



# PARSE NBA STATS W/ OPENPYXL

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- DEVELOPER
- EVANGELIST AT TWILIO
- LIKES [PEOPLE,  
PYTHON, AND  
PIKACHU]

# OPENPYXL 101



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# WHAT IS OPENPYXL?

- Module manipulates, creates workbooks
- `xlsx/xlsm/xltx/xltm`



# ALTERNATIVES

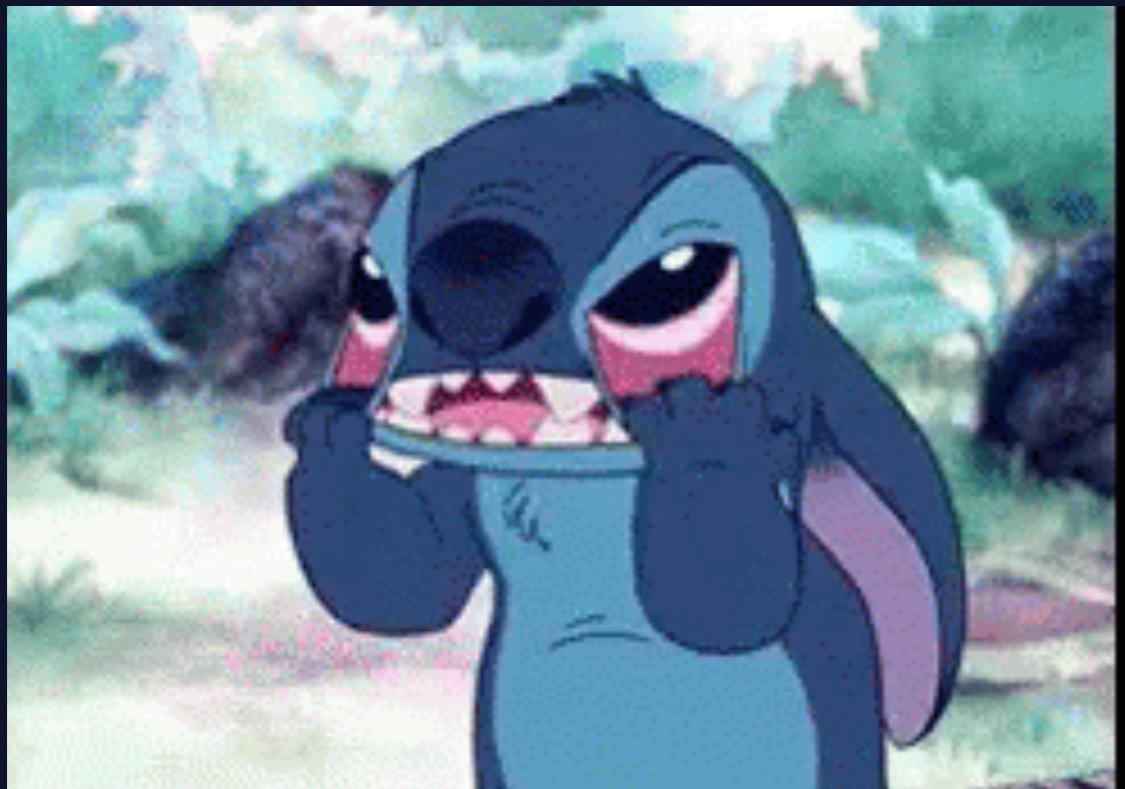
- LibreOffice Calc
- OpenOffice Calc



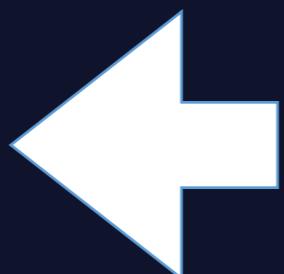
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# USE CASES

- Copy + paste
- Pick a few rows from many
- Search through spreadsheets



*Me thinking about  
doing any of these*



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# INSTALLATION

```
pip install openpyxl
```

