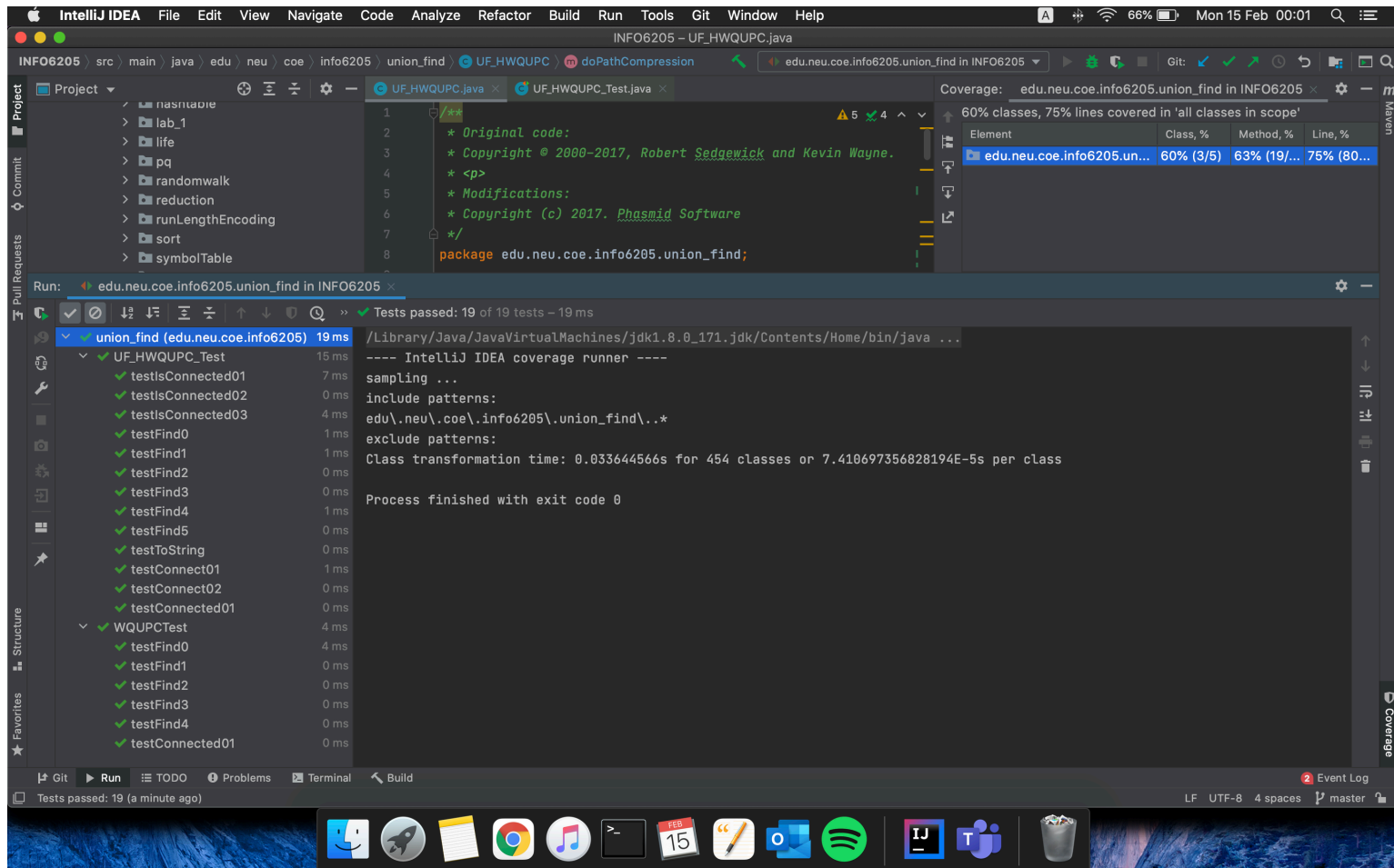


Assignment 3

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Test Cases Screenshot:



19/19 test cases passed

The screenshot shows the IntelliJ IDEA IDE with the following components:

