



Laboratory Report

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Student Declaration

1. I have accurately identified and included the sources of all facts, ideas, opinions, and viewpoints from others in the assignment references. All direct quotations, paraphrasing, and discussions of ideas from books, journal articles, internet sources, course materials, or any other sources used are properly acknowledged and cited in the assignment references.
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3. I understand and am compliant with ATU's policy and procedures regarding Academic Integrity and I am aware of the consequences of any violations.
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Description

In data centres, technicians must perform repetitive tasks on a regular basis, these tasks can be automated to improve productivity. To accomplish this on windows virtual machines we can use a windows scripting language called batch files, these batch are then executed in the windows terminal.

Aims

Windows batch files can be used to automate processes on windows virtual machine; thus we should become familiar with them, their scripting language and experiment with them by executing them and observing the results.

The primary aim of this work is:

1. To become familiar with windows command prompt and file structure.
2. Learn the windows batch file scripting language.
3. Write and test windows batch files.
4. Executing windows batch file.
5. Observe the output from executing the windows batch files.

Method

A windows 11 machine was used to execute the Disk Operating System (DOS) batch scripts. To input the code for the scripts Notepad++ was used.

First a directory named BatchFiles was created, this directory would be used to store the batch files. In Notepad++ using the GUI we would create the appropriately named batch file e.g. Demo1.bat and enter the code using Notepad++ .

To run the batch file, in the windows console/terminal, we would navigate to the BatchFiles directory and enter the filename without the .bat extension e.g. to run demo2.bat we would type demo2 only.

Demo1.bat

The code for demo1.bat is shown in the appendix labelled as figure 1.

The following is explanation of the code:

@echo off - This makes windows not display the windows prompt which shows what directory and path we are in

CLS – This is used to clear the screen

Dir /w – This displays all the directories and files in the current directory, the /w is a “switch” that is used to specify that we want to display it in a wide format.

Demo2.bat

The code for demo2.bat is shown in the appendix labelled as figure 3. We can observe the following

:: is used at the start of line to specify what follows is comments

Title – is used to specify the windows command prompt or consoles title

Echo – is used to print to the console

Demo3.bat

The code for demo3.bat is shown in the appendix labelled as figure 5. We can observe the following

The demo3.bat script uses the PAUSE command, to make the console window pause and wait until the user presses a button

Demo4.bat

The code for demo4.bat is shown in the appendix labelled as figure 7. We can observe the following

In demo4.bat we introduce the use of variables, SETLOCAL and ENDLOCAL, are used to ensure that the variables we specify between SETLOCAL and ENDLOCAL can only exist between these two points. To create a variable, we use SET command. We specify a variable clonepath by the following

SET clonepath=VALUE – Sets variable clonepath to VALUE

Echo %clonepath% - Prints the clonepath value to the console

Calculations can also be done in scripts by using /A to perform “arithmetic calculations”

SET /A calculation=2+12/4, calculates 2+12/4 and sets it to the variable called calculation.

Demo5.bat

The code for demo5.bat is shown in the appendix labelled as figure 9. We can observe the following

To pass arguments to the Demo5.bat script we specify them after the filename e.g

demo5 Edmund Connolly. We then can access the argument using the percentage sign and its position e.g %2 will result in Connolly.

Demo6.bat

The code for demo6.bat is shown in the appendix labelled as figure 11.

In Demo6 we prompt the user for input and set the value entered into a variable, we then print this value

Set /p NAME=What is your name? – /p switch is used to specify prompt mode. It then prints the message What is your name? and sets the variable NAME to the entered value

Demo7.bat

The code for demo7.bat is shown in the appendix labelled as figure 13.

It sets 2 variables ospah and filename and then uses an if statement to check if the file specified by filename exists at Windows ospah, if it is there it prints a message saying it exists otherwise it prints No file named explorer.exe.

Demo8.bat

The code for demo8.bat is shown in the appendix labelled as figure 15.

It checks for a file that doesn't exist. It then tries to copy this file to a TEMP location, because it doesn't exist it throws an error.

The script then checks if the ERROR LEVEL is not equal to 0 which is true so it prints out that the error level was 1 and that did not work.

Demo9.bat

The code for demo9.bat is shown in the appendix labelled as figure 17.

