

Group Collaboration Summary

Week 1

Group: PST Late Evenings and Weekends

Members:

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Assigned Worksheet(s): 9, 10

Secretary: Jason Loomis

Session 1: Wednesday 4/2/13, approx. 7pm to 8pm

Attendees: Jason Loomis, Seth Endriss-Dygert, Jason Hsu

A video meeting was initiated and Seth, Jason, and Jason were able to converse (albeit a bit haltingly, at least from the secretary's perspective). Additionally, headphones proved an effective tool to combat feedback that becomes excessive and distracting in a meeting with more than two participants.

Meet and greet. We established that Jason Hsu and Jason Loomis are from Los Angeles; Seth is from Seattle.

Upload the worksheets using Document Share.

Spend time familiarizing ourselves with functionality of the Document Share. Established that we are able to collaboratively edit the uploaded document with freehand drawing tools, and type text. Also understand that we can manipulate a single page (zoom in or out, scroll) individually, but changing pages changes the page everyone sees.

Discussed how to identify the team members working on the sheet (since several who had signed up for the group were not yet present). Resolved that it was not yet important since these worksheets were not going to be turned in this week.

Started with Worksheet 9.

Examination of the table of common big-O functions, then proceed with filling in the running times of the functions listed in the table at the bottom of page 1.

Established that the big-O running time function is (simply) found by dropping the smallest of the N terms (i.e. based on the descending order provided in the table at the top of page 1).

First row reduces to $O(n^3)$

Second row must be expanded, then find it to reduce to $O(n \log n)$

Third row is a summation of N's ($1 + 2 + 3 + \dots + N-1 + N$), and thus reduces to $O(n)$

Fourth row squared term can be reduced to log multiplied by a constant, so the N term dominates and the running time is reduced to $O(n)$

Fifth row needs to be expanded and then reduces to $O(n \log n)$

Sixth row is dominated by the factorial, reduces to $O(n!)$

Seventh row is dominated by the exponential term, reduces to $O(2^n)$

Eighth row must be expanded, then the sqrt term dominates, reducing to $O(n \sqrt{n})$

Page 2.

For loops analyzed by inspecting the incrementing of the iterator.

Determine the running time big-O function for each component loop; if the loops are sequential, add the functions, if they are nested, multiply them.

First row: $\log(n) + \sqrt{n}$; \sqrt{n} dominates $\rightarrow O(\sqrt{n})$

Second row: $n \cdot (\log n + n)$, expands to $n \log n + n^2$; n^2 dominates $\rightarrow O(n^2)$

Third row: $n + \sqrt{n}$; n dominates $\rightarrow O(n)$

Fourth row: $n + n \rightarrow O(n)$

Fifth row: $\sqrt{2n} + 5n$; n dominates $\rightarrow O(n)$

Discussion concludes that this worksheet is complete.

Started Worksheet 10.

Use the function running times given in the table on page 1 and apply them to the problems on page 2.

Problem 1 uses the countOccurrences algorithm with $O(n)$, given $N = 7000$ and solve for $N = 43000$. Take a ratio of $7000/45 = 43000/x$ and solve for x .

Problem 2 uses the matMult algorithm with $O(n^3)$, given $N = 17$ and solve for $N = 51$. Take the ratio of $17^3/51^3 = 33/x$ and solve for x .

Problem 3 uses the printPrimes algorithm with $O(n \sqrt{n})$.

Discussion of whether to include the isPrime algorithm as well. Concluded that the \sqrt{n} in the running time of printPrimes is likely from use of an algorithm like isPrime, and thus it is probably already included. Further discussion of the appropriate N--possibilities include $N = 10000$, $N = 10000-2$, and $N = 10000-1$ (to exclude 1). Jason Loomis argued for $N = 10000-1$ and the others accepted that. Calculated as the ratio of $9999 \cdot \sqrt{9999} / 159999 \cdot \sqrt{159999} = 92/x$ and solve for x .

Discussion of whether the specific choice of N (per the above) makes a difference--using 9998 and 159998 proved only a miniscule change in the answer.

Discussion concludes that this worksheet is complete.

Discussion of how to include the group members who were not part of this meeting. Jason Loomis will contact them by email and try to set up an additional meeting for Friday evening or Saturday morning.

Seth posted the "whiteboard snapshot" document of the filled-in worksheets to the Blackboard group file exchange.

Session 2: Friday 4/4/13, approx. 7pm to 8pm

Attendees: Jason Loomis, Matt Boal, Jon Patterson, Grayson Langford

Started a video meeting between Jason and Matt.

Meet and greet between Jason and Matt. Discussed prior courses taken in the program. Matt has taken 161, 162, and 225; Jason has taken those and 494. Both are just taking 261 this quarter. Matt is from Portland; Jason is from Los Angeles (Redondo Beach). Matt's wife will be having a baby very soon (Congratulations, Matt!).

Went over what was done in the prior meeting (see above).

Matt spent time familiarizing himself with functionality of YuJa and the Document Share. Established that we are able to collaboratively edit the uploaded document with freehand drawing tools, and type text. Also understand that we can manipulate a single page (zoom in or out, scroll) individually, but changing pages changes the page everyone sees.

Jon and Grayson joined the meeting. Meet and greet; headphones advised.

Spent time discussing the worksheets (similar discussion to session 1, omitted here for brevity).

Discussion of when we would meet next. Established Tuesday at 7pm. Everyone in this session would be home from work, etc. and available then.