Business Analysis Summer 2022

Class 3

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Dictionary Data Type

- https://www.w3schools.com/python/python_dictionaries.asp
- Dictionaries are used to store data values in key:value pairs.
-

```
thisdict = {
  "brand": "Ford",
  "model": "Mustang",
  "year": 1964
}
print(thisdict)
```

Access Dictionary

```
thisdict =    {
  "brand": "Ford",
  "model": "Mustang",
  "year": 1964
}
x = thisdict.get("model")
print(x)
print(thisdict["model"])
thisdict["model"]="Cobra"
print(thisdict["model"])
```

Date formats (to help your homework)

- https://docs.python.org/3/library/datetime.html

- import time
- from datetime import date
- from datetime import datetime

- today = date.today()
- my_birthday = date(today.year, 6, 24)
- if my_birthday < today:
-     my_birthday = my_birthday.replace(year=today.year + 1)
- time_to_birthday = abs(my_birthday - today)
- **print(my_birthday.month)**
- from datetime import date
-     date(2003, 12, 29).isocalendar()

- date.year
- Between MINYEAR and MAXYEAR inclusive.
- date.month
- Between 1 and 12 inclusive.
- date.day
- Between 1 and the number of days in the given month of the given year.

- from datetime import datetime
- date_format = '%d-%m-%Y'
- date_string= '01-01-1976'
- mydate = datetime.strptime(date_string, date_format)
- print(mydate)
- print(mydate.month)

Let’s Code!
The logbook

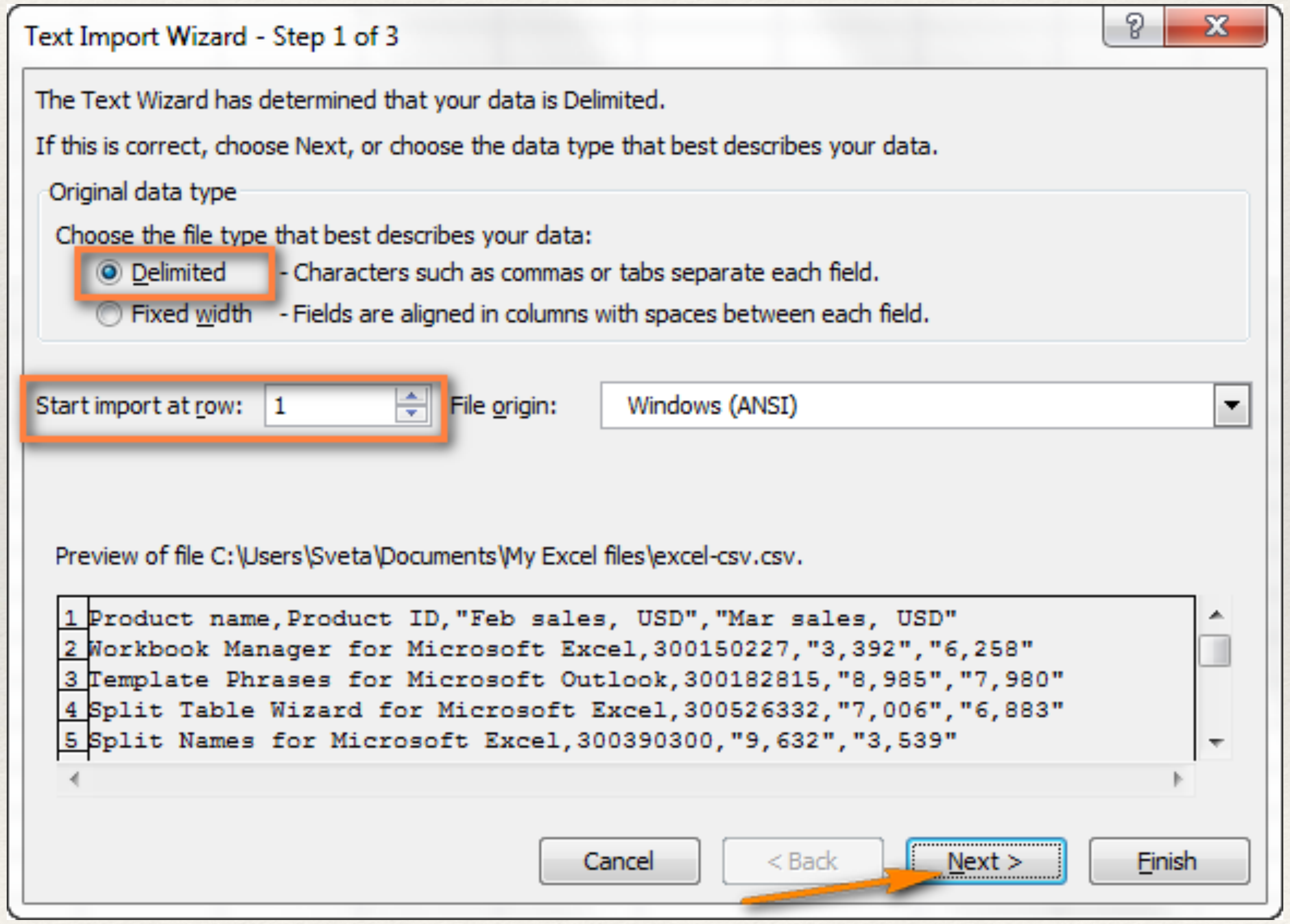
- Write a program that will prompt the user for a log entry in a loop,
- It will then record log entry into a dictionary associated with the current datetime that the log entry was made.