*HTTPS://PIP.PYPA.IO*

# OPENPYXL CODE



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# WORKBOOKS, WORKSHEETS

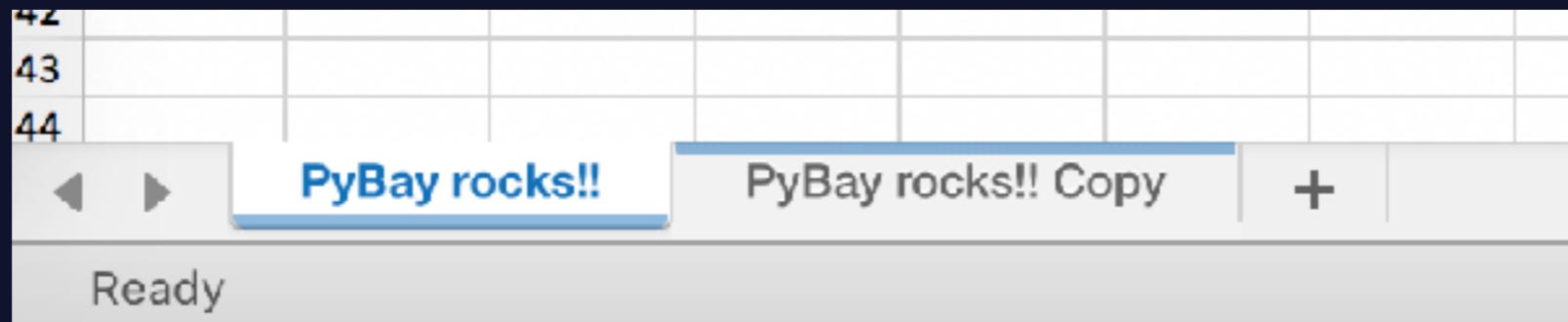
```
1 from openpyxl import Workbook  
2 wb = Workbook()  
3  
4 ws = wb.active  
5
```



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# MOAR WORKBOOKS, WORKSHEETS

```
ws.title = "PyBay rocks!!"  
ws.sheet_properties.tabColor = "1072BA"  
source = wb.active  
target = wb.copy_worksheet(source)
```



# WRITE TO A SHEET (1)

```
ws['A1'] = "Annie Easley"
d = ws.cell(row=1, column=2, value="Katherine Johnson")
# Rows can also be appended
ws.append(["Grace Hopper", "Megan Smith", "Ada Lovelace"])
#next row, A2, B2, C2
```



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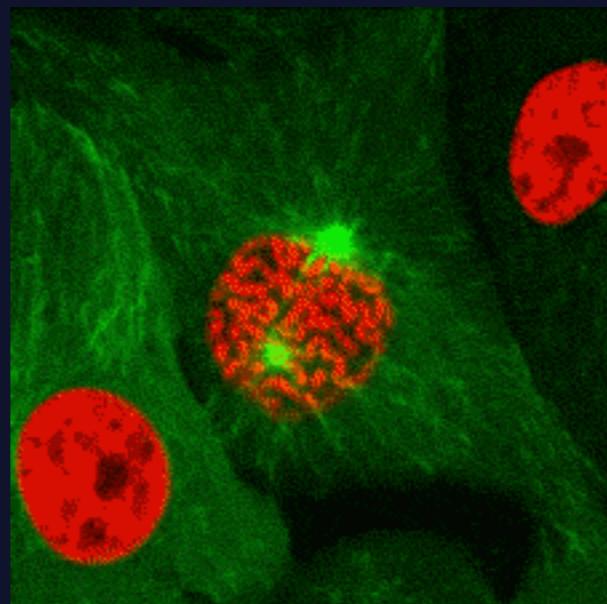
A screenshot of a Microsoft Excel spreadsheet. The ribbon at the top shows tabs for Home, Insert, Page Layout, and Formula. The Home tab is selected, displaying icons for Paste, Cut, Copy, and Format. The font is set to Calibri (Body) at size 11, and the text style includes bold, italic, and underline options. The active cell is A15. The table below has columns labeled A, B, C, and D. Row 1 contains "Annie Easley" in column A and "Katherine Johnson" in column B. Row 2 contains "Grace Hopper" in column A, "Megan Smith" in column B, and "Ada Lovelace" in column C. Row 3 is empty.

