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CS 4370 – Databases Project 2
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Programmer Write-Up

For this project I implemented the ExtHashMap class, which is an extendible hash map. I also debugged and unit tested all the methods in the class. This class takes in two classes and an integer as parameters. The two classes are respectively the classes of the Keys and Values to be stored. The integer sets the number of initial buckets to be used. The buckets have 4 slots to store data in. The set method returns a Set object containing a full list of all key and value pairs from all buckets. The get method takes a key and returns the associated value, by accessing the bucket entry in the directory at the address of the hashed key. The put method inserts a key and value pair into the hash table. If the bucket it hashes to is full, then it splits that bucket using the splitBucket method. The splitBucket method takes in a bucket object to split, and checks the depth of that bucket. If the local depth of the bucket is equal to the global depth, then the directory is doubled and remapped to the correct buckets since one has been added. Otherwise, it simply remaps the directory to the set of buckets after the new bucket is added. Then it iterates through entries in the bucket and puts them in the new correct bucket. There is a main method included which tests the hashmap by adding 60 key/value pairs, and then attempting to access the values of each key added by searching the created hashmap.