📖 Reciation9.md.txt

Recitation9-591Fall2021

- Reciation git repo: https://github.com/jintongwu/Recitation9-591Fall2021.git

Topics Recap

1. HashMap

- Concepts
  - Key -> Value Mapping/Look-up Table
  - Hashing == Fast Operation == Less Time Resources == Useful in Computing
- Operations
  - put(key, value)
  - putIfAbsent(key, value)
  - get(key)
  - getOrDefault(key)
  - containsKey(key)
  - remove(key)
  - keySet()
- Application
  - Counter, Memoization, fast look-up of key->value

2. HashSet

- Concepts
  - a set of value -> no repeating
  - again, Hashing == Fast Operation == Less Time Resources == Useful in Computing
- Operations
  - add(element) -> return boolean
  - remove(element) -> return boolean
  - contains(element) -> return boolean
  - size() -> return int
  - return value can be useful

3. Recursion

- Concepts
  - A function that calls itself repeatedly
  - A recursive algorithm is an algorithm that breaks the problem into smaller subproblems and applies the same algorithm to solve the smaller subproblems.
  - The base case is the case where a recursive algorithm actually does some final work--grading the one exam in the previous case.
- Rule of Thumb to appproach a problem recursively
  - Think about how the problem can be break into smaller problems
  - Always think about the base case

Recap Example

In RecapExample.java, there are 3 inner classes that are waiting to be implemented. We will be going through these examples during recitation.

1. Use HashMap to implement a counter
2. Subway Fare table stored in HashMap
3. Student Grades: HashMap of HashMaps

Recitation Problem Set

Complete either Q1-Q5 *or* Q6-Q7 in Rec9ProblemSet.java.

1. Print all entries in HashMap
2. Find repeated character in a String (use HashMap)
3. Find repeated character in a String (use HashSet)
4. Find mode in an array of numbers (use HashMap)
5. Fibonacci number generator (use Recursion)
6. Two-Sum (Use HashMap)
7. Check Panlindrome

What to Submit?

Copy and paste your code into gradscopes.

Note: Q6 and Q7 are optional questions that are slightly harder than Q1-Q5. If you decide to work on Q6 and Q7, you don't need to finish Q1-Q5 to get points for recitation.

Group Assignment

Group #	Member 1	Member 2	Member 3	Member 4
Group 1	Wang, Liujia	He, Donglun	Mammadov, Elmar	Zhang, Han
Group 2	Yiu, Hon-Cheung	Cheema, Sardar Asfandy	Chou, Randy	Carnation, Kayla Rae
Group 3	Yu, Qingyu	Wang, Yuanqi	Arguello-Gonzalez, Marcos Abraham	Kong, Rachel
Group 4	Hu, Yuxin	Lai, Qimei	Zhang, Miaoyan	Nguyen, Tai D
Group 5	Qiu, Chengzhuo	Wu, Jeng-Ru	Cai, Jialin	Tims, George
Group 6	Sheng, Xinyue	Pinheiro, Benjamin B	Wang, Kehan	Nojoomi, Radin
Group 7	Chen, Zheyi	Wang, An-Jie	Zhang, Zhihui	Liu, Xinyue
Group 8	Xue, Mingxin	Zhang, Yihong	Cho, Suebin Grace	Schnall, Aaron Hewitt
Group 9	Richmond, Christian	Xiao, Zijian	Bales, Elijah	Biscaro, Denise
Group 10	Sha, Yumeng	Kallas Jatene, Rafael	Patel, Siddharth Bhagwanji	Graham, Alexander Richard

Group #	Member 1	Member 2	Member 3	Member 4
Group 11	Huang, Wenyi	Jiang, Yao	Choi, Jae Ho	Pizzico, Tyler R
Group 12	Qiu, Xi	Zhang, Yang	Gallagher, John Manus	Li, Yunhe
Group 13	Lee, Jaeyoung	Cruz, Marye I	Chheda, Shagun Pritesh	Rigas, Andrew
Group 14	Lim, Xi Zhen	Liu, Shufan	Pace, Benjamin Michael	Ng, Wai Chung
Group 15	Williams, Levester Randall	Kim, Yunchae	Chen, Xiyue	Liu, Jiayun
Group 16	Guo, Zhaosen	He, Ziyi	Ren, Yue	Bernat, Kevin Bruno
Group 17	Sabri, Rita	Ye, Huifang	Hu, Lucy Qian	Zhang, Minzheng
Group 18	Shah, Rushabh	Thenappan, Bala Sundar	Kung, Ling-Hsin	Patel, Rishi