CSCI 127: Joy and Beauty of Data

Lecture 11: Dictionaries

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https://reesep.github.io/classes/summer2021/127/main.html

Announcements

Lab 6 due **TONIGHT** @ 11:59 PM

Program 3 due **Monday 6/7** @ 11:59 PM

Closing all the tabs after solving a pesky programming bug



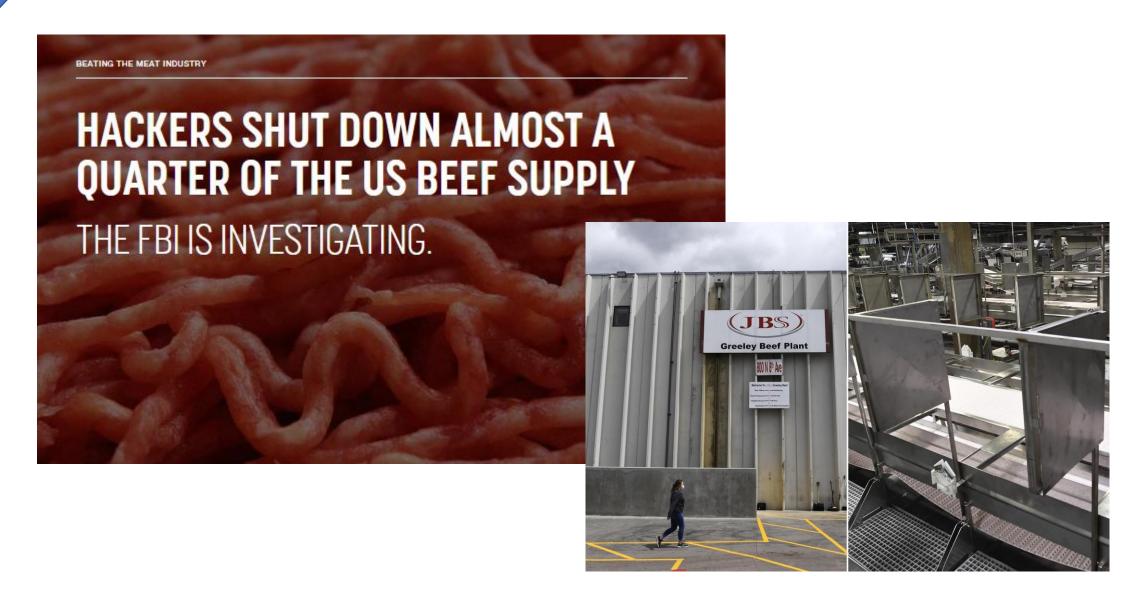
"the best way to learn a language is to speak to natives" the guy learning Python:



Midterm Exam grade are posted on D2L

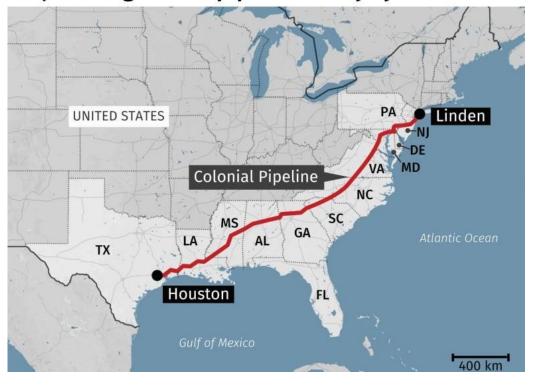
- In general, people did very well
- Average score was in the 90s
- If you want the details of where you lost points, email me

Computer Science in the News



Computer Science in the News

Major U.S. gasoline pipeline hit by cyberattack









Dictionaries

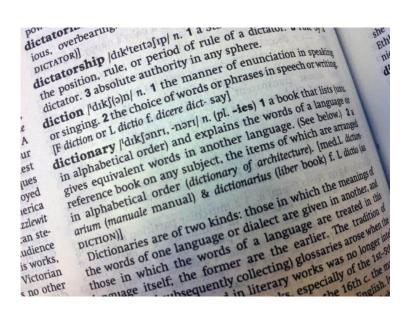
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Dictionaries

