**Arrays Part IV - Dictionaries**

The last type of array structure we’ll examine is the dictionary. A ***dictionary*** is a list of ordered pairs. Each ordered pair is composed of a ***key*** and a ***value***. in the format:

key : value

Here is an example:

diction = {} # empty dictionary - notice the curly braces

diction["James"] = "Brown"

print (diction)

Unlike an array, a dictionary has no index. Instead, you "look up" values using the key.

diction = {} # empty dictionary

diction["James"] = "Brown"

diction["Steve"]="Buscemi"

print (diction["Steve"])

The obvious examples of a dictionary is a ***dictionary***. For example:

spanish = {}

spanish["one"] = "uno"

spanish["two"]= "dos"

spanish["three"]= "tres"

spanish["four"]= "cuatro"

spanish["five"]= "cinco"

print (spanish["four"])

Another easy example is a phone book:

phonebook = {"James":"(613) 224-1854", "Karin":"(613) 344-5638"}

print (phonebook["Karin"])

In this case, the person’s name is the key, and the phone number is the value for that key. The idea is that we can “look up” the value if we know the key:

phonebook = {"James":"(613) 224-1854", "Karin":"(613) 344-5638"} #dictionary

print (phonebook["Karin"])

With user input, this becomes useful:

phonebook = {"James":"(613) 224-1854", "Karin":"(613) 344-5638"} #dictionary

search = input("Enter a name: ")

number = phonebook[search] #notice ‘search’ is not in quotes

print (number)

Try the code above and enter a different name (e.g. "Bill"). What happens?

So we check first:

phonebook = {"James":"(613) 224-1854", "Karin":"(613) 344-5638"} #dictionary

search = input("Enter a name: ")

if search in phonebook: # is that name in the phone book?

number = phonebook[search] #ok, get the number

print (number)

You can add to a dictionary:

phonebook = {"James":"(613) 224-1854", "Karin":"(613) 344-5638"} #dictionary

phonebook["Peter"] = "(613) 726-3581"

print (phonebook)

And you can take away:

phonebook = {"James":"(613) 224-1854", "Karin":"(613) 344-5638"} #dictionary

del phonebook["Karin"] #delete Karin from the phone book

print (phonebook)

Note that a dictionary isn’t ordered. It has no index. You can’t access ‘the first element’ of a dictionary, because of this. You also can’t append to a dictionary.

phonebook = {"James":"(613) 224-1854", "Karin":"(613) 344-5638"} #dictionary

print (phonebook[0]) # error!