Arcadia, Inc

Assessment Documentation

1. Original Testing Results with benchNum = 10000

`Using queue <- sample.EstimateWithRandom2(difficulty)`

avg. spent: 1.512576927s	avg. estimates count: 1094.1881

```
total questions: 4961
total questions: 5035
total questions: 4345
total questions: 4913
total questions: 4963
avg. spent: 1.512576927s avg. estimates count: 1094.1881

Process finished with the exit code 0
```

2. With my own method testing result with benchNum = 10000

`queue <- sample.Est(difficulty)`

avg. spent: 260.393µs	avg. estimates count: 5.5585

```
answer: [1 3 5 8]
total questions: 5
answer: [8 6 4 7]
total questions: 6
avg. spent: 249.256µs avg. estimates count: 5.5574

Process finished with the exit code 0
```

Conclusion:

It seems like the method is fairly effective compares to the original method.

1.5s = 1500000µs

Speed up = 1500000 / 249 µs **≈ 6024 times faster**

Given its rerunning on CPU parallelly the avg spent will differ each time it runs but the speed up rate should still be considered “very effective”

Reference:

1. Tanaka, T. (2022). *An optimal MOO strategy**. Faculty of Engineering, University of Tokyo.

   https://arxiv.org/pdf/2207.04845