```
 1 "C:\Users\91967\Anaconda3\envs\DMUU
   Project\python.exe" "C:/DATA/UGA Sem 2/
   CSCI 8920 Decision Making under
   Uncertainty/DMUU Project/
   battleship_implementation/
   Battleship_Primitive/alternate.py"
 2 All the ships are sunk! You took 48
   turns to win. [Random]
 3 All the ships are sunk! You took 38
   turns to win. [OSLA]
 4 All the ships are sunk! You took 38
   turns to win. [POMDP]
 5 All the ships are sunk! You took 47
   turns to win. [Random]
 6 All the ships are sunk! You took 31
   turns to win. [OSLA]
 7 All the ships are sunk! You took 37
   turns to win. [POMDP]
 8 All the ships are sunk! You took 43
   turns to win. [Random]
 9 All the ships are sunk! You took 30
   turns to win. [OSLA]
10 All the ships are sunk! You took 36
   turns to win. [POMDP]
11 All the ships are sunk! You took 45
   turns to win. [Random]
12 All the ships are sunk! You took 31
   turns to win. [OSLA]
13 All the ships are sunk! You took 35
   turns to win. [POMDP]
14 All the ships are sunk! You took 48
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14 turns to win. [Random]

15 All the ships are sunk! You took 31 turns to win. [OSLA]

16 All the ships are sunk! You took 36 turns to win. [POMDP]

17 All the ships are sunk! You took 47 turns to win. [Random]

18 All the ships are sunk! You took 37 turns to win. [OSLA]

19 All the ships are sunk! You took 39 turns to win. [POMDP]

20 All the ships are sunk! You took 43 turns to win. [Random]

21 All the ships are sunk! You took 27 turns to win. [OSLA]

22 All the ships are sunk! You took 31 turns to win. [POMDP]

23 All the ships are sunk! You took 48 turns to win. [Random]

24 All the ships are sunk! You took 32 turns to win. [OSLA]

25 All the ships are sunk! You took 35 turns to win. [POMDP]

26 All the ships are sunk! You took 45 turns to win. [Random]

27 All the ships are sunk! You took 25 turns to win. [OSLA]

28 All the ships are sunk! You took 42 turns to win. [POMDP]

29 All the ships are sunk! You took 47 turns to win. [Random]

30 All the ships are sunk! You took 29
   turns to win. [OSLA]
31 All the ships are sunk! You took 26
   turns to win. [POMDP]
32 All the ships are sunk! You took 45
   turns to win. [Random]
33 All the ships are sunk! You took 31
   turns to win. [OSLA]
34 All the ships are sunk! You took 30
   turns to win. [POMDP]
35 All the ships are sunk! You took 48
   turns to win. [Random]
36 All the ships are sunk! You took 29
   turns to win. [OSLA]
37 All the ships are sunk! You took 36
   turns to win. [POMDP]
38 All the ships are sunk! You took 48
   turns to win. [Random]
39 All the ships are sunk! You took 26
   turns to win. [OSLA]
40 All the ships are sunk! You took 35
   turns to win. [POMDP]
41 All the ships are sunk! You took 46
   turns to win. [Random]
42 All the ships are sunk! You took 34
   turns to win. [OSLA]
43 All the ships are sunk! You took 37
   turns to win. [POMDP]
44 All the ships are sunk! You took 44
   turns to win. [Random]
45 All the ships are sunk! You took 30

45 turns to win. [OSLA]

46 All the ships are sunk! You took 42 turns to win. [POMDP]

47 All the ships are sunk! You took 47 turns to win. [Random]

48 All the ships are sunk! You took 28 turns to win. [OSLA]

49 All the ships are sunk! You took 22 turns to win. [POMDP]

50 All the ships are sunk! You took 48 turns to win. [Random]

51 All the ships are sunk! You took 33 turns to win. [OSLA]

52 All the ships are sunk! You took 28 turns to win. [POMDP]

53 All the ships are sunk! You took 46 turns to win. [Random]

54 All the ships are sunk! You took 35 turns to win. [OSLA]

55 All the ships are sunk! You took 31 turns to win. [POMDP]

56 All the ships are sunk! You took 48 turns to win. [Random]

57 All the ships are sunk! You took 35 turns to win. [OSLA]

58 All the ships are sunk! You took 41 turns to win. [POMDP]

59 All the ships are sunk! You took 48 turns to win. [Random]

60 All the ships are sunk! You took 43 turns to win. [OSLA]