	A	B	C	D
1	Annie Easley	Katherine Johnson		
2	Grace Hopper	Megan Smith	Ada Lovelace	
3				
4				

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# REFERENCING CELLS

```
>>> d = ws.cell(row=1, column=2, value="Katherine Johnson")
>>> print(d)
<Cell u'Sheet'.B1>
>>> print(d.value)
Katherine Johnson
```



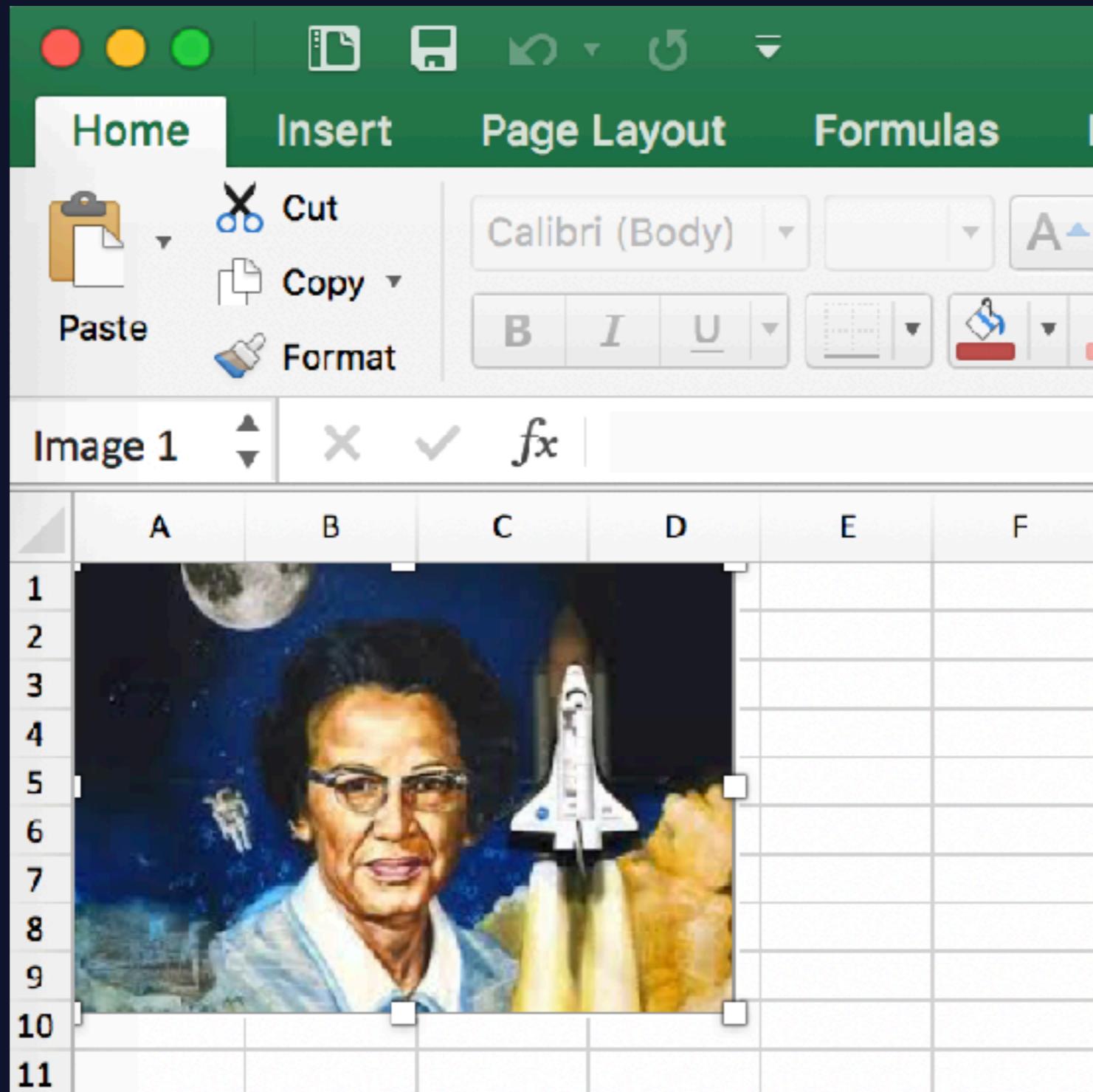
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# WRITING IMAGES

```
from openpyxl.drawing.image import Image  
img = Image('katherinejohnson.jpeg')  
# add to worksheet and anchor next to cells  
ws.add_image(img, 'A1')
```



