



Bansilal Ramnath Agarwal Charitable Trust's
Vishwakarma Institute of Information
Technology

**Department of
Artificial Intelligence and Data
Science**

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Class: TY

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Subject Name & Code: ADUA31201: Artificial Intelligence

Title of Assignment: Write a program to implement breadth first search (Heuristic search).

Date of Performance: 24-10-2023

Date of Submission: 11-11-2023

ASSIGNMENT NO. 4

CODE:

```
from queue import PriorityQueue

v = 14
graph = [[] for i in range(v)]

def best_first_search(actual_Src, target, n):
    visited = [False] * n
    pq = PriorityQueue()
    pq.put((0, actual_Src))
    visited[actual_Src] = True

    while not pq.empty():
        u = pq.get()[1]
        print(u, end=" ")

        if u == target:
            break

        for v, c in graph[u]:
            if not visited[v]:
                visited[v] = True
                pq.put((c, v))

        print()

def addedge(x, y, cost):
    graph[x].append((y, cost))
    graph[y].append((x, cost))

adddedge(0, 1, 3)
adddedge(0, 2, 6)
adddedge(0, 3, 5)
adddedge(1, 4, 9)
adddedge(1, 5, 8)
adddedge(2, 6, 12)
adddedge(2, 7, 14)
adddedge(3, 8, 7)
adddedge(8, 9, 5)
adddedge(8, 10, 6)

# Example usage:
best_first_search(0, 9, v)
```

OUTPUT:

```
0
1
3
2
8
● 9
  PS D:\Program language\Python> & "d:/Program language/Python/sid/Scripts/Activate.ps1"
● (sid) PS D:\Program language\Python> 
```