Automating Account Deletion at Synopsys Inc.

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ABSTRACT

Synopsis Inc., an American electronic design automation company that focuses on silicon design, intellectual property, and software security, needed to automate the process of deleting accounts after employees left the company. As an intern at Synopsys, I utilized a combination of different programs, including Python, SharePoint, Power Automate, and Azure Services to automate the account deletion process. This saved much time and money that was used to delete these accounts manually. The company still utilizes the combination of programs I designed, and they continue to make improvements like making the time faster and doing multiple deletions at once.

1. INTRODUCTION

Last summer Synopsys Inc offered me a position as a technical intern in the tech department. I mainly worked with three people on the project: my supervisor, my advisor, and a fellow tech.

The main dilemma of the Synopsis project was that they continuously built accounts enabling employees to communicate and share information with others at the company. As people either left or were terminated, these employee accounts would have to be deleted one-by-one. This was a manual process that took a lot of time and effort. My main task as an intern was to determine how to automate the process.

2. RELATED WORKS

Herbert (2023) provided an in-depth article that discusses how to use SharePoint and Power Automate in conjunction to building workflows. The article gives an in-depth tutorial on how to connect the two programs and even provides sources for potential next steps. This was instrumental in helping me to create the final product, a Power Automate flow heavily dependent on SharePoint lists.

Schooneveld (2022) discusses how to do a REST API call using python code, which was the other major element of my project. This was essential in getting accounts deleted automatically. The Schooneveld article explained how to use python to do the call itself, and then connect the python code to the Power Automate and SharePoint programs.

3. PROJECT DESIGN

The project was designed in a way that utilized a variety of programs in conjunction to achieve the goal of our group. The most important program was Power Automate, a cloud-based software that allows one to create automate workflows across multiple applications, connecting applications across Microsoft 365, coding programs such as python and java, and more. This can be used for simple automatic emails and notifications to be sent to something much more complex, like what my team did. Figure 1 shows a great example of a Power Automate flow and how it connect different applications and programs.
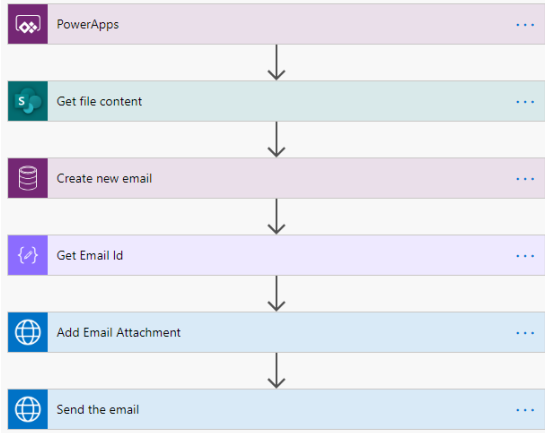
Figure 1: Example of a Power Automate
Flow Connecting Multiple Apps to Send
Automatic Email

Another important program utilized was
Microsoft SharePoint, a secure place to store,
organize, share, and access information from
any device. It enables storage of lists of
information that can be accessed by multiple
people with permissions to access them.
Figure 2 shows a great example of a
SharePoint list and how it has multiple
columns of information that can bs used for
sorting and organization.

Figure 2: Example of a SharePoint List that
Holds Information on a Variety of People
and has Other Columns that can be Applied
to All People

The main programming language I utilized
was Python. Using the program Pycharm,
which allows coding in Python, I was able to
code a program that connected to the other
programs and did what simple programs
could not do themselves. Figure 3 shows an
example of how Python code looks and how
the it functions in code form.


```
1   import os, time
2   x = "Welcome to The Mirror."
3   y = 0
4
5   while y <= len(x):
6       os.system("clear")
7       print(x[:y])
8       time.sleep(0.2)
9       y = y+1
10  time.sleep(2)
11  x = "You will stay here for as long as you can, you may
    forfeit when you would like to."
12  y = 0
13
14  while y <= len(x):
15      os.system("clear")
16      print(x[:y])
17      time.sleep(0.2)
18      y = y+1
19  time.sleep(2)
20  x = "Please stand here, and stare into the mirror."
21  y = 0
22
23  while y <= len(x):
24      os.system("clear")
25      print(x[:y])
26      time.sleep(0.2)
27      y = y+1
28  time.sleep(2)
29  x = "This is you in the mirror:"
30  y = 0
31
32  while y <= len(x):
33      os.system("clear")
34      print(x[:y])
```

Figure 3: Example of Python Code that
Does Multiple Functions
within the Program

The final main program used was Azure
Cloud Services, designed to help one utilize
cloud services tailored to cater to diverse
needs of numerous industries, including
computing, storage, databases, and
networking. Figure 4 shows an example of all
the main different services that Azure offers.

Figure 4: Example of All Different Services Azure Provides

Using Power Automate we connected SharePoint, the Python code, and Azure together. The SharePoint lists contained a list of employee names, accounts, and information related to the account. Azure was mainly to keep personal information safe using Azure Key Vault. This allowed us to keep certain passwords and access information out of public space.

The Python code was used to do a REST API call, sent out as a signal used to automatically delete the account. With the combination of programs when the call is made, Power Automate Flow takes the information given into the call and maps it to the SharePoint List and gets the corresponding information from the Azure Key Vault before deleting the account. This entire process makes what was once a manual task much more efficient and less time-consuming.

4. RESULTS
We were able to determine that my design worked in successfully deleting accounts. I was informed that the company went official with the automation and has been using it ever since. The deletion, which once could take up to half an hour for one account, can now be done automatically in the background in a couple of minutes, without wasting anyone's time. The product itself has continued to be modified to be even faster, and right now work is being done to enable deletion of multiple accounts at once.

5. CONCLUSION
My project at Synopsys Inc. served an important role at the company. I was able to automate some system processes dealing with deleting accounts of employees that quit or were terminated. I used a combination of various programs and applications like Power Automate, SharePoint, Python, and Azure AD to make this possible. Using a combination of knowledge gained from my own skillset prior to working at the company and skills gained while working I was able to achieve the project mission given to me by the end of the internship.

My project serves the company greatly as it makes a manual task that once took several hours of the day a menial one that takes a few simple clicks and works instantly. This allows the people who once had to spend time doing this task to spend time on other tasks that are of more importance. In addition, this project of automation could lead to many more within the company using similar logic to the one used to create my project.

6. FUTURE WORK
There are many ways that the project I created could be improved upon. While my project does what it intends to do it is certainly not the most efficient method to do what is intended. There are certainly ways to speed up the process. This could be done using a completely different set of programs or by using the current programs and making small adjustments to save time. Another way the project could be improved is through the deletion of multiple accounts at once. When I left the company, the project worked completely when it came to deleting one

account. However, there could be a way to make this work multiple times simultaneously.

Through emails with the people, I worked with during my time at Synopsys Inc., I have learned that some of these improvements have already been worked on and continue to be improved upon to be implemented in the future. In addition to the project specifically, the ideas in terms of automating manual tasks can be carried to other parts of the company. Surely, deleting accounts of terminated employees is not the only manual task that can be automated. Similar sorts of programs and logic can be applied to other manual tasks that the company spends an unnecessary amount of time on.

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