exploring Node: TJ

Inserting New Children: TK,

( IT , 20),( KT , 20),( HS , 20),( LS , 20),( GR , 20),( MR , 20),( FQ , 20),( NQ , 20),( EP , 20),( OP , 20),( DO , 20),( PO , 20),( CN , 20),( QN , 20),( BM , 20),( RM , 20),( AL , 20),( SL , 20),( TK , 20),

Exploring Node: IT

Inserting New Children: HT,

( KT , 20),( HS , 20),( LS , 20),( GR , 20),( MR , 20),( FQ , 20),( NQ , 20),( EP , 20),( OP , 20),( DO , 20),( PO , 20),( CN , 20),( QN , 20),( BM , 20),( RM , 20),( AL , 20),( SL , 20),( TK , 20),( HT , 21),

Search Summary Stats:

Start Node: JA

End Node: KT

search total of 301 out of total of 400

Ended at Node: KT

Node Expansion:[JA,JB,IA,KA,JC,IB,KB,HA,LA,JD,IC,KC,HB,LB,GA,MA,JE,ID,KD,HC,LC,GB,MB,FA,NA,JF,IE,KE,HD,LD,GC,MC,FB,NB,EA,OA,JG,IF,KF,HE,LE,GD,MD,FC,NC,EB,OB,DA,PA,JH,IG,KG,HF,LF,GE,ME,FD,ND,EC,OC,DB,PB,CA,QA,JI,IH,KH,HG,LG,GF,MF,FE,NE,ED,OD,DC,PC,CB,QB,BA,RA,JJ,II,KI,HH,LH,GG,MG,FF,NF,EE,OE,DD,PD,CC,QC,BB,RB,AA,SA,JK,IJ,KJ,HI,LI,GH,MH,FG,NG,EF,OF,DE,PE,CD,QD,BC,RC,AB,SB,TA,JL,IK,KK,HJ,LJ,GI,MI,FH,NH,EG,OG,DF,PF,CE,QE,BD,RD,AC,SC,TB,JM,IL,KL,HK,LK,GJ,MJ,FI,NI,EH,OH,DG,PG,CF,QF,BE,RE,AD,SD,TC,JN,IM,KM,HL,LL,GK,MK,FJ,NJ,EI,OI,DH,PH,CG,QG,BF,RF,AE,SE,TD,JO,IN,KN,HM,LM,GL,ML,FK,NK,EJ,OJ,DI,PI,CH,QH,BG,RG,AF,SF,TE,JP,IO,KO,HN,LN,GM,MM,FL,NL,EK,OK,DJ,PJ,CI,QI,BH,RH,AG,SG,TF,JQ,IP,KP,HO,LO,GN,MN,FM,NM,EL,OL,DK,PK,CJ,QJ,BI,RI,AH,SH,TG,JR,IQ,KQ,HP,LP,GO,MO,FN,NN,EM,OM,DL,PL,CK,QK,BJ,RJ,AI,SI,TH,JS,IR,KR,HQ,LQ,GP,MP,FO,NO,EN,ON,DM,PM,CL,QL,BK,RK,AJ,SJ,TI,JT,IS,KS,HR,LR,GQ,MQ,FP,NP,EO,OO,DN,PN,CM,QM,BL,RL,AK,SK,TJ,IT,]