

Lesson 7

Introduction to Dictionaries

Like lists, dictionaries are a way of conveniently storing information in Python. Each item in a dictionary is paired with a label, called a key. You can then look up an item using the keys.

Creating a Dictionary

You set up a dictionary just like a list, but with the items inside curly brackets ({}).

```
powers = {"Aquaman": "talks to fish", "Spiderman": "shoots webs", "Wolverine": "has adamantium claws"}  
  
print(powers["Spiderman"]) # prints "shoots webs"
```

Add New Item to Dictionary

We can also add a new item to our dictionary, similar to how we do it with lists using the **append()** method.

```
powers["The Flash"] = "runs really fast"  
  
print(powers) # prints whole dictionary, including The Flash
```

Delete Item from Dictionary

If we want to delete an item from the dictionary we can do the following:

```
del powers["Wolverine"]  
  
print(powers) # prints whole dictionary, except Wolverine
```

Tasks:

1. Create a dictionary of three supervillains, along with their evil superpowers.
2. Print out the superpowers of the **second** supervillain.
3. Delete one of the supervillains from the dictionary and add a new one.

Alien Translator Project

Create an translation program for an alien language using dictionaries.

Tasks:

1. Create a dictionary of the English words, along with their alien translations.

```
alienDictionary = {"we": "vorag", "come": "thang", "in": "zon", "peace": "argh",  
                  "hello": "kodar", "can": "znak", "i": "az", "borrow": "liftit",  
                  "some": "zum", "rocket": "upgoman", "fuel": "kakboom", "please": "selpin",  
                  "don't": "baarn", "shoot": "flabil", "welcome": "unkip", "our": "mandig",  
                  "new": "brang", "alien": "maragin", "overlords": "bap"}
```

Feel free to add in more words to the dictionary!

2. User inputs the English word or phrase they wish to translate.

```
englishPhrase = input("Please enter an English word or phrase to translate: ")
```

3. Split up the English phrase that the user inputted into separate strings and store them as a list.

```
englishWords = englishPhrase.lower().split()
```

Note: *lower()* turns whatever the user enters into lower case letters.

4. Create a list ('alienWords'), which will be used to print the translated phrase.
5. Use a for loop to cycle through the 'englishWords' list.

```
for word in englishWords:  
    # Do something
```

6. Check to see if the current word in the for loop is in 'alienDictionary', if so, add the alien translation to 'alienWords', or else, just add the English word to 'alienWords'.

```
if word in alienDictionary: # if English word is in dictionary  
    alienWords.append(alienDictionary[word]) # add alien translation to list  
  
else: # if English word not in dictionary  
    alienWords.append(word) # add English word to list
```

7. Print out the alien translation.

```
print("In alien, say: " + " ".join(alienWords))
```

Note: *join()* joins all the words in the 'alienWords' list back into one string, adding one space between them.

8. Save and run the program!