The code tries to copy explorer.exe. Then because it uses && which means if the previous command is successful run what is after it, then to print a message saying copy of explorer.exe worked. It then prints 2 empty lines.

It then attempts to copy a file that doesn't exist which it fails. It uses || which means if the previous command fails run what is after it, which is to print a message saying copy failed.

Demo10.bat

The code for demo10.bat is shown in the appendix labelled as figure 19.

It creates an empty file called SimpleBackup.log and put ***Demo10 Logfile ***.

It then prints a message 1. Copying explorer.exe into the file SimpleBackup.log

Then it attempts to copy the file explorer.exe which does exist, so the standard output is appended into the SimpleBackup.log

Then it attempts to copy the file DoesNotExist.exe file which doesn't exist, so the standard output is appended into the SimpleBackup.log

The standard output is different for files that exist and doesn't exist.

Demo11.bat

The code for demo11.bat is shown in the appendix labelled as figure 22.

The first loop iterates through all files in the current directory

%CD% - is a built-in variable that is the current directory path

FOR %%I In (*) DO – is a for loop to go through every file in the current folder, * means every file

%%I is the loop variable that stores each filename

It then echos each Filename (%%I)

The second for loop looks at directories in the users profile

%USERPROFILE% → environment variable that points to the user's home directory, e.g.
C:\Users\Edmund

/D → tells the FOR loop to iterate **only over directories**.

%%I → represents each directory name found.

@ECHO %%I → displays the directory path.

Results and Testing

Briefly introduce the section and define the tests which are performed.

The results of the work must be presented here in an appropriate form. Any filtering or removal of data must be declared and explained. If a system is being created, the test procedure and result must be given. If many tables or diagrams are required, these diagrams should be individually labelled, included in appendix B, and referenced from here.

The results/testing section of a report should allow a peer to replicate and verify the results obtained.

Number every figure or table. Do not include any figure or table which you do not discuss.

Demo1.bat Results

In the appendix figure 2 we can see the result from running demo1.bat it shows a list of the files and directories displayed in a width form

Demo2.bat Results

In the appendix figure 4 shows the result, we can see statements have been printed to the screen and the prompt window has the title that was specified in the command

Demo3.bat Results

In the appendix figure 6 shows the result, when running the batch script it pauses and displays a message to user saying press any key to continue

Demo4.bat Results

In the appendix figure 8 shows the result, we can see that the value variables have been set to when we print them out. We also can see the value of calculation is arithmetic result of the specified equation.

Demo5.bat Results

In the appendix figure 10 shows the result, we can see that the values/arguments after the demo5.bat are printed out by the script in our demo, Edmund Connolly gets passed into the script and printed out.

Demo6.bat Results

In the appendix figure 12 shows the result, we can see that the values entered at the prompt for what is your name is printed out to the screen

Demo7.bat Results

Figure 14 in the appendix shows the results of Demo7.bat we can see it found the file explorer.exe in the windows directory

Demo8.bat Results

Figure 16 in the appendix shows the results of Demo8.bat. We can see that there was an error level because we tried to copy a file that doesn't exist. Thus it printed a message to the screen saying there was an errorlevel and the copy didn't work

Demo9.bat Results

Figure 18 in the appendix shows the results of Demo9.bat. We can see that there was an error level We can see it successfully copied explorer.exe, and it failed to copy DoesNotExist.exe file

Demo10.bat Results

Figure 20 shows the SimpleBackup.log was created and figure 21 in the appendix shows the results of Demo9.bat. We can see that output from copying a file that exists and a non-existent file has been put in the SimpleBackup.log file

Demo11.bat Results

Figure 23 in the appendix, shows all the files in the current directory and then shows all directories in the user's profile.

Conclusions

A batch file is specified by giving a file the “.bat” extension, these batch files can be used to create useful scripts that can automate repetitive tasks, examples such as deleting temporary files, copying files from one location to another, they may also change settings, automate routines, and launch apps or web pages on your computer. These scripts may be scheduled to run when the machine starts up by placing the batch files in the startup folder or at regular intervals using the Task Scheduler Library.

During experimentation with batch files, I learnt how to pass parameter arguments to a script from the command line, using this method of passing data and batch files if statements. We can conditionally execute code based on what the user passes, thereby changing what the script does or how it does for example when using dir to list the contents of a directory, passing the argument /w will make the output go into a “wide” mode, whereas /p will make the output pause after a screen amount of data.

