D. Generate Puzzle-8 instances with the goal state at depth “d”.

Pseudocode:

We will initialize with our final state and use BFS with abranching factor of 4 (since a maximum of 4 moves are validper configuration).

Basically, reverse solving the problem to attain unsolved in-stances with solution at depth “d”

```
def reverse(self,depth,root):

        frontier = self.frontier
        explored = self.explored

        frontier.put(root)

        while not frontier.empty():
           node = frontier.get()
  if node.level==depth:
  frontier.put(node)
  break
  conf = node.config
           explored[np.array2string(conf)]=node

           neighbours=self.puzzle.moves(node)

           for neighbour in neighbours:
              configuration = neighbour.config
  if np.array2string(configuration) not in explored:
                  frontier.put(neighbour)
  else:
                  del(neighbour)

        return frontier
```

Instances Created:

1 8 2 0 4 3 7 6 5	1 8 2 4 0 3 7 6 5
1 0 2 4 8 3 7 6 5	1 2 0 4 8 3 7 6 5
1 2 0 4 8 3 7 6 5	1 2 3 4 8 0 7 6 5
1 2 3 4 8 5 7 6 0	1 2 3 4 8 5 7 0 6
1 2 3 4 0 5 7 8 6	1 2 3 4 5 0 7 8 6
1 2 3 4 5 6 7 8 0	