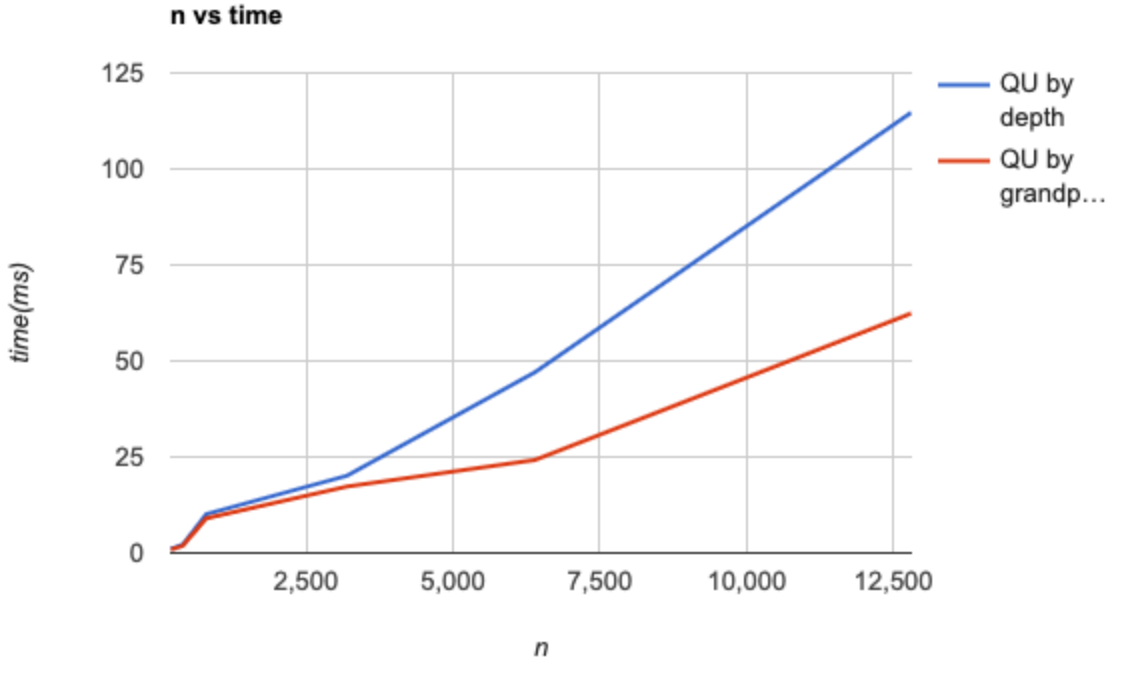
```
2020-10-13 15:51:08 INFO  Benchmark_Timer - Begin run: Weighted quick Union by
height with 10 runs
1.0813371 n=200
2020-10-13 15:51:08 INFO  Benchmark_Timer - Begin run: weighted quick union with
path compression with 10 runs
0.8826497 n=200
2020-10-13 15:51:08 INFO  Benchmark_Timer - Begin run: Weighted quick Union by
height with 10 runs
2.194549 n=400
2020-10-13 15:51:08 INFO  Benchmark_Timer - Begin run: weighted quick union with
path compression with 10 runs
1.8988451999999998 n=400
2020-10-13 15:51:08 INFO  Benchmark_Timer - Begin run: Weighted quick Union by
height with 10 runs
10.093301700000001 n=800
2020-10-13 15:51:08 INFO  Benchmark_Timer - Begin run: weighted quick union with
path compression with 10 runs
9.0293153 n=800
2020-10-13 15:51:09 INFO  Benchmark_Timer - Begin run: Weighted quick Union by
height with 10 runs
5.0375415 n=1600
2020-10-13 15:51:09 INFO  Benchmark_Timer - Begin run: weighted quick union with
path compression with 10 runs
4.8234368000000005 n=1600
2020-10-13 15:51:09 INFO  Benchmark_Timer - Begin run: Weighted quick Union by
height with 10 runs
20.1171902 n=3200
2020-10-13 15:51:09 INFO  Benchmark_Timer - Begin run: weighted quick union with
path compression with 10 runs
17.2896958 n=3200
2020-10-13 15:51:09 INFO  Benchmark_Timer - Begin run: Weighted quick Union by
height with 10 runs
47.1153403 n=6400
2020-10-13 15:51:10 INFO  Benchmark_Timer - Begin run: weighted quick union with
path compression with 10 runs
24.2407447 n=6400
2020-10-13 15:51:10 INFO  Benchmark_Timer - Begin run: Weighted quick Union by
height with 10 runs
114.68501309999999 n=12800
2020-10-13 15:51:11 INFO  Benchmark_Timer - Begin run: weighted quick union with
path compression with 10 runs
62.342686300000004 n=12800
```

Observation:-
The weighted quick union, store the depth(not compress) take more time for random pairs to unite as compare to weighted quick union with path compression(using grandparent method as directed by proffessor) when we examined using benchmarking. The shape of both graph are almost same.


n vs time
125
100
75
50
25
0
time(ms)
2,500
5,000
7,500
10,000
12,500
n
QU by depth
QU by grandp…