


```

80     second level: [0. 2.]
81     third level: [4. 6.] ]
82     The No. 5 iteration is finished!
83
84 Beging the No. 6 iteration:
85     obj[gen-1] = 4.00    temp_best_value_gen = 4.00
86     No, maintain solution and obj[gen] = 4.00 , and the tolerance_counter = 4
87     solution chromosome =
88         first level: [ [2. 8.]
89         second level: [0. 2.]
90         third level: [4. 6.] ]
91     The No. 6 iteration is finished!
92
93 Beging the No. 7 iteration:
94     obj[gen-1] = 4.00    temp_best_value_gen = 4.00
95     No, maintain solution and obj[gen] = 4.00 , and the tolerance_counter = 5
96     solution chromosome =
97         first level: [ [2. 8.]
98         second level: [0. 2.]
99         third level: [4. 6.] ]
100    The No. 7 iteration is finished!
101
102 Beging the No. 8 iteration:
103     obj[gen-1] = 4.00    temp_best_value_gen = 4.00
104     No, maintain solution and obj[gen] = 4.00 , and the tolerance_counter = 6
105     solution chromosome =
106         first level: [ [2. 8.]
107         second level: [0. 2.]
108         third level: [4. 6.] ]
109    The No. 8 iteration is finished!
110
111
112 -----
113 The iteration is terminated and then visulize the solution:
114     solution chromosome =
115         first level: [ [2. 8.]
116         second level: [0. 2.]
117         third level: [4. 6.] ]
118     Objective function values and some other indicators:
119         Obj0 = 2.00      Obj1 = 2.00      Obj0 + Obj1 = 4.00
120         Total movement of crane: 0.00
121         Total waiting time in berth position: 2.00
122         Total index of q during berthing: 51.00
123     Specific arrangement for each vessel:
124         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
125         duration_time_i: 2.0          demand_i: 160.0          work load_i: 160.0          work load gap_i: 0
126         V_id: 1          li: 8.0          xi: 8.0          bow of i: 4.0          tail of i: 12.0          gama_i0: 2.0          gama_i1: 3.0
127         duration_time_i: 1.0          demand_i: 120.0          work load_i: 120.0          work load gap_i: 0
128
127 Algorithm finished and the total CPU time: 75 s
128 End
129

```