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# OVERWRITE A SHEET

```
# Python types will automatically be converted  
import datetime  
ws['A2'] = datetime.datetime.now() #sets the current time,  
date: overwrite A2
```

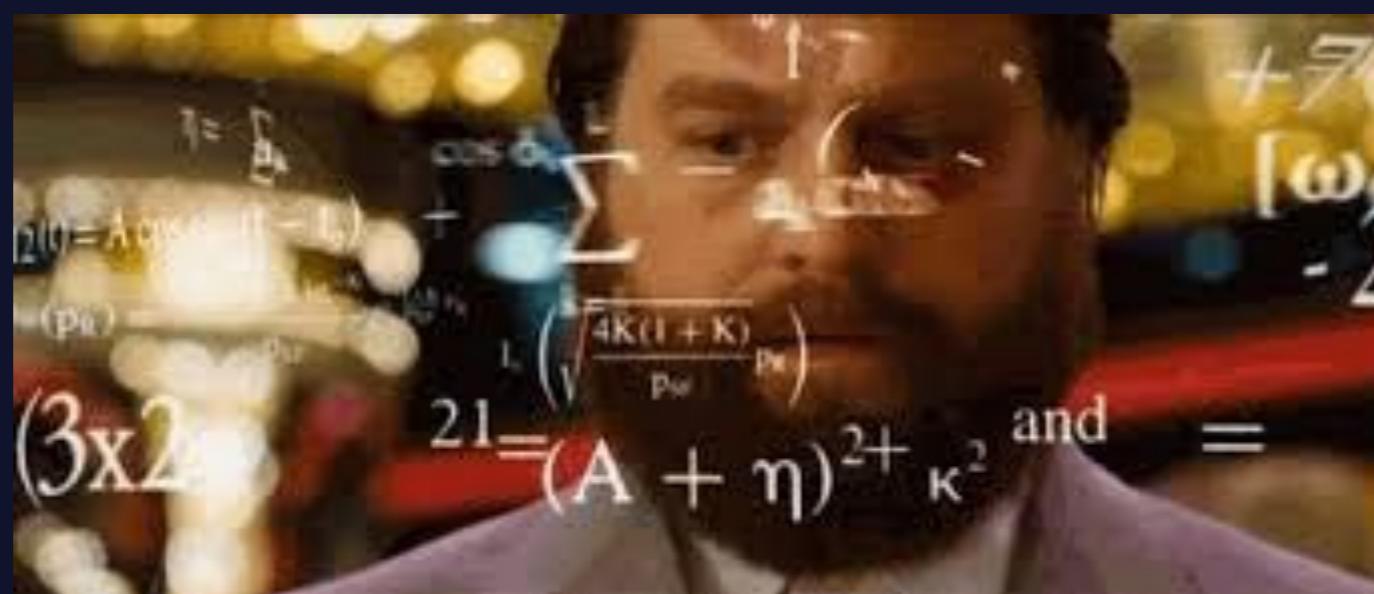
```
# Save the file  
wb.save("sample.xlsx")
```



