

Topics:

Dictionaries.

1. Kazakh-English Dictionary

Create a dictionary with at least 10 items inside it. Write a program that displays a menu repeatedly with the following options:

- a) *Search* (lookup a word for it's translation);
- b) *Add* (add a new word to the existing dictionary);
- c) *List* (list all the words in the dictionary).

Ex:

```
>>> kaz_eng()
Welcome to Kaz-Eng Dictionary!
=====

Choose one:
1 - Search
2 - Add
3 - List
4 - Exit
-----

Number of option: 1
Search: алма
apple
=====

Choose one:
1 - Search
2 - Add
3 - List
4 - Exit
-----

Number of option: 4
Goodbye!
```

2. Maximum Occurrence 2

Write a function that gets a string as an argument and returns the letter with the maximum occurrence in it. (No lists, just dictionary!)

Ex:

```
>>> s = 'Astana'
>>> print(most_used2(s))
'a'
```

3. Exceptions

Modify your solution to Task-1 (*Kazakh-English Dictionary*) so that a `LookupError` is raised if the user searches for a word that is not in the dictionary.

Ex:

```
=====

Choose one:
```

```
1 - Search
2 - Add
3 - List
4 - Exit
```

```
-----
Number of option: 1
```

```
Search: алмұрт
```

```
Traceback (most recent call last):
```

```
File "<stdin>", line ?, in ?
```

```
LookupError: No such word in the dictionary
-----
```

4. Fibonacci Time

Write another version of Fibonacci function that uses dictionary (Section 11.6 in the textbook). Compare the running time to the previously written version that uses simple recursion only.

Hint: you may need to use the `time` module again.

5. Grading System

The following table (dictionary) shows a sample grading policy of a course, which contains every component and its corresponding weight from total.

```
python_grading = {
    'Quiz-1':5, 'Quiz-2':5, 'Midterm Exam':20,
    'Tasks':30,
    'Quiz-3':5, 'Quiz-4':5, 'Final Exam':30
}
```

Write a program that asks a student to enter his/her grades one by one, and calculates the total result. The result should be in the following format:

```
>>> grade(python_grading)
```

```
Final Exam: 70
```

```
Midterm Exam: 60
```

```
Quiz-1: 90
```

```
Quiz-2: 80
```

```
Quiz-3: 70
```

```
Quiz-4: 60
```

```
Tasks: 50
```

```
-----
```

```
Total: 63.0
```

```
>>> math_grading = {'Midterm-1':30, 'Midterm-2':30, 'Final':40}
```

```
>>> grade(math_grading)
```

```
Final: 80
```

```
Midterm-1: 70
```

```
Midterm-2: 70
```

```
-----
```

```
Total: 74.0
```

Note that the results appear in alphabetic order, and the input is out of 100% each time.