61 All the ships are sunk! You took 41 turns to win. [POMDP]

62 All the ships are sunk! You took 43 turns to win. [Random]

63 All the ships are sunk! You took 22 turns to win. [OSLA]

64 All the ships are sunk! You took 35 turns to win. [POMDP]

65 All the ships are sunk! You took 46 turns to win. [Random]

66 All the ships are sunk! You took 38 turns to win. [OSLA]

67 All the ships are sunk! You took 26 turns to win. [POMDP]

68 All the ships are sunk! You took 47 turns to win. [Random]

69 All the ships are sunk! You took 30 turns to win. [OSLA]

70 All the ships are sunk! You took 36 turns to win. [POMDP]

71 All the ships are sunk! You took 47 turns to win. [Random]

72 All the ships are sunk! You took 38 turns to win. [OSLA]

73 All the ships are sunk! You took 36 turns to win. [POMDP]

74 All the ships are sunk! You took 45 turns to win. [Random]

75 All the ships are sunk! You took 43 turns to win. [OSLA]

76 All the ships are sunk! You took 44

76 turns to win. [POMDP]

77 All the ships are sunk! You took 48 turns to win. [Random]

78 All the ships are sunk! You took 33 turns to win. [OSLA]

79 All the ships are sunk! You took 42 turns to win. [POMDP]

80 All the ships are sunk! You took 46 turns to win. [Random]

81 All the ships are sunk! You took 25 turns to win. [OSLA]

82 All the ships are sunk! You took 34 turns to win. [POMDP]

83 All the ships are sunk! You took 45 turns to win. [Random]

84 All the ships are sunk! You took 31 turns to win. [OSLA]

85 All the ships are sunk! You took 36 turns to win. [POMDP]

86 All the ships are sunk! You took 48 turns to win. [Random]

87 All the ships are sunk! You took 26 turns to win. [OSLA]

88 All the ships are sunk! You took 31 turns to win. [POMDP]

89 All the ships are sunk! You took 48 turns to win. [Random]

90 All the ships are sunk! You took 30 turns to win. [OSLA]

91 All the ships are sunk! You took 27 turns to win. [POMDP]

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 92 All the ships are sunk! You took 46
    turns to win. [Random]
 93 All the ships are sunk! You took 27
    turns to win. [OSLA]
 94 All the ships are sunk! You took 42
    turns to win. [POMDP]
 95 All the ships are sunk! You took 41
    turns to win. [Random]
 96 All the ships are sunk! You took 23
    turns to win. [OSLA]
 97 All the ships are sunk! You took 29
    turns to win. [POMDP]
 98 All the ships are sunk! You took 45
    turns to win. [Random]
 99 All the ships are sunk! You took 33
    turns to win. [OSLA]
100 All the ships are sunk! You took 41
    turns to win. [POMDP]
101 All the ships are sunk! You took 46
    turns to win. [Random]
102 All the ships are sunk! You took 23
    turns to win. [OSLA]
103 All the ships are sunk! You took 36
    turns to win. [POMDP]
104 All the ships are sunk! You took 48
    turns to win. [Random]
105 All the ships are sunk! You took 29
    turns to win. [OSLA]
106 All the ships are sunk! You took 37
    turns to win. [POMDP]
107 All the ships are sunk! You took 46
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107 turns to win. [Random]
108 All the ships are sunk! You took 45 turns to win. [OSLA]
109 All the ships are sunk! You took 42 turns to win. [POMDP]
110 All the ships are sunk! You took 40 turns to win. [Random]
111 All the ships are sunk! You took 38 turns to win. [OSLA]
112 All the ships are sunk! You took 35 turns to win. [POMDP]
113 All the ships are sunk! You took 48 turns to win. [Random]
114 All the ships are sunk! You took 23 turns to win. [OSLA]
115 All the ships are sunk! You took 38 turns to win. [POMDP]
116 All the ships are sunk! You took 41 turns to win. [Random]
117 All the ships are sunk! You took 23 turns to win. [OSLA]
118 All the ships are sunk! You took 28 turns to win. [POMDP]
119 All the ships are sunk! You took 48 turns to win. [Random]
120 All the ships are sunk! You took 46 turns to win. [OSLA]
121 All the ships are sunk! You took 35 turns to win. [POMDP]
122 All the ships are sunk! You took 42 turns to win. [Random]

