Object-Oriented Programming

Lab session #5

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I. References of Collections Framework in Java

Besides the lecture slides, you can learn more about collections in Java here:

- https://www.javatpoint.com/collections-in-java
- https://viblo.asia/p/tong-quan-ve-collections-trong-java-maGK7E0Dlj2
- https://docs.oracle.com/javase/8/docs/technotes/guides/collections/overview.html

II. Exercises

This week, we have learnt about different prebuilt data structures in Collections Framework in Java.

The best way to practice and test your Java skills to use those data structures is to solve practical problems on HackerRank website. It is the market-leading technical assessment and remote interview solution for hiring developers.

Usually, the first round of interviews for the developer position of Vietnamese companies is to solve problems on HackerRank. The more you are used to HackerRank, The higher chance you pass this first round. So let's get into it!

Here is a quick video how to use HackerRank:
https://www.youtube.com/watch?v=9CpvWF41WrQ

Here are some FAQ of HackerRank:
https://www.hackerrank.com/faq

"Confidence comes with practice"

Your task: Try to complete these below questions, submit your code and pass all hidden test cases to achieve full marks of all questions!

Remember to select your language to be Java 7 or 8!

All provided questions 0 are there to help you learn how to code Java on the HackerRank website.

Question 0.a (Print):
https://www.hackerrank.com/challenges/welcome-to-java/problem?isFullScreen=true

Question 0.b (Scanner and Print):
https://www.hackerrank.com/challenges/java-stdin-and-stdout-1/problem?isFullScreen=true

Question 0.c (If-Else):
https://www.hackerrank.com/challenges/java-if-else/problem?isFullScreen=true

Question 0.d (Loop):
https://www.hackerrank.com/challenges/java-loops-i/problem?isFullScreen=true

Question 0.e (Convert Int to String):
https://www.hackerrank.com/challenges/java-int-to-string/problem?isFullScreen=true

Question 0.f (1D Array):
https://www.hackerrank.com/challenges/java-1d-array-introduction/problem?isFullScreen=true

Question 0.g - Optional (Inheritance)
https://www.hackerrank.com/challenges/java-inheritance-1/problem?isFullScreen=true

Question 0.h - Optional (Abstract)
https://www.hackerrank.com/challenges/java-abstract-class/problem?isFullScreen=true

Question 0.i - Optional (Interface)
https://www.hackerrank.com/challenges/java-interface/problem?isFullScreen=true

That's enough practice! Now let's do these questions below to practice Collections (List, Map, Set,...) Framework in Java!

Question 1 (ArrayList):
https://www.hackerrank.com/challenges/java-list/problem?isFullScreen=true

Question 2 (Map):
https://www.hackerrank.com/challenges/phone-book/problem?isFullScreen=true

Question 3 (HashSet):
https://www.hackerrank.com/challenges/java-hashset/problem?isFullScreen=true

Question 4 (Iterator):
https://www.hackerrank.com/challenges/java-iterator/problem?isFullScreen=true

Question 5 (Map):
https://www.hackerrank.com/challenges/ctci-ransom-note/problem?isFullScreen=true

To submit your lab, you just copy all of your solutions to java files with the screenshots of your leaderboard ranking for each question. So the zip file contains *.java files for each question and screenshots.

Bonus Questions - Optional:

If you are truly determined to prepare for the coding interview to find jobs once you are graduated then take your time (a few months) to complete these challenges:
- https://www.hackerrank.com/domains/tutorials/30-days-of-code (practice a coding question every day for a month from easy to hard)
- https://www.hackerrank.com/interview/interview-preparation-kit (these are real interview questions to practice based on topics, so choose topics you have learnt in class to practice them)
- Here is the some of the real interview questions I collected from my students who went for interviews for some of the companies in Vietnam for you to practice them:
    - https://drive.google.com/drive/folders/1R91ben5G5jNNGZd1tsHhbINP3XLKaCMu?usp=sharing

"Patient while learning"