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Dept:- CSE B

I. Algorithm.

11 PUZZLE

```
algorithm LLSEARCH (listnode *l)
{
    // LC  $\rightarrow$  least cost
    // search for answer node
    if (*l is an answer node)
    {
        print (*l)
        return;
    }
    E = l: // E-node
```

initialise the list of live node to be empty;

```
while (true)
{
```

```
    for each child x of E
    {
```

```
        for each child
        if x is an answer node
        {
```

```
            print the path from x to t;
            return;
        }
```

```
Add(x): // Add to list of live nodes  
x → parent = E // pointer from path to root
```

```
}
```

```
// If there are no more live nodes  
print ("No answer node");  
return;
```

```
}
```

```
// Find a live node with least  
// estimated cost
```

```
E = least();
```

```
// The found node is deleted from  
list of live nodes
```

```
}
```

```
}
```

2. Complexity analysis

Time Complexity = $O(n^2)$

Space Complexity = $O(n^2)$

3. OUTPUT SCREEN SHOTS

```
"C:\Users\Suraj\Downloads\final dsa\11_puzzle.exe"
Name: Suraj Kumar
RollNo: 13000119075
1 2 3 4
5 10 6 8
9 0 7 11

1 2 3 4
5 0 6 8
9 10 7 11

1 2 3 4
5 6 0 8
9 10 7 11

1 2 3 4
5 6 7 8
9 10 0 11

1 2 3 4
5 6 7 8
9 10 11 0

Process returned 0 (0x0)   execution time : 0.024 s
Press any key to continue.
```

