


```

80     second level: [1. 0.]
81     third level: [5. 2.] ]
82     The No. 5 iteration is finished!
83
84 Beging the No. 6 iteration:
85     obj[gen-1] = 3.90     temp_best_value_gen = 3.90
86     No, maintain solution and obj[gen] = 3.90 , and the tolerance_counter = 6
87     solution chromosome =
88         first level: [ [2.5 7.5]
89         second level: [1. 0.]
90         third level: [5. 2.] ]
91     The No. 6 iteration is finished!
92
93 Beging the No. 7 iteration:
94     obj[gen-1] = 3.90     temp_best_value_gen = 3.90
95     No, maintain solution and obj[gen] = 3.90 , and the tolerance_counter = 7
96     solution chromosome =
97         first level: [ [2.5 7.5]
98         second level: [1. 0.]
99         third level: [5. 2.] ]
100    The No. 7 iteration is finished!
101
102 Beging the No. 8 iteration:
103     obj[gen-1] = 3.90     temp_best_value_gen = 3.90
104     No, maintain solution and obj[gen] = 3.90 , and the tolerance_counter = 8
105     solution chromosome =
106         first level: [ [2.5 7.5]
107         second level: [1. 0.]
108         third level: [5. 2.] ]
109    The No. 8 iteration is finished!
110
111 Beging the No. 9 iteration:
112     obj[gen-1] = 3.90     temp_best_value_gen = 3.90
113     No, maintain solution and obj[gen] = 3.90 , and the tolerance_counter = 9
114     solution chromosome =
115         first level: [ [2.5 7.5]
116         second level: [1. 0.]
117         third level: [5. 2.] ]
118    The No. 9 iteration is finished!
119
120 Beging the No. 10 iteration:
121     obj[gen-1] = 3.90     temp_best_value_gen = 3.90
122     No, maintain solution and obj[gen] = 3.90 , and the tolerance_counter = 10
123     solution chromosome =
124         first level: [ [2.5 7.5]
125         second level: [1. 0.]
126         third level: [5. 2.] ]
127    The No. 10 iteration is finished!
128
129 -----
130
131 The iteration is terminated and then visulize the solution:
132     solution chromosome =
133         first level: [ [2.5 7.5]
134         second level: [1. 0.]
135         third level: [5. 2.] ]
136 Objective function values and some other indicators:
137     Obj0 = 2.00           Obj1 = 1.00           Obj0 + Obj1 = 3.00
138     Total movement of crane: 0.00
139     Total waiting time in berth position: 1.00
140     Total index of q during berthing: 27.00
141     Specific arrangement for each vessel:
142     V_id: 0              li: 5.0              xi: 2.5              bow of i: 0.0              tail of i: 5.0              gama_i0: 1.0              gama_i1: 3.0
143         duration_time_i: 2.0              demand_i: 140.0              work load_i: 140.0              work load gap_i: 0
144     V_id: 1              li: 5.0              xi: 7.5              bow of i: 5.0              tail of i: 10.0              gama_i0: 0.0              gama_i1: 2.0
145         duration_time_i: 2.0              demand_i: 60.0              work load_i: 60.0              work load gap_i: 0
146
147 Algorithm finished and the total CPU time: 249 s
148 End
149

```