# Reading Data

GITAA
Transforming careers

# In this lecture

- File formats
- Commonly used file formats
- Read data from
  - .csv format
  - .xlsx format
  - .txt format

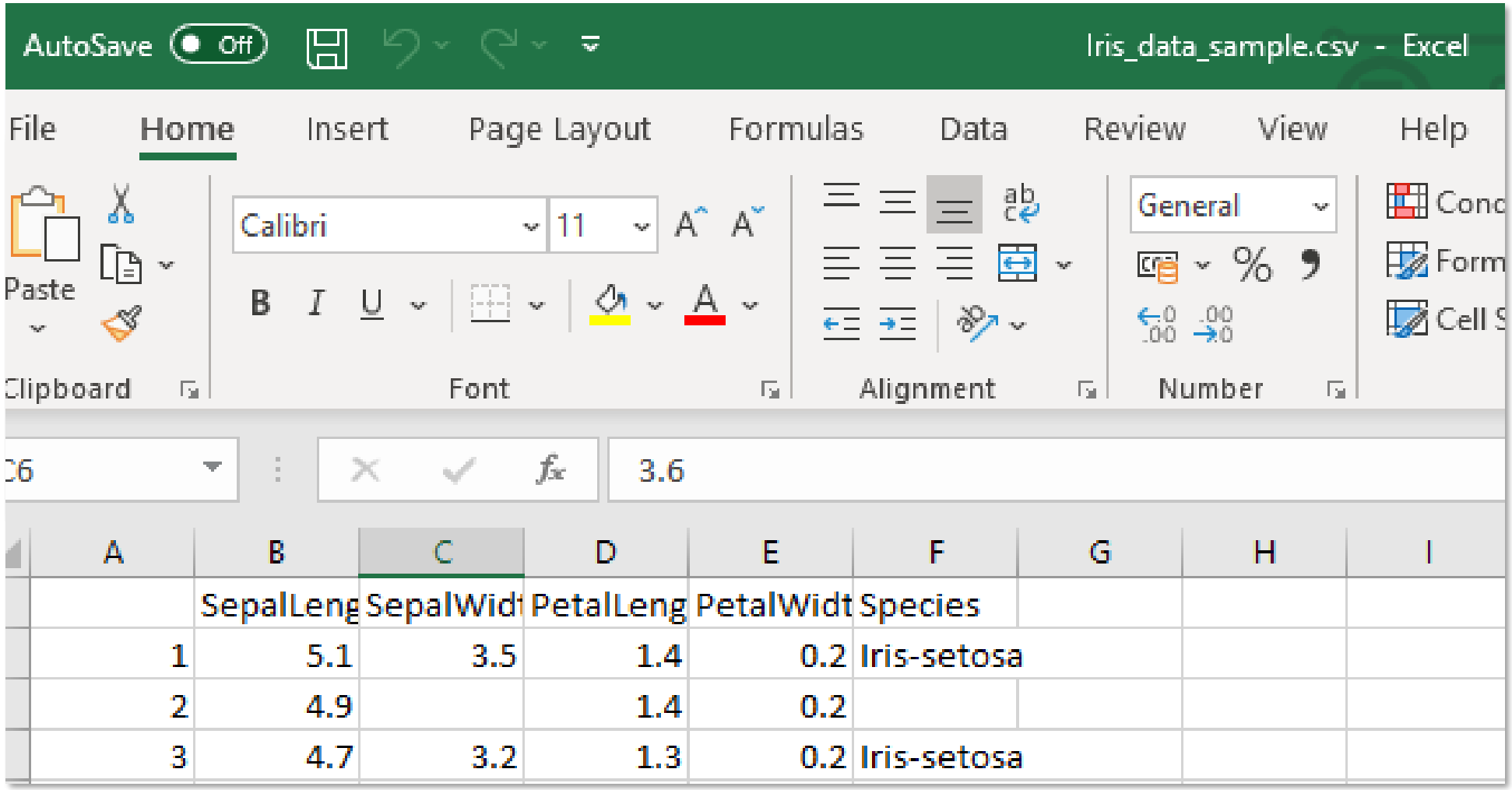
# File format

- Standard way in which data is collected and stored
- Most commonly used format for storing data is the spreadsheet format where data is stored in rows and columns
  - Each row is called a record
  - Each column in a spreadsheet holds data belonging to same data type
- Commonly used spreadsheet formats are comma separated values and excel sheets
- Other formats include plain text, json, html, mp3,mp4 etc.