In Demo 10, I learnt about how to redirect output in the command line or using a batch script to for example the screen designated the standard output device or STDOUT=1 and the standard error device which is normally the screen but can be a printer or STDERR=2. In the script demo 10, it saves the output of copying a file that exists and doesn't exist into a text file but also displays the result on the screen, this script could easily be modified to create a log file for system administrators.

In Demo 4 I experimented with creating local variables using SETLOCAL and ENDLOCAL, the advantage of local variables is that their scope where they exist is limited in between the SETLOCAL and

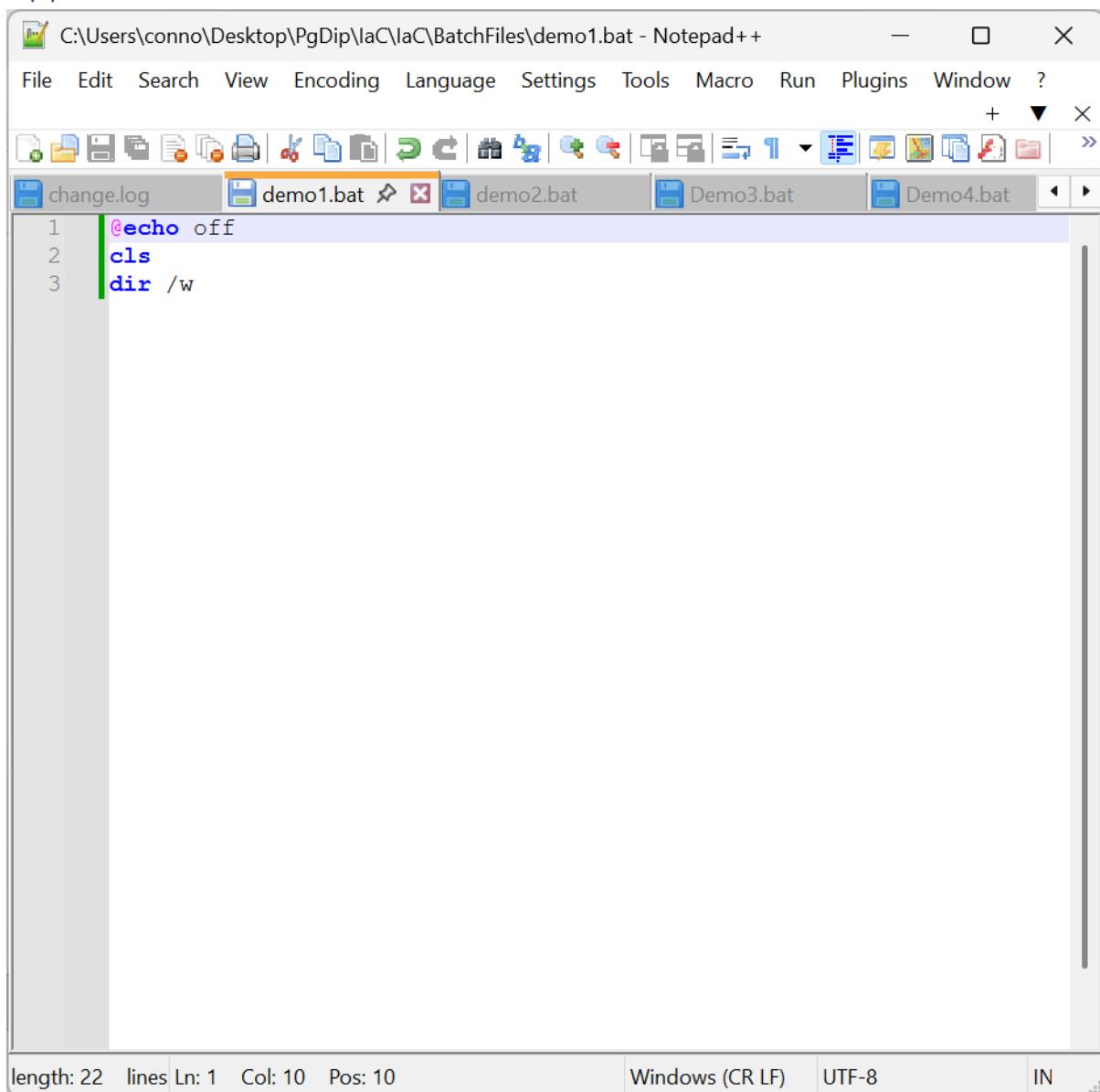
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ENDLOCAL statements, this has the main advantage that it prevents these variables from leaking into the wider script or system environment, this is good software engineering.

