CS390 FPP - QUIZ – 3 & FINAL EXAM REVIEW

Both Quiz and Final exam will be In-person only.

Location V17

Quiz – 3 – Review – 6/14/2022 – Tuesday @ 10.15 am

Lessons focus for the Quiz-3

Lesson - 8 - Lists
Lesson – 9 - Stack and Queue
Lesson – 11 – Hash Table
Lesson – 12 – Exception Handling

Refer Quiz-3-Review Video Link:
https://mum0.sharepoint.com/sites/CS390-2022-06A-06DRM/Shared%20Documents/VideoSessions/Recordings/CS390-Lab-12%20Discussion%20and%20Quiz-3%20Reviw-20220611_114047-Meeting%20Recording.mp4?web=1

Quiz – 3 Consists of the following parts

1. Write True or False for the given statements.
2. Collection framework and Map interface hierarchy images. Find this images in Lesson-8-Slide-4. You should know the purpose each Interface and the class.
3. Able to know the Hierarchy of checked, unchecked and Error class.
4. Stack, Queue operations for the Input data. Able to know how Stack, Queue API Works.

   Example: If we first push `itemA` onto a stack and then push `itemB`, then pop the element.What is the Top item of the Stack. (**Answer : `itemA`**)

   Stack API methods : push,pop and peek

   Queue API methods : add/offer, remove/poll, peek/element
5. Question and Answers.

   In this part your answer will be Yes / No or just fill out the answers from the given clues. Refer:

   https://sakai.cs.miu.edu/access/content/group/db753b70-c9f9-4de7-9220-297ce59532b3/ExamReview/Collection%20classes%20and%20its%20characteristics.pdf

a. Difference, similarities between the concepts like
    i. ArrayList vs LinkedList
    ii. Array vs ArrayList
    iii. Set vs List
    iv. HashMap vs Hashtable

6. Importance of Overriding equals and hashcode.
7. Able to identify the suitable exceptions from the given code. You will get clues for the Exceptions.

Example :

```
public static void main(String[] args) {
        int a=10, b=0;
        int arr[] = null;
        int vals[] = { 1, 2, 3 };
        int result = a / b;
        int k = a / arr[0];
        System.out.println(vals[4]);
    }
```

Answer : This code has ArithmeticException, NullPointerException and ArrayIndexOutOfBoundsException.

Extra Credit (4%) – There will be some extra question helps to boost your score.

Final Exam Review

Lessons focus for the Examination

Lesson – 8 – Lists

Lesson – 9 - Stack and Queue

Lesson – 11 – Hash Table

Lesson – 12 – Exception Handling

Course Resources : www.online.cs.miu.edu

Reading Resources : Lecture PPT, Demo Code and Homework Solutions

Recorded Final Review Video Link: https://mum0.sharepoint.com/sites/CS390-2022-06A-06DRM/Shared%20Documents/VideoSessions/Recordings/CS390-Final%20Exam%20Review-20220613_105538-Meeting%20Recording.mp4?web=1

Important points for the FPP Exam

1. The Final Exam will be held on 6/16/2022 – Thursday 9.45 AM to 12 noon.
2. Examination should be closed book.
3. Bring Pencil/Pen, Eraser and necessary things. You are responsible to keep your writing desk neat and clean. [Use waste paper to keep the pencil sharpened dust] and arrange the chairs before leaving.
4. Mobile should be in Airplane or Swich off mode. You are not allowed to keep the mobile. So bring backpack to keep your belongings. Keep the backpack infront of the dias.
5. Necessary hints, Syntax and API will be given in the question paper itself if needed.
6. The Final exam contains only programming parts. There will be four programs from the given below lessons.
7. You have validate the inputs to avoid any runtime errors. Apply Exeption handling knowledge on your Exam problems.

Lesson – 8 – Lists – (Program 1 & Program 2)

1. Practice user defined Implementation & behavior of
    a. LinkedList [Doubly Linked List] – (DemoCode\lesson8-lists\ list\MyStringDLinkedList.java, and your homework Prob-4 belongs to Linked List). Able to perform addFirst(), addLast(), deleteFirst(),deleteLast(), isEmpty(), find() and size() and printList().
    b. ArrayList User Implementation:
    Refer : DemoCode\lesson8-lists\list\MyStringList.java

Lesson – 9 – Stack and Queue (Program – 3) .

a. User defined Stack using array implementation.(DemoCode\ lesson9-Stack-Queue\stack\ArrayStackDemo.java)
b. User defined Queue using LinkedList and Array (DemoCode\ lesson9-Stack-Queue\queue\LinkedQueueDemo.java, Homework Problem-1)

Lesson – 11 – Hash Table (Prepare only API) – (Program 4)

a) Able to work with HashTable and HashMap API. **No user implementation questions for Hash Table concept.**

b) Understand the importance of Overriding equals() and hashCode()

Refer : The below packages from the Demo and your homework solutions

Root path : Resources\DemoCode\

- lesson11\LoopThroughHashTableDemo
- Homework Problems
- lesson11\api\Employee.java

Able to work with the Hash API's collection and perform few unimplemented methods as per the requirements. To perform this task able to know how to process the collections.

Lesson – 12 – Exception Handling

As a good programmer need to know what kind of exception in the given code and efficiently handle those exceptions. So practice programs to handle the following exceptions and make use of it for the above Lesson-8-Lesson-11 problems. Practice how to handle exception using try catch as well as how to use throw and throws.

- NullPointerException
- ArrayIndexOutOfBoundsException
- NoSuchElementException
- EmptyStackException
- User Defined Exceptions

  Refer : DemoCode\ Lesson12 \userexception\