# Comma separated values

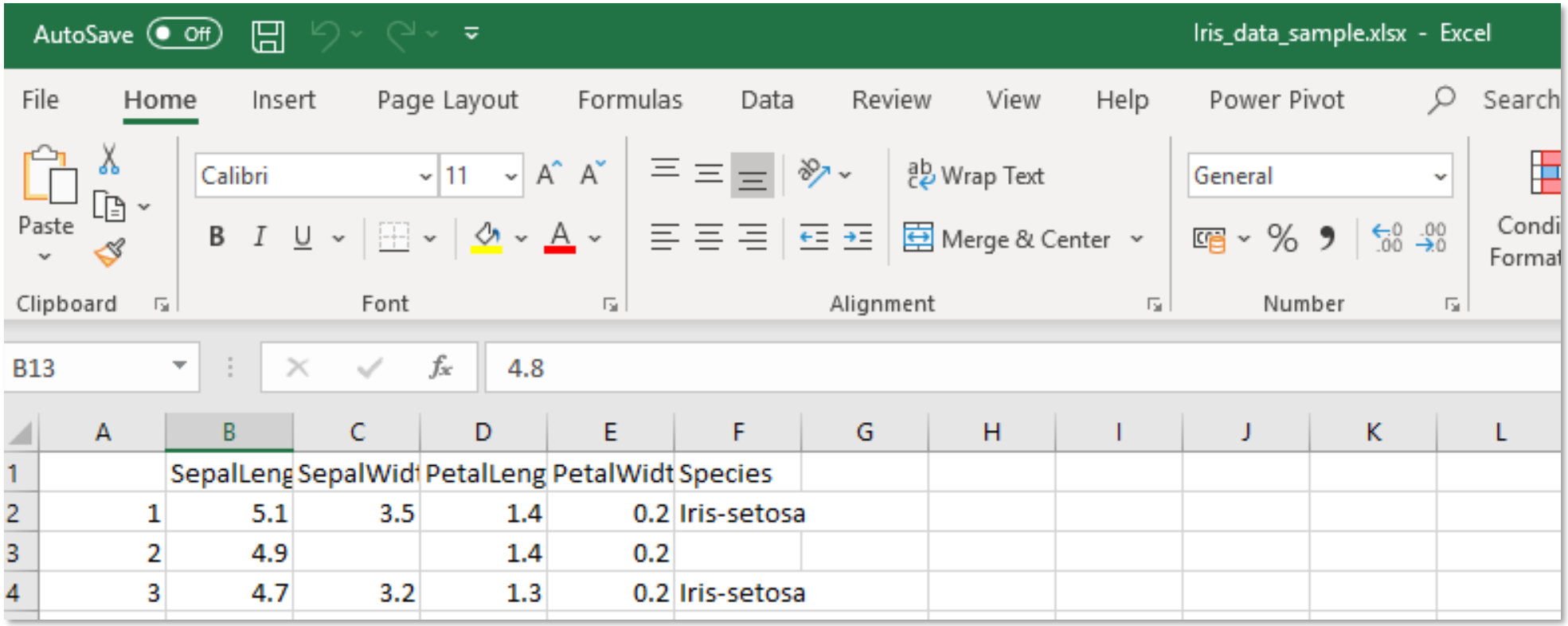
- Spreadsheet format
- Format ***'.csv'***
- Each record is separated by a comma
- Files where records are separated using a tab are called tab separated values
- .csv files can be opened with notepad or Microsoft excel

# Comma separated values




| | A | B | C | D | E | F | G | H | I |
|---|---|---|---|---|---|---|---|---|---|
| | | SepalLeng | SepalWidt | PetalLeng | PetalWidt | Species | | | |
| 1 | | 5.1 | 3.5 | 1.4 | 0.2 | Iris-setosa | | | |
| 2 | | 4.9 | | 1.4 | 0.2 | | | | |
| 3 | | 4.7 | 3.2 | 1.3 | 0.2 | Iris-setosa | | | |

