The Synonyms Dictionary

One common use of a python dictionary is to hold realted information. You are going to write a program which allows the user to add, update, remove, search and display a list of synonyms. The list contains only the original word and its synonyms. The original word is the key for the dictionary entry and the synonym is the value. The list is only kept while the program is running; when the user exits, the list disappears.

**To do:**

* Write the IPO diagrams for the **Word Synonym dictionary** application in the table provided here. You must create a separate IPO diagram for each piece of functionality (add, update, remove, search and display).

|  |  |  |
| --- | --- | --- |
| Program Input | Process | Program Output |
| Original word and synonym | * Add the original word as a dictionary key with a synonym as the value. | Message confirming the key and value have been adding |
| Original word and new synonym | * Check if the original word exists, if it does then update it's synonym with a new value. | Message confirming that the synonym for the provided key has been update. Error message if word not found |
| Original word | * Check if the original word exists, if it does then remove it. If it does not, then warn the user. | Message confirming the entry has been deleted. Error message if the word isn't found |
| Original word | * Check if the original word exists, if it does then display it's synonym. If it does not, then warn the user. | Message displaying the key and value of the entry. Error message if the word isn't found |
| None` | * Retrive all key-value pairs and display them. | List all original words and their synonyms |

* Complete the **Expected output** columns in test cases below.

|  |  |  |  |
| --- | --- | --- | --- |
| **Test Plan for Synonyms Program** | | | |
| ***Test Case*** | | ***Input Data*** | ***Expected output*** | |
|  | Add a new synonym | Original word = ‘fast’  Synonym = ‘rapid’ | Synonym added: 'fast' -> 'rapid' | |
|  | Update a synonym | Original word = ‘fast’  Synonym = ‘quick’ | Synonym added: 'fast' -> 'quick' | |
|  | Remove a synonym | Name = ‘fast’ | fast has been removed! | |
|  | Search for a synonym | Name = ‘fast’ | fast: quick | |
|  | Print out the entire Synonym list | None | fast: quick  word: synonym  word2: synonym2 | |

The program works like this:

* Prompt the user with a menu with options to add, update, delete, search, display the list or exit the program.
* If the user chooses to add, prompt for the Original Word and synonym. Then add the value to a python dictionary object with the key as the original word and the synonym as the value {‘fast’: ‘rapid’}
* If the user chooses to update, prompt for the Original Word and search for the Original Word.
* If the Original Word is found, prompt for the Synonym and update the value in the dictionary
* If the Original Word is not found, display a message and return to menu
* If the user chooses to delete, for the Original Word and search for the Original Word.
* If the Original Word is found, remove the key-value pair from the dictionary
* If the Original Word is not found, display a message and return to menu
* If the user chooses to search, prompt for the Original Word and search for the Original Word.
* If the Original Word is found, display it nicely formatted along with the synonym
* If the Original Word is not found, display a message and return to menu
* If the user chooses to display the list, display all entries in the book formatted nicely displaying BOTH the key (original word) and the value (synonym).
* If the user chooses to exit, exit the program.
* An example of the Console window for the program is shown here.

Welcome to your Synonym list. You may:

* Add a new synonym
* Update a synonym
* Remove a synonym
* Search for a synonym
* Display your synonyms
* Exit the program

Please enter your choice: 1

Person’s name: rapid

Synonym’s phone number: fast

New entry added

You may:

* Add a new synonym
* Update a synonym
* Remove a synonym
* Search for a synonym
* Display your synonyms
* Exit the program

Please enter your choice: 2

Person’s name: frog

No synonym named frog found

You may:

* Add a new synonym
* Update a synonym
* Remove a synonym
* Search for a synonym
* Display your synonyms
* Exit the program

Please enter your choice: 2

Person’s name: rapid

New synonymn for rapid: quick

Etc.etc.etc.

* Test the program using the test cases above.
* Some extra things to do to challenge yourself:
* Allow the user the option of adding more than one value for a given key. Remember, the key must be unique, so the multiple values would need to be added as a list of values on the same key. So: {“fast”: [“rapid”, “quick”], “slow”: “plodding”}
* Confirm with the user before removing a synonym entry (when deleting a record, it is always good to confirm with the user).
* Use colours for the display to make the user experience better.
* Personalize error and status messages with the names entered.
* Make the search be able to search on partial names (use startswith)
* Make the search NOT case sensitive so BOB finds bob or Bob or BOB