Short Project 8

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File Names: Cuckoo.java

Part1.java

Part2.java

Timer.java

Package name: aps180006

Open Intellij IDE

1. Create a Java Project

2. Unzip the uploaded folder

3. Right click src folder and add files Cuckoo.java,Part1.java,Part2.java and Timer.java from the unzipped folder

4. Run Part1.java file by clicking on Run Button for Part1 of the question.

5. Run Part2.java file by clicking on Run button for Part2 of the question.

Steps for Execution :

Part1.java

1=> Add the element to the Cuckoo Hashtable

2=> Remove the element from the Cuckoo Hashtable

3=> Check whether the element is in Cuckkoo Hashtable

4=> Print totally 3 HashTables – 2 Cuckoo Hashtable and secondary java hashset.

When Part2.java is run for **10 million numbers** it gives the below results for different load factors.

The results can be found in the following table.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Load factor | Cuckko HashMap  (time in msec) | | | Java HashMap  (time in msec) | | |
|  | Add  operation | Remove  operation | Contains  operation | Add  operation | Remove  operation | Contains  operation |
| 0.5 | 5512 msec.  Memory: 522 MB / 667 MB | 1702 msec.  Memory: 465 MB / 732 MB. | 541 msec.  Memory: 468 MB / 733 MB. | 3485 msec.  Memory: 474 MB / 841 MB. | 856 msec.  Memory: 387 MB / 881 MB. | 369 msec.  Memory: 271 MB / 882 MB |
| 0.75 | 4598 msec.  Memory: 514 MB / 636 MB. | 1183 msec.  Memory: 524 MB / 695 MB. | 528 msec.  Memory: 453 MB / 707 MB. | 3517 msec.  Memory: 410 MB / 839 MB. | 746 msec.  Memory: 301 MB / 839 MB. | 267 msec.  Memory: 297 MB / 856 MB. |
| 0.9 | 4876 msec.  Memory: 459 MB / 653 MB. | 1284 msec.  Memory: 477 MB / 723 MB. | 566 msec.  Memory: 508 MB / 723 MB | 4147 msec.  Memory: 426 MB / 892 MB. | 844 msec.  Memory: 525 MB / 921 MB. | 317 msec.  Memory: 439 MB / 921 MB. |