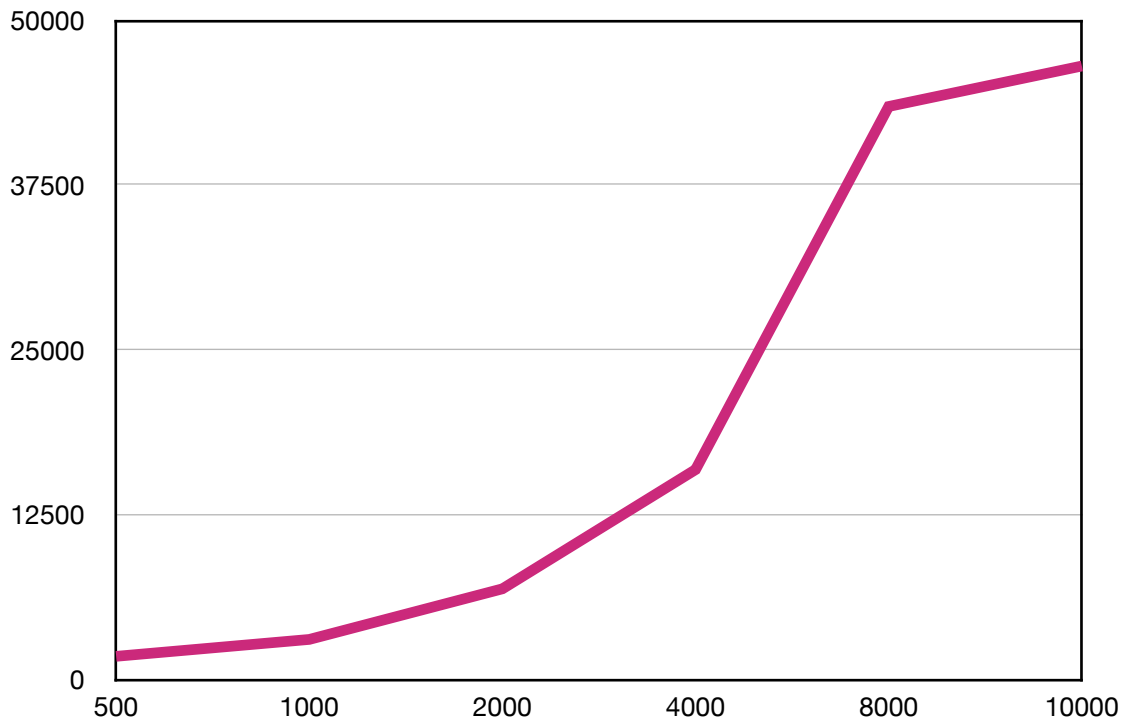
- Top Bar:** IntelliJ IDEA, File, Edit, View, Navigate, Code, Analyze, Refactor, Build, Run, Tools, Git, Window, Help.
- Project View (Left):**
 - Project: union_find
 - 50% classes, 61% lines covered
 - Client: 0% methods, 0% lines covered
 - Connections
 - TypedUF
 - TypedUF: HWQUPC: 0% methods, 0% lines covered
- Run View (Bottom):**
 - Run: Client
 - Path: /Library/Java/JavaVirtualMachines/jdk1.8.0_171.jdk/Contents/Home/bin/java ...
 - IntelliJ IDEA coverage runner
 - sampling ...
 - include patterns: edu\neu\coe\info6205\union_find\...
 - exclude patterns:
 - Please input the size of sites: 500
 - the number of pairs is: 1721
 - the number of connections happening is: 1717
 - Please input the size of sites: 1000
 - the number of pairs is: 3004
 - the number of connections happening is: 3001
 - Please input the size of sites: 2000
 - the number of pairs is: 6847
 - the number of connections happening is: 6840
 - Please input the size of sites: 4000
 - the number of pairs is: 15898
 - the number of connections happening is: 15897
 - Please input the size of sites: 8000
 - the number of pairs is: 43468
 - the number of connections happening is: 43462
 - Please input the size of sites: 10000
 - the number of pairs is: 46540
 - the number of connections happening is: 46532
 - Class transformation time: 0.018406425s for 213 classes or 8.641514084507042E-5s per class
 - Process finished with exit code 0
- Bottom Bar:**
 - Git, Run, TODO, Problems, Terminal, Build
 - All files are up-to-date (a minute ago)
 - Event Log: 24:21, main
- Mac OS Taskbar (Bottom):**
 - Applications: Finder, Spotlight, Notes, Chrome, Music, Terminal, Calendar (Feb 15), Messages, WhatsApp, Microsoft Teams, Spotify, IntelliJ IDEA, Visual Studio Code, Trash.

Executed file Client.java

Conclusion:

Number of objects (m) is directly proportional to number of pairs (n).

$$m = n/2 \log n$$



Number of Objects	Number of pairs generated
500	1721
1000	3004
2000	6847
4000	15898
8000	43448
10000	46540

Values from my code execution