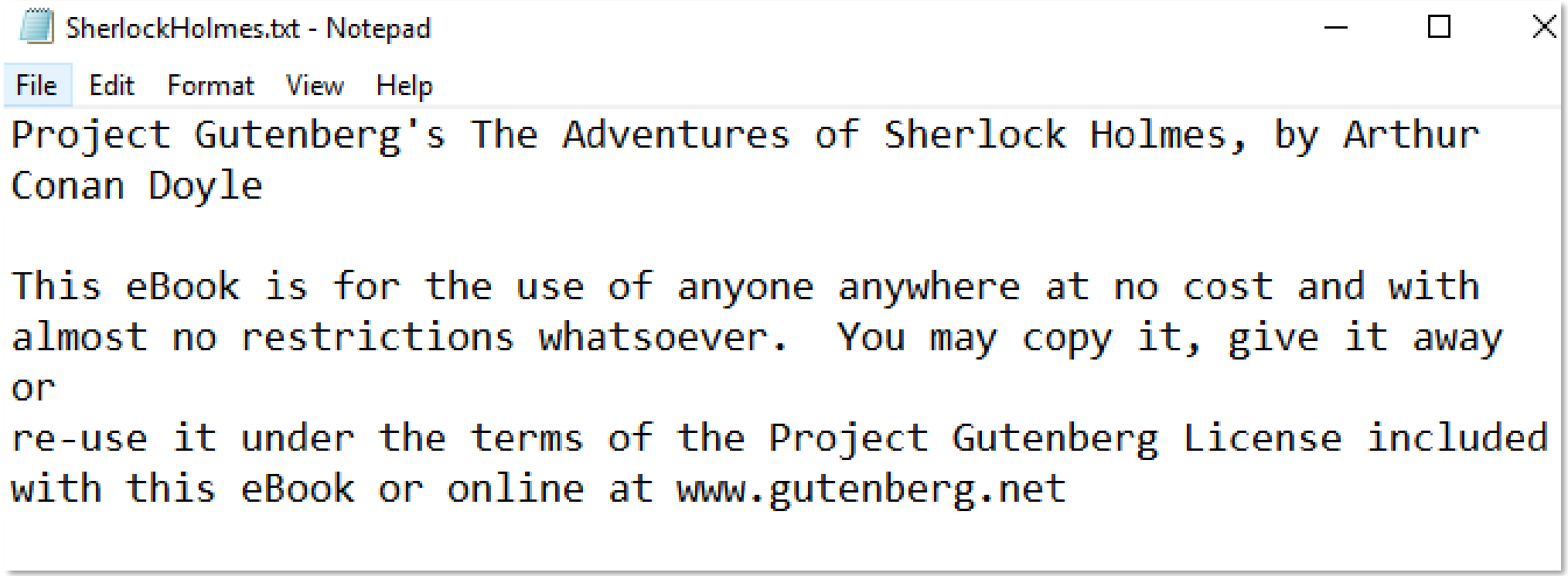
# Excel spreadsheets




| | A | B | C | D | E | F | G | H | I | J | K | L |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | SepalLeng | SepalWid | PetalLeng | PetalWidt | Species | | | | | | |
| 2 | 1 | 5.1 | 3.5 | 1.4 | 0.2 | Iris-setosa | | | | | | |
| 3 | 2 | 4.9 | | 1.4 | 0.2 | | | | | | | |
| 4 | 3 | 4.7 | 3.2 | 1.3 | 0.2 | Iris-setosa | | | | | | |

# Text format

- Consists of plain text or records
- Format ***'.txt'***



# Importing Data

# Importing data into Spyder

- Importing necessary libraries

```
import os
```

← 'os' library to change the working directory

```
import pandas as pd
```

← 'pandas' library to work with dataframes

- Changing the working directory

```
os. chdir("D:\Pandas")
```

# Comma separated values

- Importing data

```
data_csv=pd.read_csv('Iris_data_sample.csv')
```

- Blank cells read as ‘nan’

| Index | Unnamed: 0 | SepalLengthCm | SepalWidthCm | PetalLengthCm | PetalWidthCm | Species |
|---|---|---|---|---|---|---|
| 0 | 1 | 5.1 | 3.5 | 1.4 | 0.2 | Iris-set… |
| 1 | 2 | 4.9 | nan | 1.4 | 0.2 | nan |
| 2 | 3 | 4.7 | 3.2 | 1.3 | 0.2 | Iris-set… |
| 3 | 4 | ?? | 3.1 | 1.5 | 0.2 | Iris-set… |
| 4 | 5 | 5 | 3.6 | ### | 0.2 | Iris-set… |

# Comma separated values

- Removing the extra id column by passing `index_col=0`

```
data_csv=pd.read_csv('Iris_data_sample.csv',index_col=0)
```

| Index | SepalLengthCm | SepalWidthCm | PetalLengthCm | PetalWidthCm | Species |
|---|---|---|---|---|---|
| 1 | 5.1 | 3.5 | 1.4 | 0.2 | Iris-set… |
| 2 | 4.9 | nan | 1.4 | 0.2 | nan |
| 3 | 4.7 | 3.2 | 1.3 | 0.2 | Iris-set… |
| 4 | ?? | 3.1 | 1.5 | 0.2 | Iris-set… |
| 5 | 5 | 3.6 | ### | 0.2 | Iris-set… |

