

MICHIGAN STATE

U N I V E R S I T Y

Beta Presentation

Cognitive Enterprise Software Robots

The Capstone Experience

Team Volkswagen

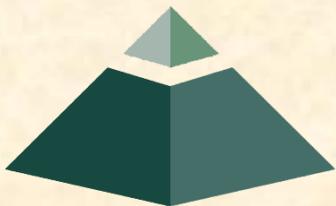
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Amelia Wilson

Fynn Reckhorn

Maryam Irannejad Najafabadi

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*From Students...
...to Professionals*

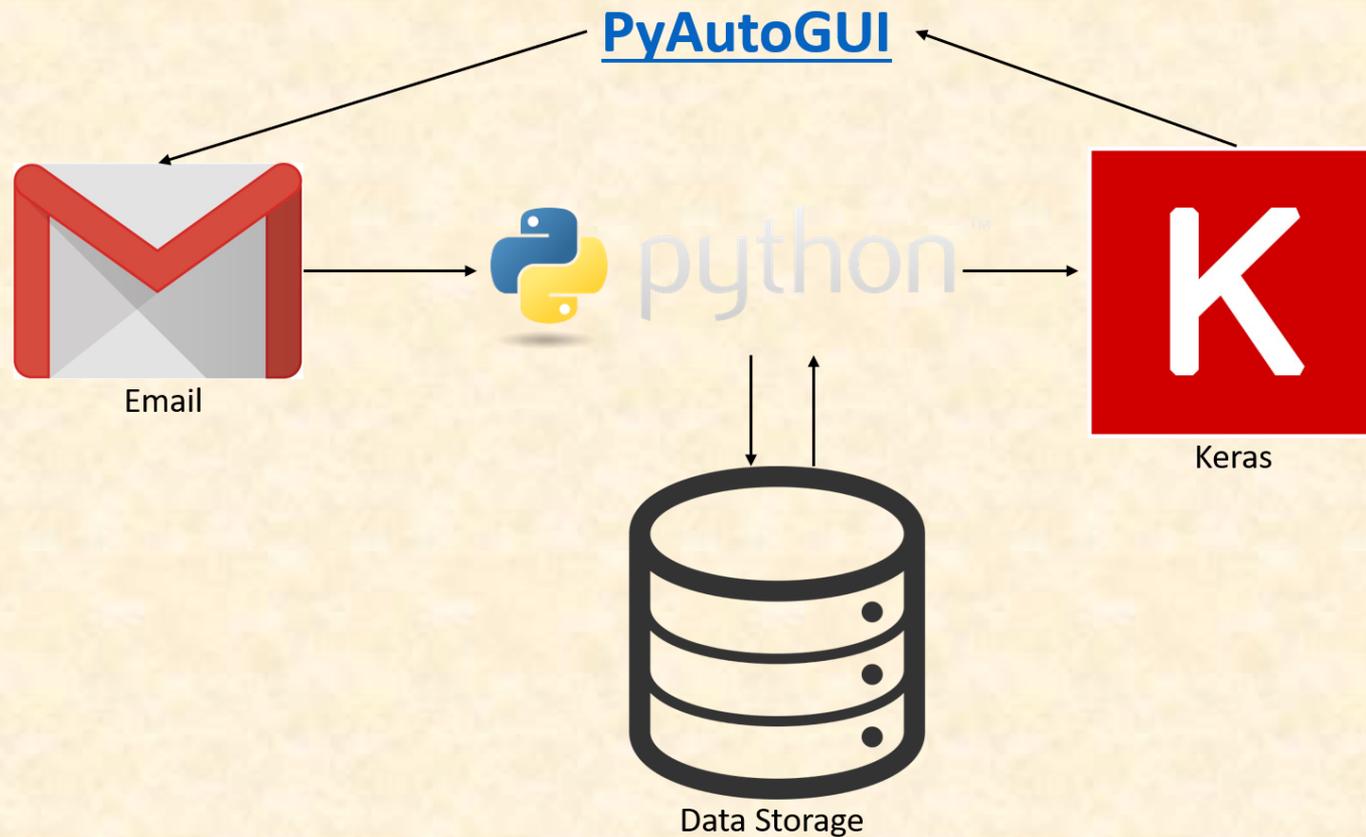
Department of Computer Science and Engineering
Michigan State University
Spring 2019

Project Overview

- Software robot to automate repetitive tasks
- PyAutoGUI to automate keyboard and mouse inputs
- Keras/Tensorflow to predict and learn future clicks
- Log clicks in order to learn tasks and monitor bot's performance
- NLP in order to interpret emails and start performing business tasks



