Hi all,

Attached is the slides for Tutorial 5.

For Midterm Qn 4d, I believe the picture I sent 2 weeks ago is still relevant. Note that C++ std::deque uses vector of vectors. If you know the size of your queue, you don't need to use std::deque but instead you could use a circular queue using a fixed size array. Because you save time and space from resizing if you were to use std::deque, the fixed size array would be a better choice here.

For Qn 4b, here is StackOverflow on memory leaks: <https://stackoverflow.com/questions/18486596/what-happens-if-i-dont-free-delete-dynamically-allocated-arrays>

As always, you can always ask questions or provide feedback about Tutorial pace/content/teaching anywhere, preferably discord, but this Google forms is also available: <https://forms.gle/kKkRoHnnMqk6mEHn7>

Hi all,

If you happen to have Python installed, you can run the attached file for some hash function visualisations to see the distributions, including for some functions weren't covered in tutorial. In order, they are:

1. mod 41 hash [small nums]
2. floor of sqrt hash [small nums] (tut qn 3 part 2)
3. Knuth hash [small nums]
4. floor of sqrt hash [big nums] (tut qn 3 part 2)
5. Knuth hash [big nums]
6. Robert Jenkins hash [big nums]
7. 1 letter hash [string] (tut qn 2 part 2)
8. addition hash [string]
9. rolling 26 hash [string] (tut qn 2 part 3)

You can also try to run the C++ file demonstrating a bad hash function.

Hope it helps! Thanks.