- Replacing '??' and '# # #' as missing values

# Comma separated values

- Junk values can be converted to missing values by passing them as a list to the parameter 'na_values'

```
data_csv=pd.read_csv('Iris_data_sample.csv',
                     index_col=0,na_values=["??"])
```

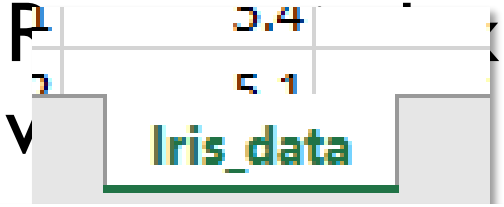
```
data_csv=pd.read_csv('Iris_data_sample.csv',
                     index_col=0,na_values=["??","###"])
```

# Excel spreadsheets

- Importing data

```
data_xlsx=pd.read_excel('Iris_data_sample.xlsx',
                        sheet_name='Iris_data')
```

- P… column and replace ‘??’ and ‘# # #’ as missing v…




Sheet name

```
data_xlsx=pd.read_excel('Iris_data_sample.xlsx',index_col=0,
                        na_values=["??","###"])
```

# Text format

- Importing data

```
data_txt1=pd.read_table('Iris_data_sample.txt')
```

| Name | Type |
|---|---|
| data_txt1 | DataFrame |

| Index | "SepalLengthCm" "SepalWidthCm" "PetalLengthCm" "PetalWidthCm" "Species" |
|---|---|
| 0 | 1 1 5.1 3.5 1.4 0.2 "Iris-setosa" |
| 1 | 2 2 4.9 3 1.4 0.2 "Iris-setosa" |
| 2 | 3 3 4.7 3.2 1.3 0.2 "Iris-setosa" |

- All columns read and stored in a single column of dataframe
- In order to avoid this, provide a delimiter to the parameters '`sep`' or '`delimiter`'

# Text format

- Default delimiter is tab represented by '\t'

```
data_txt1=pd.read_table('Iris_data_sample.txt',sep='\t')
data_txt1=pd.read_table('Iris_data_sample.txt',delimiter="\t")
```

- Tab delimiter might not always work

| Index | "SepalLengthCm" "SepalWidthCm" "PetalLengthCm" "PetalWidthCm" "Species" |
|---|---|
| 0 | 1 1 5.1 3.5 1.4 0.2 "Iris-setosa" |
| 1 | 2 2 4.9 3 1.4 0.2 "Iris-setosa" |
| 2 | 3 3 4.7 3.2 1.3 0.2 "Iris-setosa" |

# Text format

- Other commonly used delimiters are commas and blanks
- In this case using a comma as a delimiter also gives the earlier output
-

| Name | Type |
|---|---|
| data_txt1 | DataFrame |

| Index | "SepalLengthCm" "SepalWidthCm" "PetalLengthCm" "PetalWidthCm" "Species" |
|---|---|
| 0 | 1 1 5.1 3.5 1.4 0.2 "Iris-setosa" |
| 2 | 3 3 4.7 3.2 1.3 0.2 "Iris-setosa" |

```
data_txt1=pd.read_table('Iris_data_sample.txt',delimiter=" ")
```

| Index | Unnamed: 0 | SepalLengthCm | SepalWidthCm | PetalLengthCm | PetalWidthCm | Species |
|---|---|---|---|---|---|---|
| 1 | 1 | 5.1 | 3.5 | 1.4 | 0.2 | Iris-set… |
| 2 | 2 | 4.9 | 3 | 1.4 | 0.2 | Iris-set… |

# Text format

- Remove index column and replace '??' and '# # #' as missing values
- Instead of using `read_table()`, `read_csv()` can also be used to read ***.txt*** files

```
data_txt2=pd.read_csv('Iris_data_sample.txt',delimiter=" ")
```

operation == "MIRROR_X":
irror_mod.use_x = True
irror_mod.use_y = False
irror_mod.use_z = False
operation == "MIRROR_Y":
irror_mod.use_x = False
irror_mod.use_y = True
irror_mod.use_z = False
operation == "MIRROR_Z":
irror_mod.use_x = False
irror_mod.use_y = False
irror_mod.use_z = True
selection at the end -add
_ob.select= 1
er_ob.select=1
ntext.scene.objects.acti
("Selected" + str(modifier
irror_ob.select = 0
bpy.context.selected_ob
ata.objects[one.name].se
int("please select exact

# THANK YOU