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123 All the ships are sunk! You took 22
    turns to win. [OSLA]
124 All the ships are sunk! You took 35
    turns to win. [POMDP]
125 All the ships are sunk! You took 47
    turns to win. [Random]
126 All the ships are sunk! You took 21
    turns to win. [OSLA]
127 All the ships are sunk! You took 41
    turns to win. [POMDP]
128 All the ships are sunk! You took 46
    turns to win. [Random]
129 All the ships are sunk! You took 31
    turns to win. [OSLA]
130 All the ships are sunk! You took 37
    turns to win. [POMDP]
131 All the ships are sunk! You took 42
    turns to win. [Random]
132 All the ships are sunk! You took 22
    turns to win. [OSLA]
133 All the ships are sunk! You took 41
    turns to win. [POMDP]
134 All the ships are sunk! You took 36
    turns to win. [Random]
135 All the ships are sunk! You took 38
    turns to win. [OSLA]
136 All the ships are sunk! You took 41
    turns to win. [POMDP]
137 All the ships are sunk! You took 48
    turns to win. [Random]
138 All the ships are sunk! You took 31
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138 turns to win. [OSLA]
139 All the ships are sunk! You took 31 turns to win. [POMDP]
140 All the ships are sunk! You took 48 turns to win. [Random]
141 All the ships are sunk! You took 35 turns to win. [OSLA]
142 All the ships are sunk! You took 35 turns to win. [POMDP]
143 All the ships are sunk! You took 45 turns to win. [Random]
144 All the ships are sunk! You took 45 turns to win. [OSLA]
145 All the ships are sunk! You took 39 turns to win. [POMDP]
146 All the ships are sunk! You took 46 turns to win. [Random]
147 All the ships are sunk! You took 33 turns to win. [OSLA]
148 All the ships are sunk! You took 37 turns to win. [POMDP]
149 All the ships are sunk! You took 42 turns to win. [Random]
150 All the ships are sunk! You took 39 turns to win. [OSLA]
151 All the ships are sunk! You took 35 turns to win. [POMDP]
152 All the ships are sunk! You took 48 turns to win. [Random]
153 All the ships are sunk! You took 34 turns to win. [OSLA]

154 All the ships are sunk! You took 36 turns to win. [POMDP]

155 All the ships are sunk! You took 47 turns to win. [Random]

156 All the ships are sunk! You took 29 turns to win. [OSLA]

157 All the ships are sunk! You took 32 turns to win. [POMDP]

158 All the ships are sunk! You took 48 turns to win. [Random]

159 All the ships are sunk! You took 25 turns to win. [OSLA]

160 All the ships are sunk! You took 33 turns to win. [POMDP]

161 All the ships are sunk! You took 46 turns to win. [Random]

162 All the ships are sunk! You took 38 turns to win. [OSLA]

163 All the ships are sunk! You took 36 turns to win. [POMDP]

164 All the ships are sunk! You took 46 turns to win. [Random]

165 All the ships are sunk! You took 33 turns to win. [OSLA]

166 All the ships are sunk! You took 31 turns to win. [POMDP]

167 All the ships are sunk! You took 47 turns to win. [Random]

168 All the ships are sunk! You took 30 turns to win. [OSLA]

169 All the ships are sunk! You took 42

169 turns to win. [POMDP]
170 All the ships are sunk! You took 48
    turns to win. [Random]
171 All the ships are sunk! You took 35
    turns to win. [OSLA]
172 All the ships are sunk! You took 38
    turns to win. [POMDP]
173 All the ships are sunk! You took 48
    turns to win. [Random]
174 All the ships are sunk! You took 25
    turns to win. [OSLA]
175 All the ships are sunk! You took 33
    turns to win. [POMDP]
176 All the ships are sunk! You took 47
    turns to win. [Random]
177 All the ships are sunk! You took 37
    turns to win. [OSLA]
178 All the ships are sunk! You took 39
    turns to win. [POMDP]
179 All the ships are sunk! You took 46
    turns to win. [Random]
180 All the ships are sunk! You took 27
    turns to win. [OSLA]
181 All the ships are sunk! You took 33
    turns to win. [POMDP]
182 All the ships are sunk! You took 42
    turns to win. [Random]