All my aims were achieved, I became more familiar with the windows command prompt, such as navigation and running of batch files. We learnt basic batch file scripting by writing simple scripts, executing them and observing the results in command prompt window. Batch scripts are useful and important because they allow an administrator the power and flexibility to create scripts that automate processes and that can be scheduled to run regularly or at startup if the administrator wishes.

References

Appendices



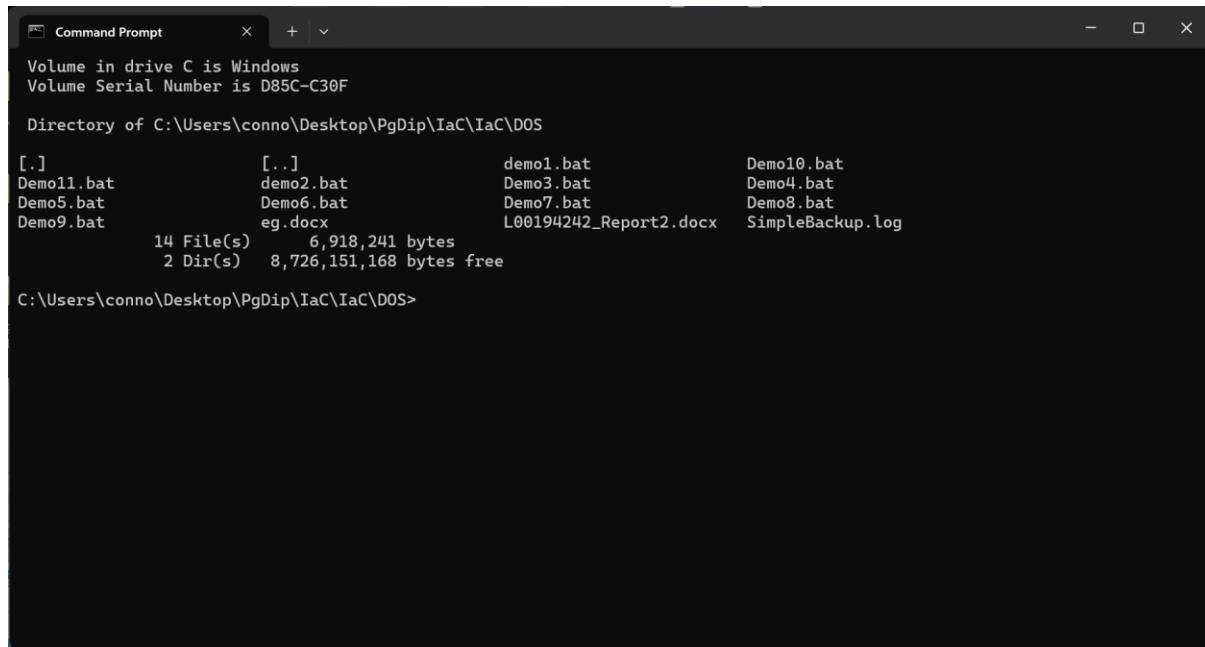
The screenshot shows a Notepad+ window with the title bar "C:\Users\conno\Desktop\PgDip\laC\laC\BatchFiles\demo1.bat - Notepad+". The menu bar includes File, Edit, Search, View, Encoding, Language, Settings, Tools, Macro, Run, Plugins, Window, and ?. The toolbar below the menu bar contains various icons for file operations like Open, Save, Print, and Cut/Copy/Paste. The main editor area displays the following code:

```
1 @echo off
2 cls
3 dir /w
```

The status bar at the bottom of the window shows "length: 22 lines Ln: 1 Col: 10 Pos: 10" on the left, and "Windows (CR LF) UTF-8 IN" on the right.

