

Spring 2020 CPSC 535-01 14111

ADVANCED ALGORITHMS

PROGRAMMING ASSIGNMENT 2

GROUP MEMBERS

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📖 README.md

Project2-CPSC535

ChoosingHashFct

Group members:

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Pseudocodes for the project :

1)Pseudocode for the hashing code:

- 1) Create 7 hash functions based on first digit to last digit of barcode.
- 2) Create a function add item to assign data (item colour, item shape, item brand, barcode).Add all the data from incoming text file to 7 hash tables HT1 to HT7.
- 3) Create a function to remove an item on the basis of barcode from hash tables HT1 to HT7.
- 4) Create a function best hashing which will return the index of best hashing based on below logic.
 - A) Iterate 10 buckets (bucket 0 to bucket 9) .and assign hash table bucket size for each index.
 - B) Calculate the minimum and maximum and assign into balance array.
 - C) Repeat a and b 7 times so that balance [0] ->balance[7] updated with difference between maxloc and minloc.
 - d) Calculate the index of least balance and return it .
- 5) Step 4 will provide the best hashing functionality at the end of the program.

Steps to run the file

- 1)Download the project from Github.
- 2)Run the main.cpp file using any IDE or command prompt. This will give the desired result as mentioned below in the below screenshot.
- 3)Please reach out to us in case of any issues.

Snapshots of the results

```
% clang++-7 -pthread -std=c++17 -o main ItemCollection.cpp main.cpp
% ./main
[PASSED] hashfct1(1234567): Expected and received: 1
[PASSED] hashfct2(1234567): Expected and received: 2
[PASSED] hashfct3(1234567): Expected and received: 3
[PASSED] hashfct4(1234567): Expected and received: 4
[PASSED] hashfct5(1234567): Expected and received: 5
[PASSED] hashfct6(1234567): Expected and received: 6
[PASSED] hashfct7(1234567): Expected and received: 7
[PASSED] hashfct1(6789012): Expected and received: 6
[PASSED] hashfct2(6789012): Expected and received: 7
[PASSED] hashfct3(6789012): Expected and received: 8
[PASSED] hashfct4(6789012): Expected and received: 9
[PASSED] hashfct5(6789012): Expected and received: 0
[PASSED] hashfct6(6789012): Expected and received: 1
[PASSED] hashfct7(6789012): Expected and received: 2
[PASSED] size after adding two bows: Expected and received: 2
Successfully opened file in1.txt
[PASSED] size after reading in1.txt: Expected and received: 18
[PASSED] bestHashing() for in1.txt: Expected and received: 2
Successfully opened file in2.txt
[PASSED] size after reading in2.txt: Expected and received: 36
[PASSED] bestHashing() for in2.txt: Expected and received: 3
[PASSED] size after removing 8890123: Expected and received: 35
[PASSED] bestHashing() after removing 8890123: Expected and received: 4
exit status 1
% █
```