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## INFO 6205 Program Structure & Algorithms

### Spring 2021

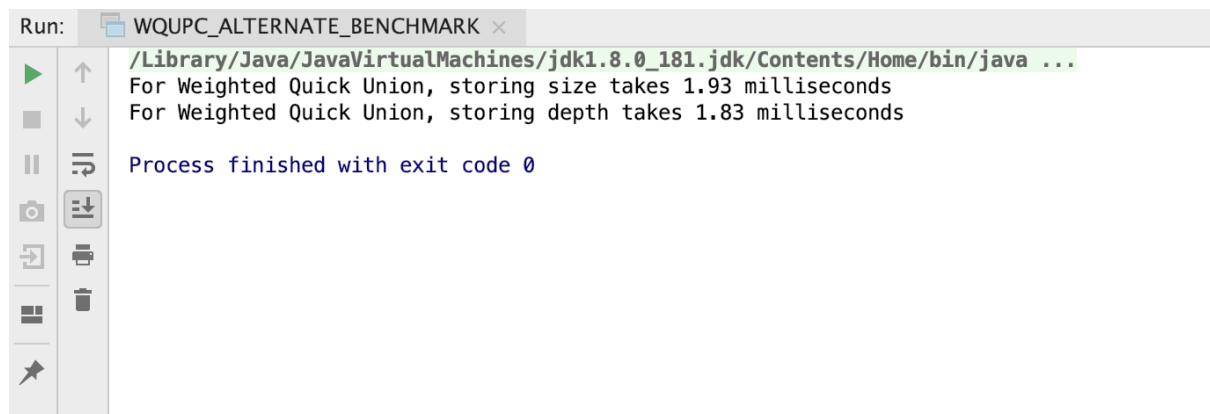
### Assignment 4

#### Task 1:

For weighted quick union, store the depth rather than the size. If you can explain why alternative #1 is unnecessary to be benchmarked, you may skip benchmarking that one.

#### Output:

It is unnecessary to benchmark weighted unions by depth because the running time for both by size and depth are **approximately the same**. So storing by depth doesn't help in reducing run time.



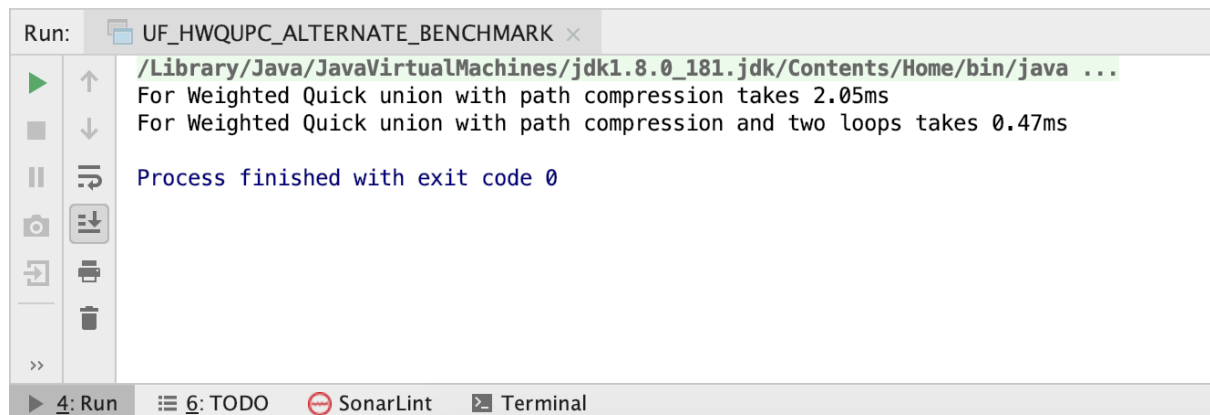
```
Run: WQUPC_ALTERNATE_BENCHMARK x
/Library/Java/JavaVirtualMachines/jdk1.8.0_181.jdk/Contents/Home/bin/java ...
For Weighted Quick Union, storing size takes 1.93 milliseconds
For Weighted Quick Union, storing depth takes 1.83 milliseconds
Process finished with exit code 0
```

#### 1.1 Benchmark Results

#### Task 2:

For weighted quick union with path compression, do two loops, so that all intermediate nodes point to the root, not just the alternates.

#### Output:



```
Run: UF_HWQUPC_ALTERNATE_BENCHMARK x
/Library/Java/JavaVirtualMachines/jdk1.8.0_181.jdk/Contents/Home/bin/java ...
For Weighted Quick union with path compression takes 2.05ms
For Weighted Quick union with path compression and two loops takes 0.47ms
Process finished with exit code 0
```

4: Run 6: TODO SonarLint Terminal

#### 2.1 Benchmark Results