

```
1 # NAO PLANNING CHALLENGE 2021
```

```
2  
3 # Fundamentals of Artificial Intelligence  
4 # and Knowledge Representation
```

```
5  
6 TEAM_WALL_E = [  
7     'Vincenzo Collura',  
8     'Samuele Marino',  
9  
10 ]
```



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```
1  # Used Library:
2  import aima
3  #It combines the advantages of depth and breadth-first algorithm
4  #Complete, time complexity  $b^d$ , space complexity  $b*d$ , optimal(cost=1)
5
6  algorithm = iterative_deepening()
7  programming_languages = 'Python'
8  MODELING = {
9      State : ('CurrentPosition', 'NumberPosition', 'ActualTime',
10             'PreviousPosition')
11      Action : 'Movement from a position P1 to another position P2'
12      Goal : ('FinalPosition', 'X>=5', 'time<=20', 'PreviousPosition'
13  }
```

```
1  CONSTRAINTS = [  
2      'Mandatory intermediate positions' ,  
3      'Iterate over mandatory positions and generate  
4      intermediate independent sequence and then unify all the  
5      sequence in a single choreography' ,  
6      'At least five positions'  
7  ]  
8  
9  Time = 'Choose sequence of positions in order to create  
10         three minutes time choreography'  
11  
12  
13  # Deleting duplicates through use a list of previous position  
14  # Random shuffle of the possible next moves
```

```
1 MANDATORY_POSITION = {
2     'StandInit': 1.45948129653931,
3     'Hello': 4.639948129653931,
4     'Stand': 2.02,
5     'Sit': 11.704515933990479,
6     'Wipe_Forehead': 5.119374990463257,
7     'StandZero': 1.4620330333709717,
8     'SitRelax': 14.200019121170044,
9     'Crouch': 1.6594460010528564
10 }
11
12
13
14 SONG = 'Mille.wav'
```

```
1  POSITION = {
2      'Arms_opening': 7.761928081512451,
3      'Diagonal_left': 3.4190828800201416,
4      'Diagonal_right': 3.4149229526519775,
5      'Stand_from_sit': 7.957381010055542,
6      'Move_backward': 3.8621809482574463,
7      'Move_forward': 3.838757038116455,
8      'Right_arm': 9.083323955535889,
9      'Rotation_foot_LLleg': 9.015203952789307,
10     'Rotation_foot_RLeg': 8.62186598777771,
11     ...
12 }
13
14
```

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THANKS FOR LISTENING