BIRZEIT UNIVERSITY

Department of Computer Science

COMP2421 (Fall2021/2022)

Project #3

Due date 19/12/2021 @ 11:59PM

You are required to build a simple dictionary. Your program should read the words and its relevant meaning from a file named *dictionary.txt*. As well as, the user should be able also to enter new words into the dictionary with their relevant meaning. **Example: 26. Assist: help**

To keep track of the dictionary, a computer program based on a **Hash Table** data structure should be implemented.

Write a program to help creating the dictionary by implementing the following operations:

- Read *dictionary.txt* file and create the dictionary. ***Hint:*** You can assume each line has one word with its meaning
- Search for a word and display its meaning.
- Update the meaning of an existing word.
- Insert a new word from the user with its meaning.
- Print all words in the dictionary with their associated meanings.
- Print the entire hash table including the empty slots.
- Delete a word from the dictionary.
- Print the number of occupied slots, hash table size and the load factor.
- Save all words back in file *dictionary_modified.txt*.

Requirements:

1- For collision resolution, use two different methods from open addressing. You should be able to compare and explain the difference between them in terms of *number of collisions* occurred. So, give the user the option to choose which method.

2- If the load factor becomes larger than 65%, your program should perform a rehashing process.

Bonus of 5 Points: if you search and implement another method for collision resolution provided that it was not explained in the lectures.

Instructions:

- All submissions should be through ITC Moodle.
- Late submissions will not be accepted.
- **This is individual work.** It should represent your own efforts. It is fine to discuss your work and to ask your colleagues, but you are not allowed to copy/paste the work of others or give your work to anyone else, copy/paste from websites and other references is not allowed as well.