CS 111 Lab 11: Hashmaps

20 points

Goal: Test your understanding of Hash Maps and your ability to use them

Send lab questions to Shivam - ss00132@mix.wvu.edu

In this lab you have to implement a HashMap that is backed by an ArrayList

HashMap use a Key and Value allowing you to store a value using a key to be able to get the value later using the same key. In this HashMap the key could be any class (Integer, Strings, Stocks) but you use the .hashCode method on these classes to compute where the value for this key lies. An ArrayList stores all the values for the HashMap, the key for a value is transformed to an index of the ArrayList by getting the hashCode of the key then using modulo arithmetic to calculate where the value is stored in the ArrayList. See the getIndex method to see how it's done.

Note – since we are using a HashMap, only one of each item is possible to add, no duplicates

To create a HashMap in java:

```
Map<Key, Value> myHashMap = new HashMap<>();
```

Methods to implement

containsKey(Key)

containsValue(Object arg0)

put(Key, Value)

get(Key)

remove(Key)

For a description of what each method has to do visit here:

https://docs.oracle.com/javase/8/docs/api/java/util/Map.html#containsKey-java.lang.Object-

Additional requirements:

- Name included at the top of your code
- Clean readable and commented code