Figure 1 - Demo1.bat code screenshot

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The screenshot shows a Windows Command Prompt window titled "Command Prompt". The output of the command "dir" is displayed, showing the contents of the directory C:\Users\conno\Desktop\PgDip\IaC\IaC\DOS. The directory contains several files and sub-directories, including bat files (Demo1.bat, demo2.bat, Demo3.bat, Demo4.bat, Demo5.bat, Demo6.bat, Demo7.bat, Demo8.bat, Demo9.bat, Demo10.bat), a Word document (eg.docx), a Word document (L00194242_Report2.docx), and a log file (SimpleBackup.log). The total size of files is 6,918,241 bytes and the free disk space is 8,726,151,168 bytes.

```
Volume in drive C is Windows
Volume Serial Number is D85C-C30F

Directory of C:\Users\conno\Desktop\PgDip\IaC\IaC\DOS

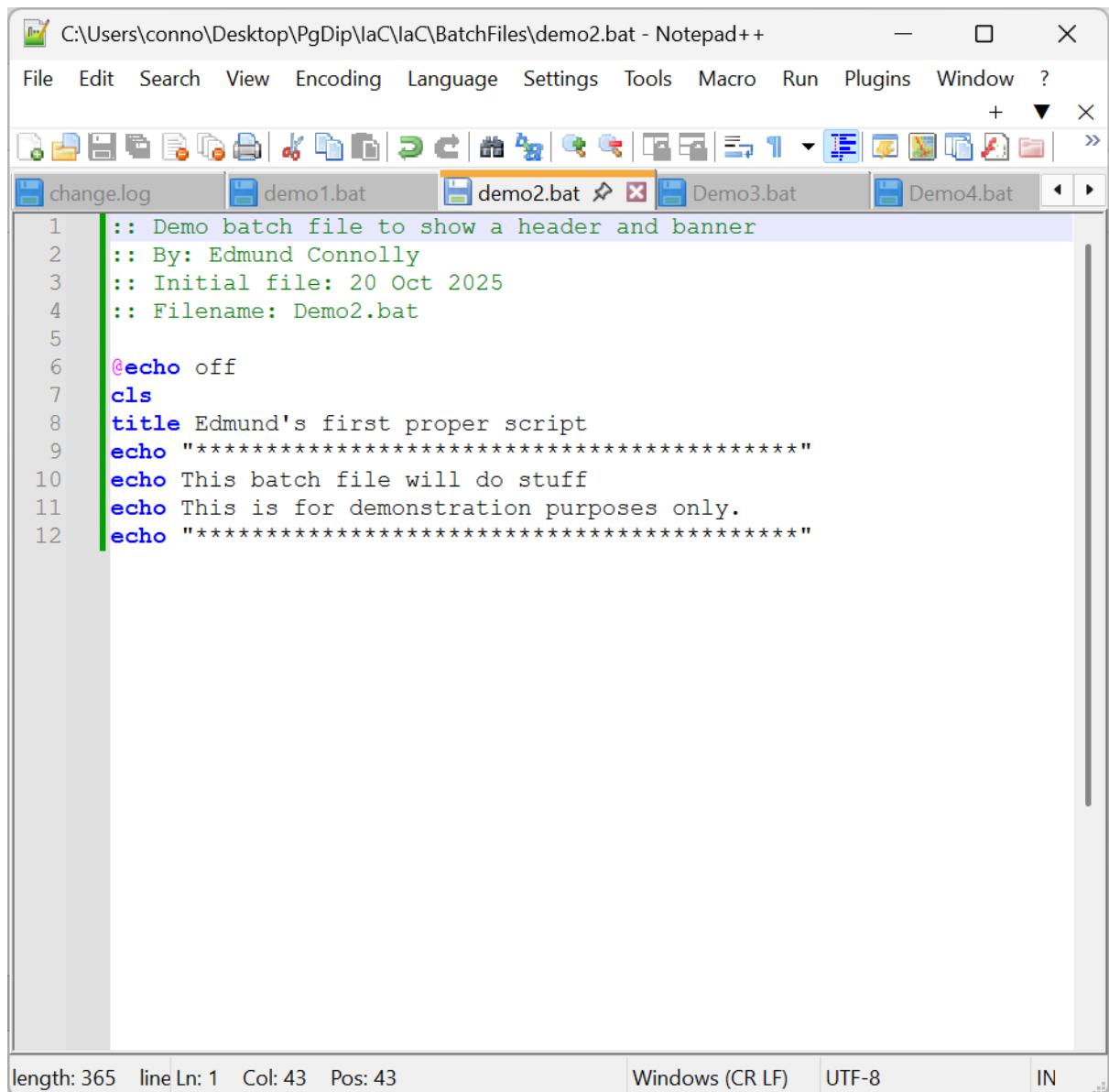
[.]           [...]          demo1.bat        Demo10.bat
Demo11.bat    demo2.bat      Demo3.bat       Demo4.bat
Demo5.bat     Demo6.bat      Demo7.bat       Demo8.bat
Demo9.bat     eg.docx        L00194242_Report2.docx SimpleBackup.log

14 File(s)   6,918,241 bytes
 2 Dir(s)   8,726,151,168 bytes free

C:\Users\conno\Desktop\PgDip\IaC\IaC\DOS>
```