183 All the ships are sunk! You took 30
    turns to win. [OSLA]
184 All the ships are sunk! You took 26
    turns to win. [POMDP]

185 All the ships are sunk! You took 45 turns to win. [Random]
186 All the ships are sunk! You took 19 turns to win. [OSLA]
187 All the ships are sunk! You took 26 turns to win. [POMDP]
188 All the ships are sunk! You took 48 turns to win. [Random]
189 All the ships are sunk! You took 40 turns to win. [OSLA]
190 All the ships are sunk! You took 28 turns to win. [POMDP]
191 All the ships are sunk! You took 48 turns to win. [Random]
192 All the ships are sunk! You took 32 turns to win. [OSLA]
193 All the ships are sunk! You took 41 turns to win. [POMDP]
194 All the ships are sunk! You took 48 turns to win. [Random]
195 All the ships are sunk! You took 33 turns to win. [OSLA]
196 All the ships are sunk! You took 44 turns to win. [POMDP]
197 All the ships are sunk! You took 48 turns to win. [Random]
198 All the ships are sunk! You took 31 turns to win. [OSLA]
199 All the ships are sunk! You took 41 turns to win. [POMDP]
200 All the ships are sunk! You took 48

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200 turns to win. [Random]
201 All the ships are sunk! You took 31
    turns to win. [OSLA]
202 All the ships are sunk! You took 32
    turns to win. [POMDP]
203 All the ships are sunk! You took 43
    turns to win. [Random]
204 All the ships are sunk! You took 33
    turns to win. [OSLA]
205 All the ships are sunk! You took 33
    turns to win. [POMDP]
206 All the ships are sunk! You took 47
    turns to win. [Random]
207 All the ships are sunk! You took 35
    turns to win. [OSLA]
208 All the ships are sunk! You took 36
    turns to win. [POMDP]
209 All the ships are sunk! You took 48
    turns to win. [Random]
210 All the ships are sunk! You took 39
    turns to win. [OSLA]
211 All the ships are sunk! You took 23
    turns to win. [POMDP]
212 All the ships are sunk! You took 46
    turns to win. [Random]
213 All the ships are sunk! You took 30
    turns to win. [OSLA]
214 All the ships are sunk! You took 36
    turns to win. [POMDP]
215 All the ships are sunk! You took 41
    turns to win. [Random]
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216 All the ships are sunk! You took 37 turns to win. [OSLA]
217 All the ships are sunk! You took 36 turns to win. [POMDP]
218 All the ships are sunk! You took 47 turns to win. [Random]
219 All the ships are sunk! You took 37 turns to win. [OSLA]
220 All the ships are sunk! You took 38 turns to win. [POMDP]
221 All the ships are sunk! You took 43 turns to win. [Random]
222 All the ships are sunk! You took 33 turns to win. [OSLA]
223 All the ships are sunk! You took 34 turns to win. [POMDP]
224 All the ships are sunk! You took 48 turns to win. [Random]
225 All the ships are sunk! You took 27 turns to win. [OSLA]
226 All the ships are sunk! You took 40 turns to win. [POMDP]
227 All the ships are sunk! You took 48 turns to win. [Random]
228 All the ships are sunk! You took 38 turns to win. [OSLA]
229 All the ships are sunk! You took 45 turns to win. [POMDP]
230 All the ships are sunk! You took 45 turns to win. [Random]
231 All the ships are sunk! You took 29

231 turns to win. [OSLA]

232 All the ships are sunk! You took 27 turns to win. [POMDP]

233 All the ships are sunk! You took 48 turns to win. [Random]

234 All the ships are sunk! You took 30 turns to win. [OSLA]

235 All the ships are sunk! You took 33 turns to win. [POMDP]

236 All the ships are sunk! You took 44 turns to win. [Random]

237 All the ships are sunk! You took 23 turns to win. [OSLA]

238 All the ships are sunk! You took 37 turns to win. [POMDP]

239 All the ships are sunk! You took 47 turns to win. [Random]

240 All the ships are sunk! You took 26 turns to win. [OSLA]

241 All the ships are sunk! You took 44 turns to win. [POMDP]

242 All the ships are sunk! You took 47 turns to win. [Random]

243 All the ships are sunk! You took 30 turns to win. [OSLA]