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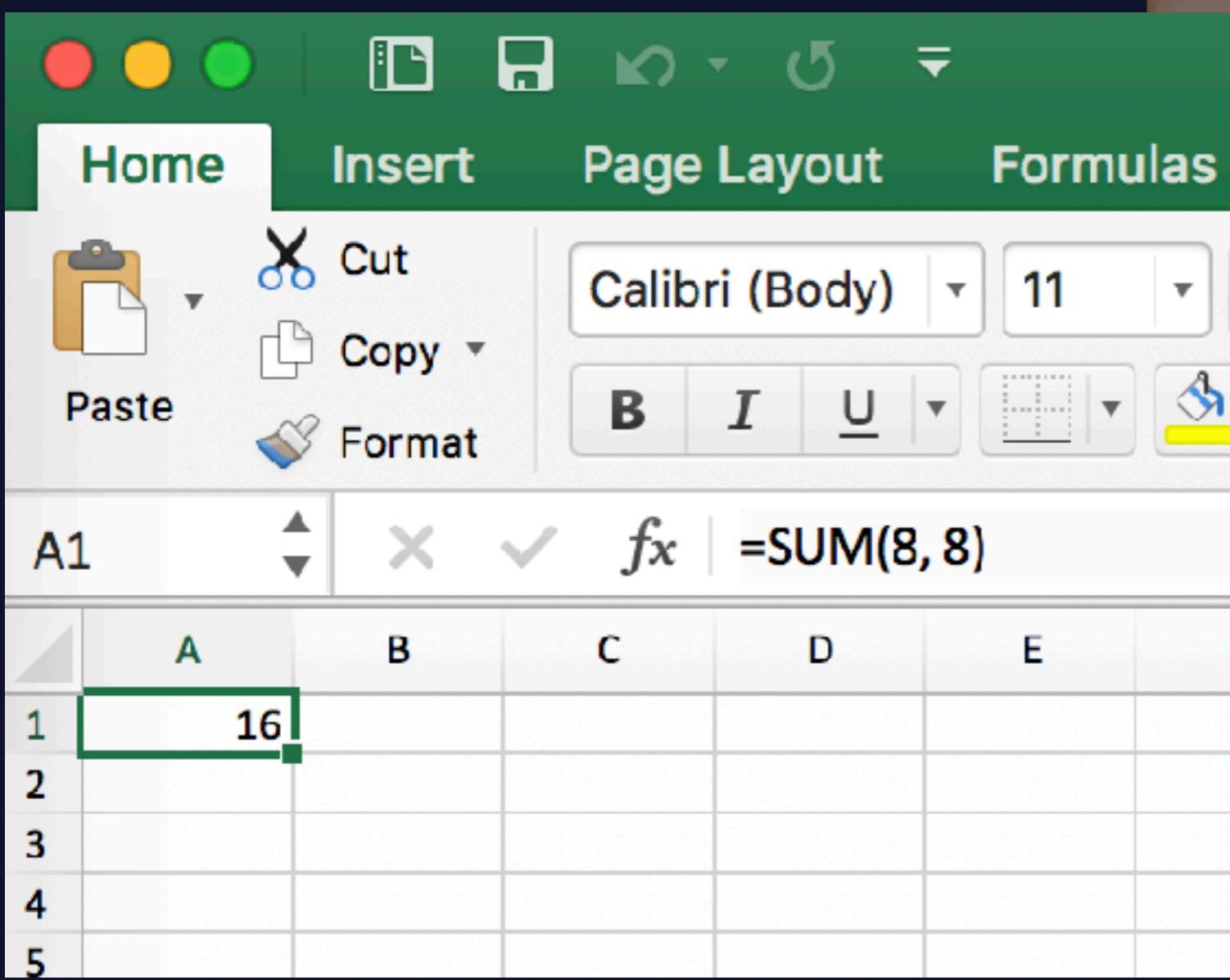
# FORMULAS

```
ws["A1"] = "=SUM(8, 8)"  
wb.save("formula.xlsx")
```



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# FORMULAS



A screenshot of a Microsoft Excel spreadsheet. The formula bar at the top shows the formula  $=\text{SUM}(8, 8)$ . Below the formula bar, cell A1 contains the value 16. The Excel ribbon is visible, showing tabs for Home, Insert, Page Layout, and Formulas. The Home tab is selected. The ribbon also includes standard icons for file operations like Save and Undo.



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# DATA



# WHERE I GET MY DATA



[HTTPS://GITHUB.COM/AWESOMEDATA/  
AWESOME-PUBLIC-DATASETS](https://github.com/AwesomeData/Awesome-Public-Datasets)

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# GET DATA

Advanced Stats    Stats Home    Players **Teams**    Advanced    Scores    Schedule    All Time Leaders    SEARCH FOR A PLAYER OR TEAM 