A new data structure that is an unordered collection of keyvalue pairs

'dict' data type

Denoted by curly brackets {}



Lists

Ordered based on index

Lists

Ordered based on **index**

Lists

Ordered based on **index**

Lists

Ordered based on index

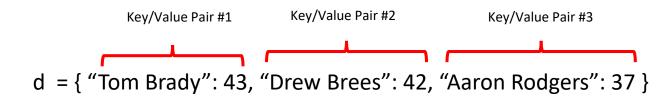
Dictionary

```
d = { "Tom Brady": 43, "Drew Brees": 42, "Aaron Rodgers": 37 }
```

Lists

Ordered based on index

Dictionary

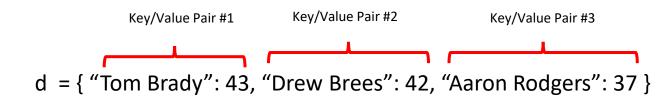


An unordered collected of **key-value pairs**

Lists

Ordered based on index

Dictionary



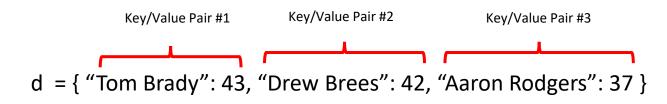
An unordered collected of **key-value pairs**

To retrieve a certain value, we need to give the dictionary the key that associated with it

Lists

Ordered based on index

Dictionary



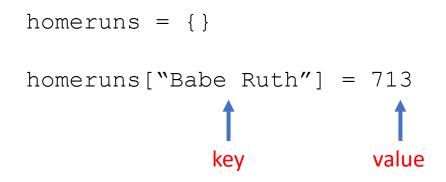
An unordered collected of **key-value pairs**

To retrieve a certain value, we need to give the dictionary the key that associated with it

```
42 → print(d["Drew Brees"])
37 → print(d["Aaron Rodgers"])
```

Adding a key-value pair:

Deleting an item



del homeruns["Babe Ruth"]

Updating an item

Determining Number of Items in dictionary

```
homeruns["Babe Ruth"] = 714
```

print(len(homeruns))

To retrieve all keys in dictionary named inventory

```
inventory.keys()
print(list(inventory.keys())
```

To retrieve all keys one at a time (for loop)

```
for each_key in inventory:
    print(each_key)
```

To check in a key named "kiwi" exists

```
If "kiwi" in inventory:
```

To retrieve all values in dictionary named inventory

```
inventory.values()
print(list(inventory.values())
```

To retrieve all values one at a time (for loop)

```
for each_val in inventory.values():
    print(each_val)
```

To retrieve a specific value, producing a runtime error if the key is not present:

```
inventory[key-name]
```

NO runtime error if the key is not present:

```
inventory.get(key-name)
```

inventory.get(key-name, value-to-return-if-key-not-present)

To retrieve all key-value pairs in dictionary named inventory

```
inventory.items()
print(list(inventory.items())
```

To retrieve all items one at a time (for loop)

```
for key,val in inventory.items():
    print(key,val)
```

Dictionary Examples

Write a function named translator that takes a parameter containing a sentence in English (no punctuation and all words in lowercase) and returns that sentence translated to Pirate.

For example, the sentence "hello there students" should be translated to "avast there swabbies".

Write a program that will count the number of times each word occurs in some text file

More Examples

Using video_games.csv, write a python function that uses a dictionary to print out the number of video games that received a review score of 90-100, 80 - 89, 70 - 79, 60-69, etc.

Then, modify the code so that it prints out the number of games that are rated E, T, M for each of the categories you found above

For examples, in the games rated between 90-100: 10 were rated E, 7 rated M, etc