


```

80     second level: [0. 0.]
81     third level: [4. 4.]
82     The No. 5 iteration is finished!
83
84     Beging the No. 6 iteration:
85     obj[gen-1] = 1.50    temp_best_value_gen = 1.50
86     No, maintain solution and obj[gen] = 1.50 , and the tolerance_counter = 5
87     solution chromosome =
88     first level: [ [2. 8.]
89     second level: [0. 0.]
90     third level: [4. 4.] ]
91     The No. 6 iteration is finished!
92
93     Beging the No. 7 iteration:
94     obj[gen-1] = 1.50    temp_best_value_gen = 1.50
95     No, maintain solution and obj[gen] = 1.50 , and the tolerance_counter = 6
96     solution chromosome =
97     first level: [ [2. 8.]
98     second level: [0. 0.]
99     third level: [4. 4.] ]
100    The No. 7 iteration is finished!
101
102
103    -----
104    The iteration is terminated and then visulize the solution:
105    solution chromosome =
106    first level: [ [2. 8.]
107    second level: [0. 0.]
108    third level: [4. 4.] ]
109    Objective function values and some other indicators:
110    Obj0 = 1.00      Obj1 = 0.00      Obj0 + Obj1 = 1.00
111    Total movement of crane: 0.00
112    Total waiting time in berth position: 0.00
113    Total index of q during berthing: 43.00
114    Specific arrangement for each vessel:
115    V_id: 0          li: 4.0          xi: 2.0          bow of i: 0.0          tail of i: 4.0          gama_i0: 0.0          gama_i1: 2.0
116    duration_time_i: 2.0          demand_i: 160.0          work load_i: 160.0          work load gap_i: 0
117    V_id: 1          li: 8.0          xi: 8.0          bow of i: 4.0          tail of i: 12.0          gama_i0: 0.0          gama_i1: 2.0
118    duration_time_i: 2.0          demand_i: 120.0          work load_i: 120.0          work load gap_i: 0
119
120    Algorithm finished and the total CPU time: 74 s
121    End
122

```