SEASON 2017-18		SEASON TYPE Regular Season		PER MODE Per Game		SEASON SEGMENT All Games		Advanced Filters																				
<input type="checkbox"/> RECENT FILTERS	<input type="checkbox"/> GLOSSARY		SHARE ON: <a href="#">Facebook</a> <a href="#">Twitter</a>	<a href="https://on.nba.com/2fhfT3i">https://on.nba.com/2fhfT3i</a>																								
								540 Rows   Page: All of 11 < >																				
PLAYER	TEAM	AGE	GP	W	L	MIN	PTS	FGM	FGA	FG%	3PM	3PA	3P%	FTM	FTA	FT%	OREB	DREB	REB	AST	TOV	STL	BLK	PF	FP	DD2	TD3	+/-
1 James Harden	HOU	28	72	59	13	35.4	30.4	9.0	20.1	44.9	3.7	10.0	36.7	8.7	10.1	85.8	0.6	4.8	5.4	8.8	4.4	1.8	0.7	2.3	53.0	31	4	7.3
2 Anthony Davis	NOP	25	75	45	30	36.4	28.1	10.4	19.5	53.4	0.7	2.2	34.0	6.6	8.0	82.8	2.5	8.6	11.1	2.3	2.2	1.5	2.6	2.1	55.1	50	1	3.9
3 LeBron James	CLE	33	82	50	32	36.9	27.5	10.5	19.3	54.2	1.8	5.0	36.7	4.7	6.5	73.1	1.2	7.5	8.6	9.1	4.2	1.4	0.9	1.7	54.1	52	18	1.3
4 Damian Lillard	POR	27	73	44	29	36.6	26.9	8.5	19.4	43.9	3.1	8.6	36.1	6.8	7.4	91.6	0.8	3.6	4.5	6.6	2.8	1.1	0.4	1.6	43.6	11	0	4.7
5 Giannis Antetokounmpo	MIL	23	75	39	36	36.7	26.9	9.9	18.7	52.9	0.6	1.9	30.7	6.5	8.5	76.0	2.1	8.0	10.0	4.8	3.0	1.5	1.4	3.1	51.7	42	1	2.0
6 Stephen Curry	GSW	30	51	41	10	32.0	26.4	8.4	16.9	49.5	4.2	9.8	42.3	5.5	5.9	92.1	0.7	4.4	5.1	6.1	3.0	1.6	0.2	2.2	43.8	5	0	9.5
7 Kevin Durant	GSW	29	68	49	19	34.2	26.4	9.3	18.0	51.6	2.5	6.1	41.9	5.3	5.9	88.9	0.5	6.4	6.8	5.4	3.0	0.7	1.8	2.0	47.0	15	2	5.1
8 Russell Westbrook	OKC	29	80	47	33	36.4	25.4	9.5	21.1	44.9	1.2	4.1	29.8	5.2	7.1	73.7	1.9	8.2	10.1	10.3	4.8	1.8	0.3	2.5	54.3	59	25	4.8
9 DeMarcus Cousins	NOP	27	48	27	21	36.2	25.2	8.5	18.0	47.0	2.2	6.1	35.4	6.1	8.2	74.6	2.2	10.7	12.9	5.4	5.0	1.6	1.6	3.8	53.3	38	3	1.7
10 Devin Booker	PHX	21	54	16	38	34.5	24.9	8.4	19.5	43.2	2.7	7.1	38.3	5.4	6.1	87.8	0.5	4.0	4.5	4.7	3.6	0.9	0.3	3.1	37.2	4	0	-6.6
11 Kyrie Irving	BOS	26	60	41	19	32.2	24.4	8.9	18.1	49.1	2.8	6.8	40.8	3.9	4.4	88.9	0.6	3.2	3.8	5.1	2.3	1.1	0.3	2.0	38.4	1	0	4.3

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# FORMAT DATA

1

The screenshot shows a Google Sheets interface with a blue star highlighting the file name 'ibastats2018'. A large blue arrow points from step 2 to the 'Download as' menu. Another large blue arrow points from step 3 to the 'Microsoft Excel (.xlsx)' option.

ibastats2018

File Edit View Insert Format Data Tools Add-ons Help All changes saved in Drive

Share...

New

Open...

Import...

Make a copy...

**2** Download as

Email as attachment...

Version history

Rename...

Move to...

Move to trash

3

Microsoft Excel (.xlsx)

OpenDocument format (.ods)

PDF document (.pdf)

