**Data Structures - Presentation**

* **Which data structure(s) did you use for part 1? Why did you select these data structures?**

I used a Hash-Map to store the food types data, with the key value pair (1st letter of the cuisine, LinkedList of relevant cuisines). For example, in the HashMap, for key = ‘c’ for the LinkedList containing food types ‘cafe’, ‘czech’ and ‘chinese’.

I chose this method as it would allow me to group cuisines on a single letter.

* **What is the runtime (in asymptotic notation) of searching for a food type? Do you think there is a more efficient runtime?**

O(1) + O(N) = O(N). There is most likely a more efficient runtime.

* **Which data structures did you use for part 2? Why did you select these data structures?**

In order to store the restaurant data, I used a LinkedList of LinkedLists. All restaurants within a single food type are contained within a ‘restaurant LinkedList’, then all restaurant LinkedLists are contained within a master ‘food LinkedList’.

I chose this method as it allows all restaurants for a single cuisine type to be stored within one ‘object’ (linked list).

* **What is the runtime (in asymptotic notation) of retrieving the restaurant data? Do you think there is a more efficient runtime?**

O(NM), where N is the number of restaurants and M is the number of food types. There is most likely a more efficient runtime.

* **Outside of this project, what are other innovative ways you can utilize data structures?**

→ Using Stacks to store notifications on a social media site

→ Using Tries for autocomplete and spellchecking tools

→ Using Hashmaps to retrieve movies by genres on streaming sites