Figure 2 - Result of Demo1.bat

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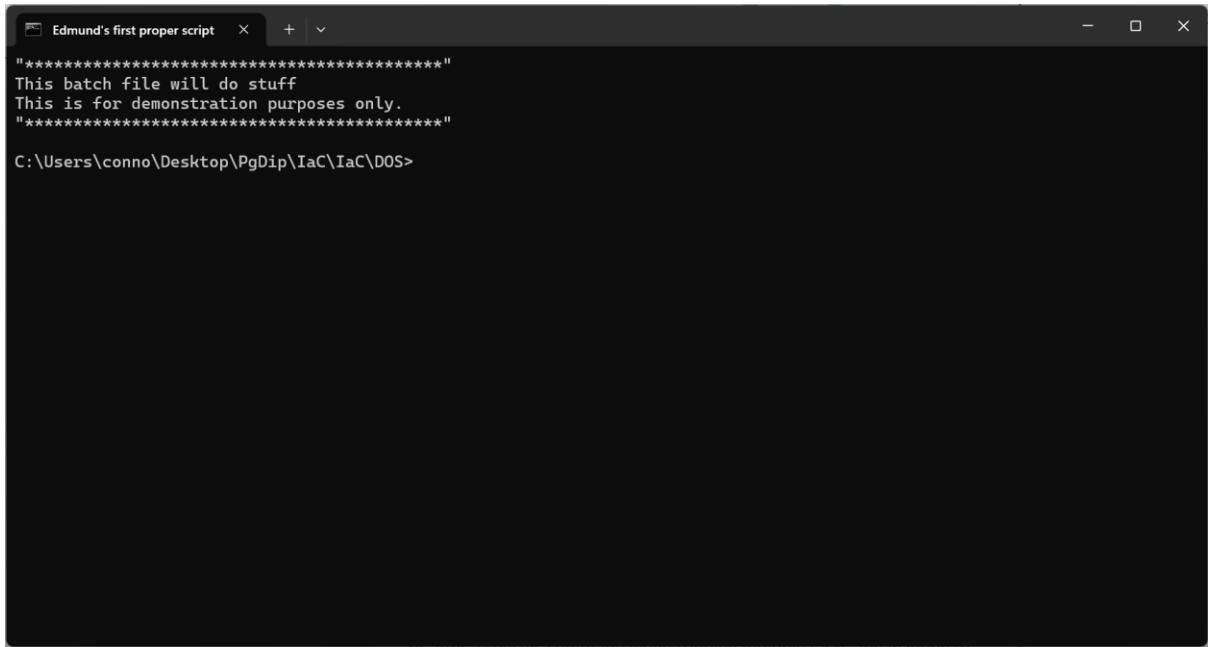
The screenshot shows the Notepad++ application window with the file 'demo2.bat' open. The window title is 'C:\Users\conno\Desktop\PgDip\laC\laC\BatchFiles\demo2.bat - Notepad++'. The menu bar includes File, Edit, Search, View, Encoding, Language, Settings, Tools, Macro, Run, Plugins, Window, and Help. The toolbar contains various icons for file operations. Below the toolbar, several tabs are visible: 'change.log', 'demo1.bat', 'demo2.bat' (which is the active tab), 'Demo3.bat', and 'Demo4.bat'. The main editor area displays the following batch script code:

```
1 :: Demo batch file to show a header and banner
2 :: By: Edmund Connolly
3 :: Initial file: 20 Oct 2025
4 :: Filename: Demo2.bat
5
6 @echo off
7 cls
8 title Edmund's first proper script
9 echo ****
10 echo This batch file will do stuff
11 echo This is for demonstration purposes only.
12 echo ****
```

At the bottom of the Notepad++ interface, status bars show 'length: 365 line Ln: 1 Col: 43 Pos: 43', 'Windows (CR LF)', 'UTF-8', and 'IN'.