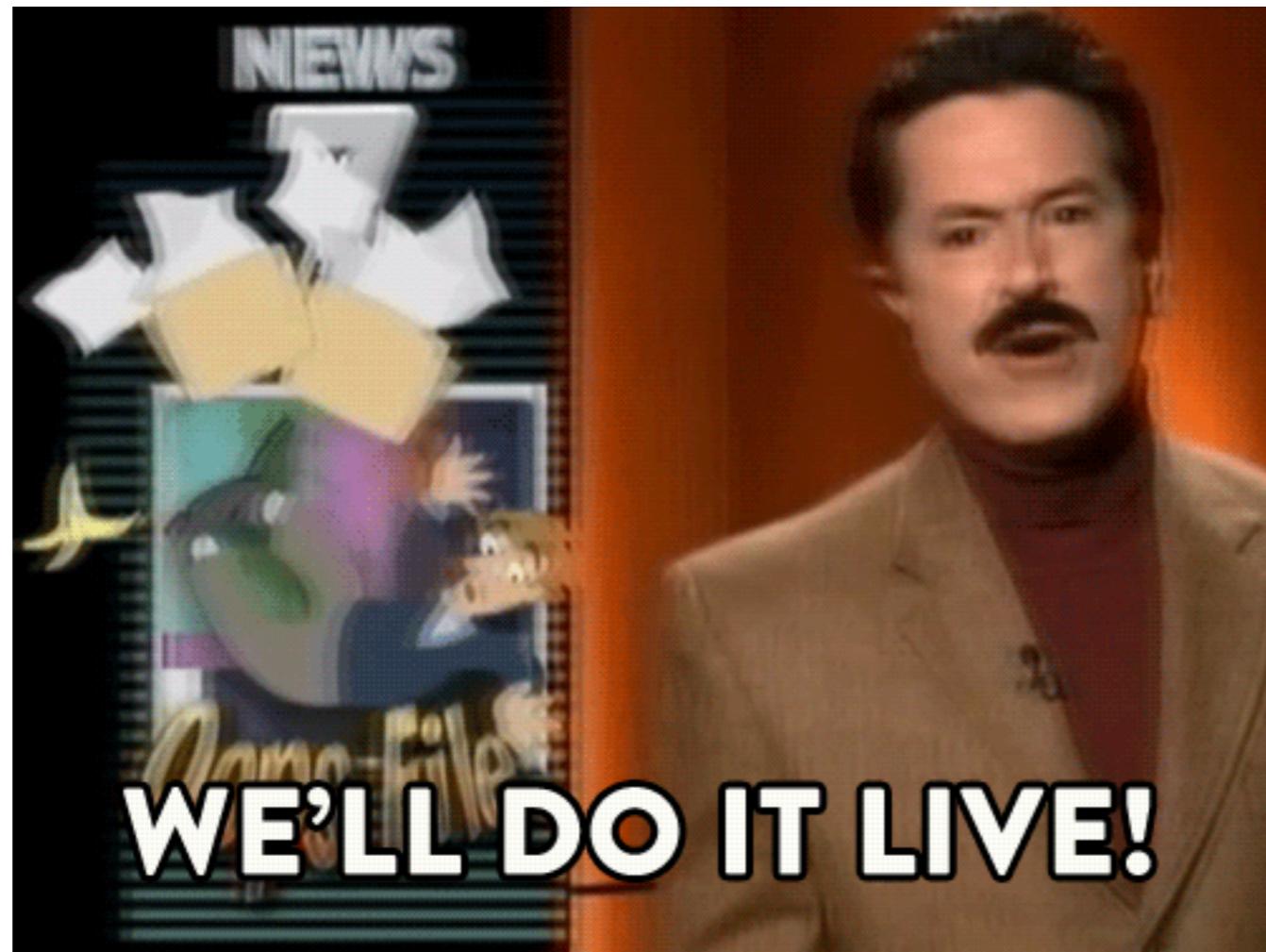
Web page (.html, zipped)

Comma-separated values (.csv, current sheet)

Tab-separated values (.tsv, current sheet)

	GP	W	L	MIN	PTS
1	70	59	13	35.4	30.4
2	75	45	30	36.4	28.1
3	82	50	32	36.9	27.5
4				36.6	26.9
5				36.7	26.9
6				32	26.4
7				34.2	26.4
8				36.4	25.4
9				36.2	25.2
10				34.5	24.9
11				32.2	24.4
12					

