

In Class Activity

AI in Excel (Data from Images) – Workplace Activity 1

Part A

AI features are appearing in every day, common, workplace applications. This activity is a gentle introduction to AI features in Excel. Part A focuses on one AI feature – Data from Images.

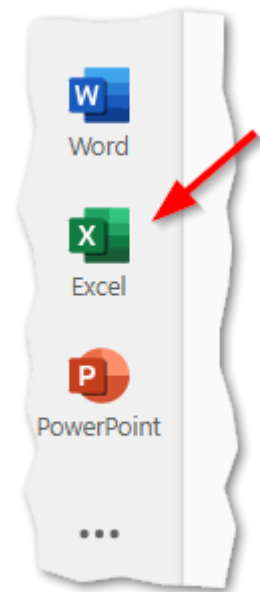
Alert! Possible, exam question ahead! This Excel feature is an example of **OCR (Optical Character Recognition)**.

NOTE – In the instructions below we are using the web based version of Excel, available to all Temple University students, on both Mac and PC platforms. If, for some reason, this does not work for you then you still need to complete the activity on your own, outside of class time if necessary.

You can use any lab computer. There are computer labs in the lower level of Speakman and in the TECH center. There is also <https://owllab.temple.edu> – a virtual lab computer available from anywhere through a browser.

Instructions – Part A

1. Students should visit <http://tinyurl.com/shaferaicourse> and download the image file found in the **workplace1** folder. (There is only one image there schedule-for-leo.png.)
2. Sign in to Office 365 through <https://tuportal.temple.edu>
3. Open up Excel (we are using the web based version of Excel)
4. Follow along with your instructor as we:
 - a. Create a Blank Workbook
 - b. Choose “Data” and “Data from Images” from the top ribbon bar.
 - c. Import Leo’s schedule from the png graphic file. (Be sure to interactively correct the OCR mistakes using the Excel wizard!)
5. Rename Boox1.xlsx to workplace1.xlsx.
6. Download it (With File / Save As / Download a Copy)
7. Turn it in (that is, upload workplace1.xlsx) on the corresponding Canvas Activity.
8. This Excel feature is an example of OCR (Optical Character Recognition). OCR is, by no means, a new technology. Discuss:
 - a. Does this “Data from Image” feature qualify as AI? Or is calling it “AI” just marketing fluff?



- b. How do you suspect this feature is working?
- c. If you had the full version of Excel installed on your laptop, could you run the OCR process without an internet connection?
- d. What workplace concerns might arise around such a feature?

Instructions – Part B

Part B focuses on another AI feature – Flash Fill.

Alert! Possible, exam questions ahead! This Excel feature is an example of **Machine Learning** and a **pattern recognition heuristic**.

Why does this count as AI? This is a simple example of machine learning. This feature follows a heuristic that generates the multiple possible code “solutions” that are derived (or “learned”) from the user input and selects one that appears to be the best match.

How does it work? Microsoft has not publicly detailed the exact algorithmic specifics. The code behind Flash Fill is proprietary.

In addition to “learning” from user input (which it apparently does) it also *probably* uses a library of the most common patterns (like, email addresses, phone numbers, etc.).

It also *probably* uses a language called RegEx (or something very similar) to represent the patterns. RegEx is short for Regular Expressions, and it is a language dedicated to one thing... representing and evaluating patterns of text.

You can read about it more here: <https://www.microsoft.com/en-us/research/blog/flash-fill-gives-excel-smart-charge/>

What’s a heuristic? A heuristic is a practical method or approach to problem-solving that, while not guaranteed to be perfect, efficient, or rational, is nevertheless sufficient for reaching an immediate, short-term goal or approximation. Heuristics are used to speed up the process of finding satisfactory solutions where finding an optimal or exact solution is impractical or impossible.

Instructions – Part B

1. Students should visit <http://tinyurl.com/shaferaicourse> and download the Excel file found in the **workplace1** folder. Put it on your desktop. (There is only one Excel there FlashFillExercise.xlsx.)

2. Sign in to Office 365 through <https://tuportal.temple.edu>
3. Open up Excel (we are using the web based version of Excel)
4. Open a new, blank workbook.
5. Open the FlashFillExercise.xlsx by clicking “File” and “Open Files from this device”.
6. Follow along with your instructor as we use the “Flash Fill” option to:
 - a. Complete the First Name column.
 - b. Complete the Last Name column.
 - c. Complete the Roster Name column.
 - d. Complete the Username column. (Usernames should be first initial concatenated with last name.)
7. Now, using the INDEX and RANDBETWEEN formulas, generate a random password for all the users.
8. Download your work (With File / Save As / Download a Copy
9. Turn it in (that is, upload FlashFillExercise.xlsx) on the corresponding Canvas Activity.
10. Discuss:
 - a. How is Flash Fill better / worse than an Excel formula?