Hints:

- from datetime import datetime
- today = datetime.today()
- thisdict = {} #empty dictionary
- thisdict["model"]="Cobra“ #append to a dictionary

Okay, let's learn about csv and use it!!!

- CSV = Comma Separated Values
  - It is also a file type
  - It can be imported/exported to/from excel
  - It can be converted into a spreadsheet
  - It has a specific structure (Row, Column)
    - *It is easy to use in code because of the simple structure*
    - *Usually line 1 contains "headers" (but not required)*
  - It has limitations:
    - *No "types" (all is a string)*
    - *Some characters are bad.. (which ones?)*



Text Import Wizard - Step 1 of 3

The Text Wizard has determined that your data is Delimited.

If this is correct, choose Next, or choose the data type that best describes your data.

Original data type

Choose the file type that best describes your data:

● Delimited - Characters such as commas or tabs separate each field.

○ Fixed width - Fields are aligned in columns with spaces between each field.

Start import at row: 1

File origin: Windows (ANSI)

Preview of file C:\Users\Sveta\Documents\My Excel files\excel-csv.csv.

```
Product name,Product ID,"Feb sales, USD","Mar sales, USD"
Workbook Manager for Microsoft Excel,300150227,"3,392","6,258"
Template Phrases for Microsoft Outlook,300182815,"8,985","7,980"
Split Table Wizard for Microsoft Excel,300526332,"7,006","6,883"
Split Names for Microsoft Excel,300390300,"9,632","3,539"
```

CR/LF and COMMA can cause problems

Row vs Column

Columns go up and down

Rows go left to right

Header Row ->	Column 1 Title		
Data Row 1 ->	Column 1 data	Column 2 data	
Data Row 3			Column 3 data

Usually, data is organized as **<u>each row is an “entry” of data</u>**…

columns contain different values that correspond to that entry row.

Car_Vin_ID	Make	Model	Year	Mileage
3423153141	Ford	Mustang	1967	124,345
6544243523	Chevy	Corvette	1972	96,433

Lets look at the csv library in python

Yes, there is a library for everything in python

- import csv
  - Uses open() function to open a file
  - uses csv.reader to get an iteratable object
    - *Each iteration of the object is a list of strings which are the row!*
  - Uses csv.writer to get an iteratable object of a file
    - *Can append or overwrite a file depending on open()*
    - *Writerow will write one or more rows*
- https://docs.python.org/3.7/library/csv.html

How can we open a file and read its rows?

Simple Example of read csv

```
import csv

with open('some.csv', newline='') as f:
  reader = csv.reader(f)
  for row in reader:
    print(row)
```

```
import csv

with open('names.csv', newline='') as csvfile:
  reader = csv.DictReader(csvfile)    for row in reader:
      print(row['first_name'], row['last_name'])
```

Dictionary Example of read csv [column header are Dictionary keys]

How could we append csv to a file?

- Ask Google!

- https://www.google.com/search?q=python+open+for+append+csv

```
import csv

with open(r'names.csv', 'a', newline='') as csvfile:
    fieldnames = ['This','aNew']
    writer = csv.DictWriter(csvfile, fieldnames=fieldnames)
    rowDataDict = {'This':'is', 'aNew':'Row'}
    writer.writerow(rowDataDict)
```