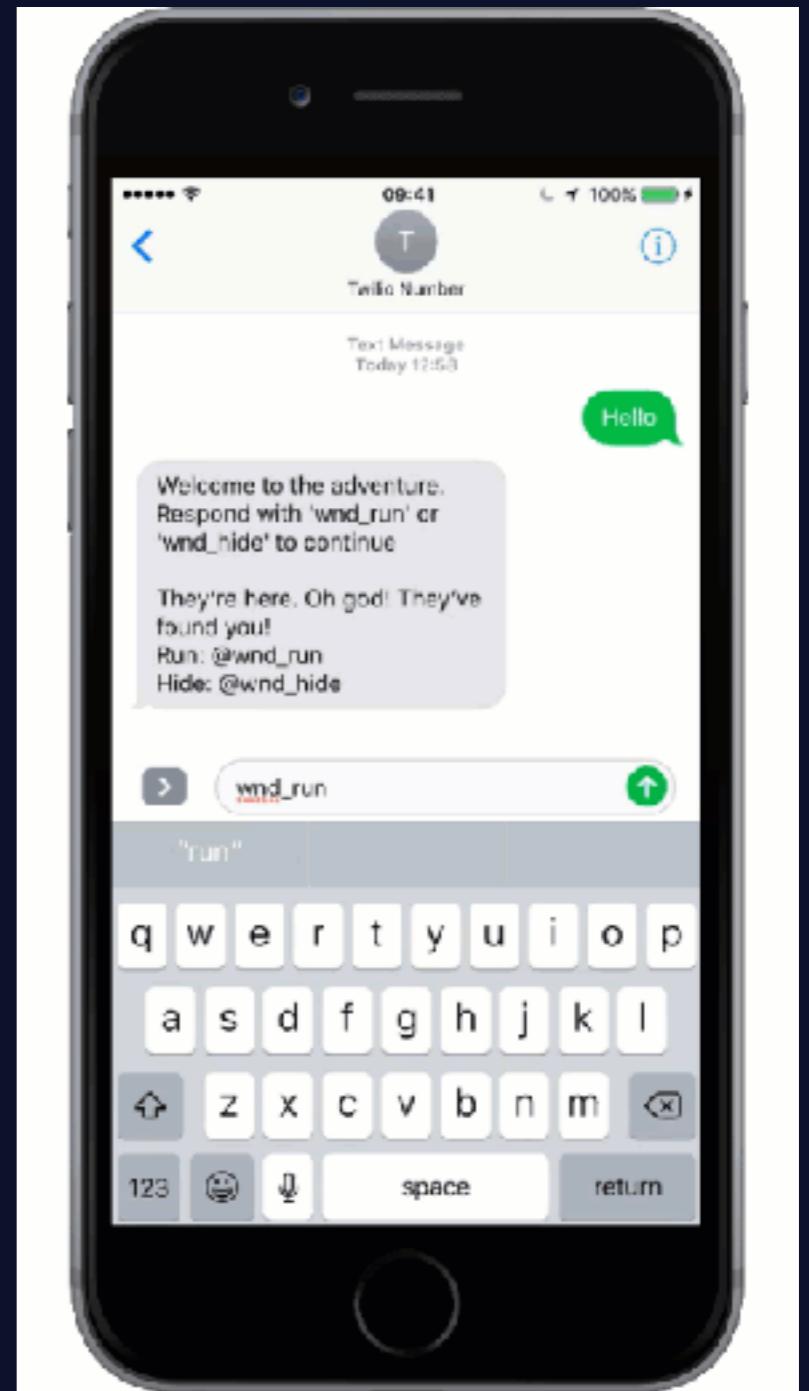
# LIVE CODE



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# INTRO TO TWILIO

- APIs for developers building the future of communications
- SMS, Voice, Video, Security, Flex, etc.
- Python, Swift, Java, C#, etc.



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# FLASK

- Popular Python micro web framework



```
Laptop: ~  
└─[lsiegler@3767] - [~] - [1779]  
└─[$] pip install flask
```



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*“Lebron james stephen  
curry pts”*

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# Overview

- created workbook, worksheet*
- Set title, tab color*
- Copy of sheet*
- Written to new and existing sheets*
- Overwritten cells*
- Written images to sheet*
- Used formulas*
- Parsed NBA stats**



# THANK YOU!



- [HTTPS://OPENPYXL.READTHEDOCS.IO](https://openpyxl.readthedocs.io)
- [HTTPS://GITHUB.COM/ELIZABETHSIEGLE/  
NBA-STATS-TWILIO-SMS-BOT](https://github.com/elizabethsiegle/nba-stats-twilio-sms-bot)

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