244 All the ships are sunk! You took 34 turns to win. [POMDP]

245 All the ships are sunk! You took 48 turns to win. [Random]

246 All the ships are sunk! You took 31 turns to win. [OSLA]

247 All the ships are sunk! You took 34 turns to win. [POMDP]
248 All the ships are sunk! You took 47 turns to win. [Random]
249 All the ships are sunk! You took 26 turns to win. [OSLA]
250 All the ships are sunk! You took 32 turns to win. [POMDP]
251 All the ships are sunk! You took 44 turns to win. [Random]
252 All the ships are sunk! You took 26 turns to win. [OSLA]
253 All the ships are sunk! You took 42 turns to win. [POMDP]
254 All the ships are sunk! You took 47 turns to win. [Random]
255 All the ships are sunk! You took 26 turns to win. [OSLA]
256 All the ships are sunk! You took 38 turns to win. [POMDP]
257 All the ships are sunk! You took 41 turns to win. [Random]
258 All the ships are sunk! You took 20 turns to win. [OSLA]
259 All the ships are sunk! You took 36 turns to win. [POMDP]
260 All the ships are sunk! You took 48 turns to win. [Random]
261 All the ships are sunk! You took 33 turns to win. [OSLA]
262 All the ships are sunk! You took 25

262 turns to win. [POMDP]
263 All the ships are sunk! You took 48 turns to win. [Random]
264 All the ships are sunk! You took 23 turns to win. [OSLA]
265 All the ships are sunk! You took 32 turns to win. [POMDP]
266 All the ships are sunk! You took 40 turns to win. [Random]
267 All the ships are sunk! You took 44 turns to win. [OSLA]
268 All the ships are sunk! You took 28 turns to win. [POMDP]
269 All the ships are sunk! You took 47 turns to win. [Random]
270 All the ships are sunk! You took 24 turns to win. [OSLA]
271 All the ships are sunk! You took 40 turns to win. [POMDP]
272 All the ships are sunk! You took 42 turns to win. [Random]
273 All the ships are sunk! You took 23 turns to win. [OSLA]
274 All the ships are sunk! You took 31 turns to win. [POMDP]
275 All the ships are sunk! You took 48 turns to win. [Random]
276 All the ships are sunk! You took 29 turns to win. [OSLA]
277 All the ships are sunk! You took 34 turns to win. [POMDP]

278 All the ships are sunk! You took 41 turns to win. [Random]

279 All the ships are sunk! You took 27 turns to win. [OSLA]

280 All the ships are sunk! You took 24 turns to win. [POMDP]

281 All the ships are sunk! You took 45 turns to win. [Random]

282 All the ships are sunk! You took 31 turns to win. [OSLA]

283 All the ships are sunk! You took 38 turns to win. [POMDP]

284 All the ships are sunk! You took 48 turns to win. [Random]

285 All the ships are sunk! You took 43 turns to win. [OSLA]

286 All the ships are sunk! You took 24 turns to win. [POMDP]

287 All the ships are sunk! You took 48 turns to win. [Random]

288 All the ships are sunk! You took 29 turns to win. [OSLA]

289 All the ships are sunk! You took 22 turns to win. [POMDP]

290 All the ships are sunk! You took 48 turns to win. [Random]

291 All the ships are sunk! You took 40 turns to win. [OSLA]

292 All the ships are sunk! You took 35 turns to win. [POMDP]

293 All the ships are sunk! You took 48

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293 turns to win. [Random]
294 All the ships are sunk! You took 28
    turns to win. [OSLA]
295 All the ships are sunk! You took 40
    turns to win. [POMDP]
296 All the ships are sunk! You took 48
    turns to win. [Random]
297 All the ships are sunk! You took 46
    turns to win. [OSLA]
298 All the ships are sunk! You took 34
    turns to win. [POMDP]
299 All the ships are sunk! You took 46
    turns to win. [Random]
300 All the ships are sunk! You took 31
    turns to win. [OSLA]
301 All the ships are sunk! You took 29
    turns to win. [POMDP]
302 Average of 100 games: 45.95 turns to
    win using Random Player
303 Average of 100 games: 31.34 turns to
    win using One Step Look Ahead
304 Average of 100 games: 34.85 turns to
    win using POMDP
305
306 Process finished with exit code 0
307
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