System Architecture



Receiving Email

The screenshot displays the Outlook application interface. At the top, there is a search bar and navigation options like 'New message', 'Mark all as read', and 'Undo'. The left sidebar shows folders such as 'Inbox' (with a count of 1), 'Sent Items', 'Drafts', and 'Archive'. The main pane shows the 'Focused' tab selected, with an email notification from 'Irannejad Najafabadi, Maryam' titled 'Reminder Email' received at 7:19 PM. A red box with an upward-pointing arrow highlights the text 'Received Email' in the center of the screen. The right pane shows a placeholder for the email content with the text 'Select an item to read' and an icon of several envelopes.



Parsing Email Information

Outlook Search

+ New message Delete Archive Junk Sweep Move to Categorize Undo ...

Add favorite

Folders

- Inbox
- Junk Email
- Drafts
- Sent Items
- Deleted Items
- Archive
- Conversation Hi...
- For Human
- Handled
- New folder
- Upgrade to Office 365 with

Focused Other Filter

Irannejad Najafabadi, Maryam
Reminder Email Tue 3/26
Hi, Can you send a reminder email to the s...

Reminder Email

Irannejad Najafabadi, Maryam
<irannej1@msu.edu>
Tue 3/26/2019 7:19 PM
You

Hi,

Can you send a reminder email to the supplier for the item with part id 435DFG3?

Thanks,
Supply Manager

VC Reply

parsing received email



Calculating Date Difference

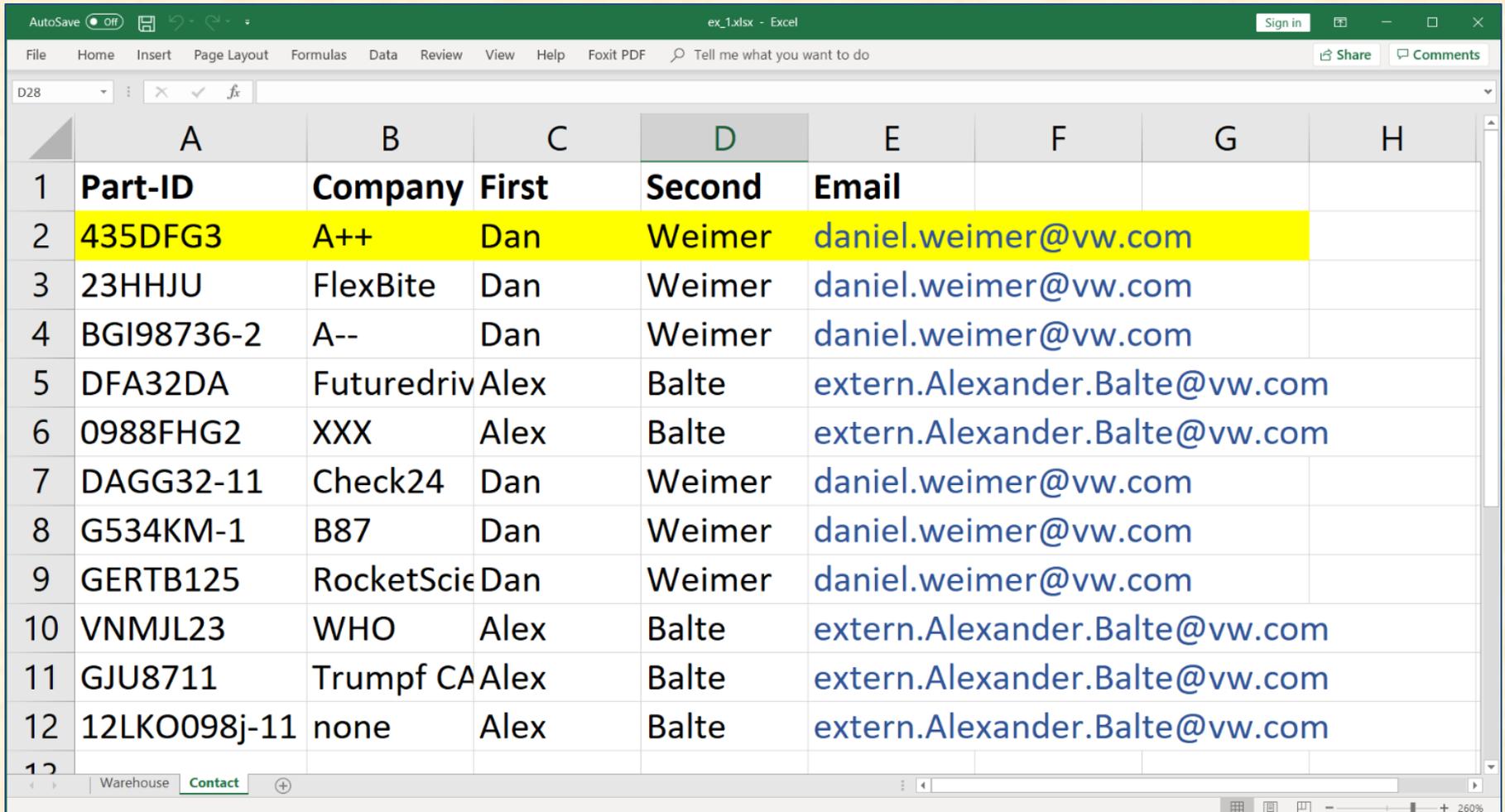
The screenshot shows an Excel spreadsheet titled "OrderHistory.xlsx - Saved". The spreadsheet contains a table with the following data:

	A	B	C	D	E	F	G	H	I	J
1	Part	Order ID	Name	Dis	Tab	VPA	Date	Amount	Open	Date Difference
2	435DFG3	0	Haltegriff PI	9GH			2/25/19	1220	0	14
3	435DFG3	1	Haltegriff PI	9GH			2/13/19	10	5	2
4	435DFG3	2	Haltegriff PI	9GH			2/23/19	10200	6700	12
5	435DFG3	3	Haltegriff PI	9GH		AA	3/9/19	3300	0	26
6	0988FHG2	0	Gear				3/12/19	15	12	29
7	G534KM-1	0	STECKDOSE	9GH	MOLL		4/12/19	100	5	59
8	G534KM-1	1	STECKDOSE	9GH	MOLL		2/26/19	200	200	15
9	G534KM-1	2	STECKDOSE	9GH	MOLL	BBB	3/9/19	50	30	26
10	G534KM-1	3	STECKDOSE	9GH	MOLL		2/22/19	900	100	11
11	GJU8711	0	SPANNHUELSE	9GH			5/12/19	224	125	89
12	12LKO098-11	0	Abdeckkappe			L1A	4/12/19	17	17	59
13	12LKO098-11	1	Abdeckkappe			L1A	2/22/19	25	25	11
14										
15										
16										

Cell K5 (row 15, column J) contains the text "Today's date: 2/11/19", which is highlighted with a red box. A red arrow points to this cell from the right side of the spreadsheet.



Parsing for Contact Information



The screenshot shows an Excel spreadsheet with the following data:

	A	B	C	D	E	F	G	H
1	Part-ID	Company	First	Second	Email			
2	435DFG3	A++	Dan	Weimer	daniel.weimer@vw.com			
3	23HHJU	FlexBite	Dan	Weimer	daniel.weimer@vw.com			
4	BGI98736-2	A--	Dan	Weimer	daniel.weimer@vw.com			
5	DFA32DA	Futuredriv	Alex	Balte	extern.Alexander.Balte@vw.com			
6	0988FHG2	XXX	Alex	Balte	extern.Alexander.Balte@vw.com			
7	DAGG32-11	Check24	Dan	Weimer	daniel.weimer@vw.com			
8	G534KM-1	B87	Dan	Weimer	daniel.weimer@vw.com			
9	GERTB125	RocketScie	Dan	Weimer	daniel.weimer@vw.com			
10	VNMJL23	WHO	Alex	Balte	extern.Alexander.Balte@vw.com			
11	GJU8711	Trumpf CA	Alex	Balte	extern.Alexander.Balte@vw.com			
12	12LKO098j-11	none	Alex	Balte	extern.Alexander.Balte@vw.com			



Automated Email Composition

The screenshot shows an email composition interface. At the top, there are buttons for 'Send', 'Attach', 'Discard', and a menu icon. The 'To' field contains 'daniel.weimer@vw.com' and the 'Bcc' field is empty. The 'Cc' field is also empty. The subject line is 'Volkswagen Order Reminder'. The main body of the email is enclosed in a green border and contains the following text:

Dear Supplier,

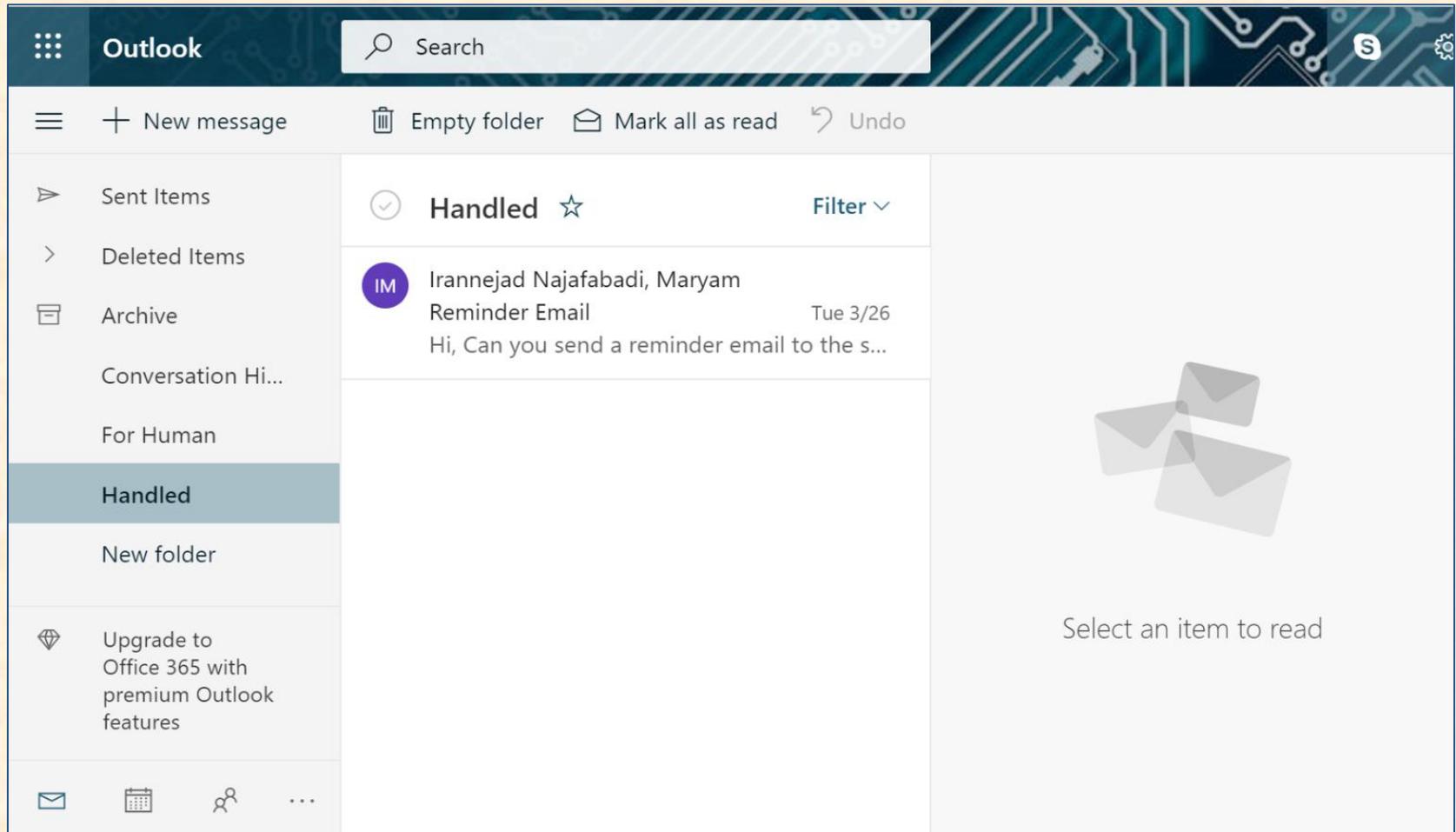
This message is a reminder that the part with ID 435DFG3 (ordered on 12/01/2018) was scheduled for delivery on 02/12/2019. We have not received the part yet, but hope to do so by the aforementioned date.

Regards,
Volkswagen

Below the text is a rich text editor toolbar with icons for font color, bold, italic, underline, text color, background color, bulleted list, numbered list, left indent, right indent, decrease indent, increase indent, link, unlink, and insert link. At the bottom of the window, there are buttons for 'Send' (highlighted in green), 'Discard', and a menu icon. On the right side, there is a status indicator: 'Draft saved at 4:23 PM'.



Moving Original Email To The Appropriate Folder



What's left to do?

- Improve Accuracy of Machine Learning Model
- Continue to automate new tasks to generate data



Questions?

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