Figure 3 - Demo2.bat code screenshot

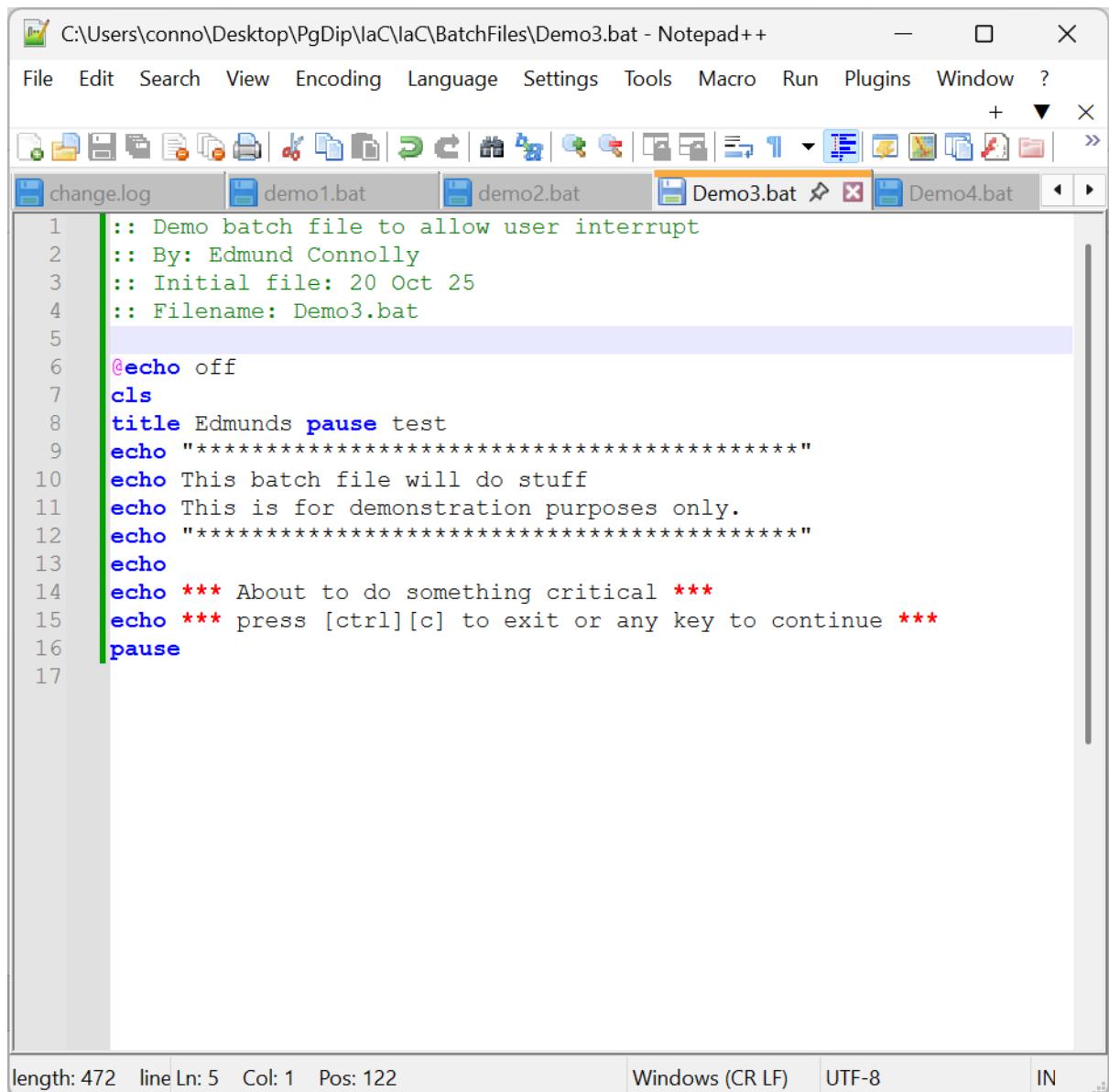
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```
"*****  
This batch file will do stuff  
This is for demonstration purposes only.  
*****"  
C:\Users\conno\Desktop\PgDip\IaC\IaC\DOS>
```

Figure 4 - Result of Demo2.bat

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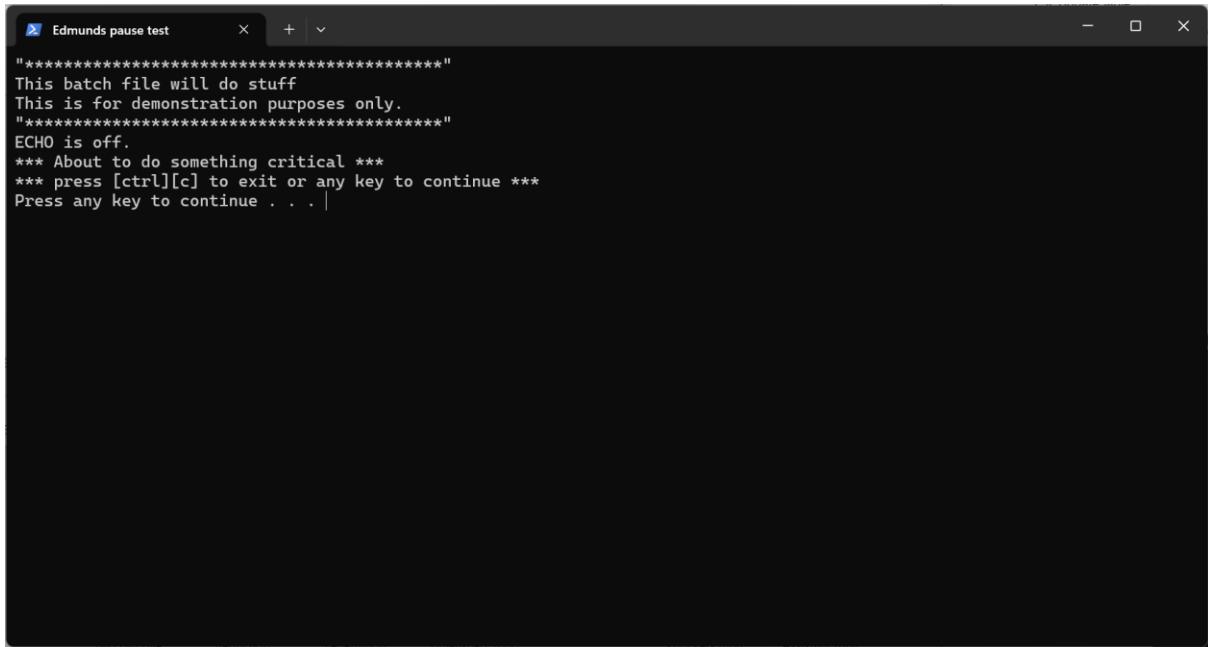
The screenshot shows a Notepad++ window with the title bar "C:\Users\conno\Desktop\PgDip\laC\laC\BatchFiles\Demo3.bat - Notepad++". The menu bar includes File, Edit, Search, View, Encoding, Language, Settings, Tools, Macro, Run, Plugins, Window, and Help. The toolbar below the menu has various icons for file operations. The tab bar at the top shows several files: change.log, demo1.bat, demo2.bat, Demo3.bat (which is the active tab), Demo4.bat, and Demo5.bat. The main editor area contains the following batch script code:

```
1 :: Demo batch file to allow user interrupt
2 :: By: Edmund Connolly
3 :: Initial file: 20 Oct 25
4 :: Filename: Demo3.bat
5
6 @echo off
7 cls
8 title Edmunds pause test
9 echo ****
10 echo This batch file will do stuff
11 echo This is for demonstration purposes only.
12 echo ****
13 echo
14 echo *** About to do something critical ***
15 echo *** press [ctrl][c] to exit or any key to continue ***
16 pause
17
```

At the bottom of the Notepad++ window, status bars show "length: 472 line Ln: 5 Col: 1 Pos: 122", "Windows (CR LF)", "UTF-8", and "IN".

Figure 5 - Demo3.bat code screenshot

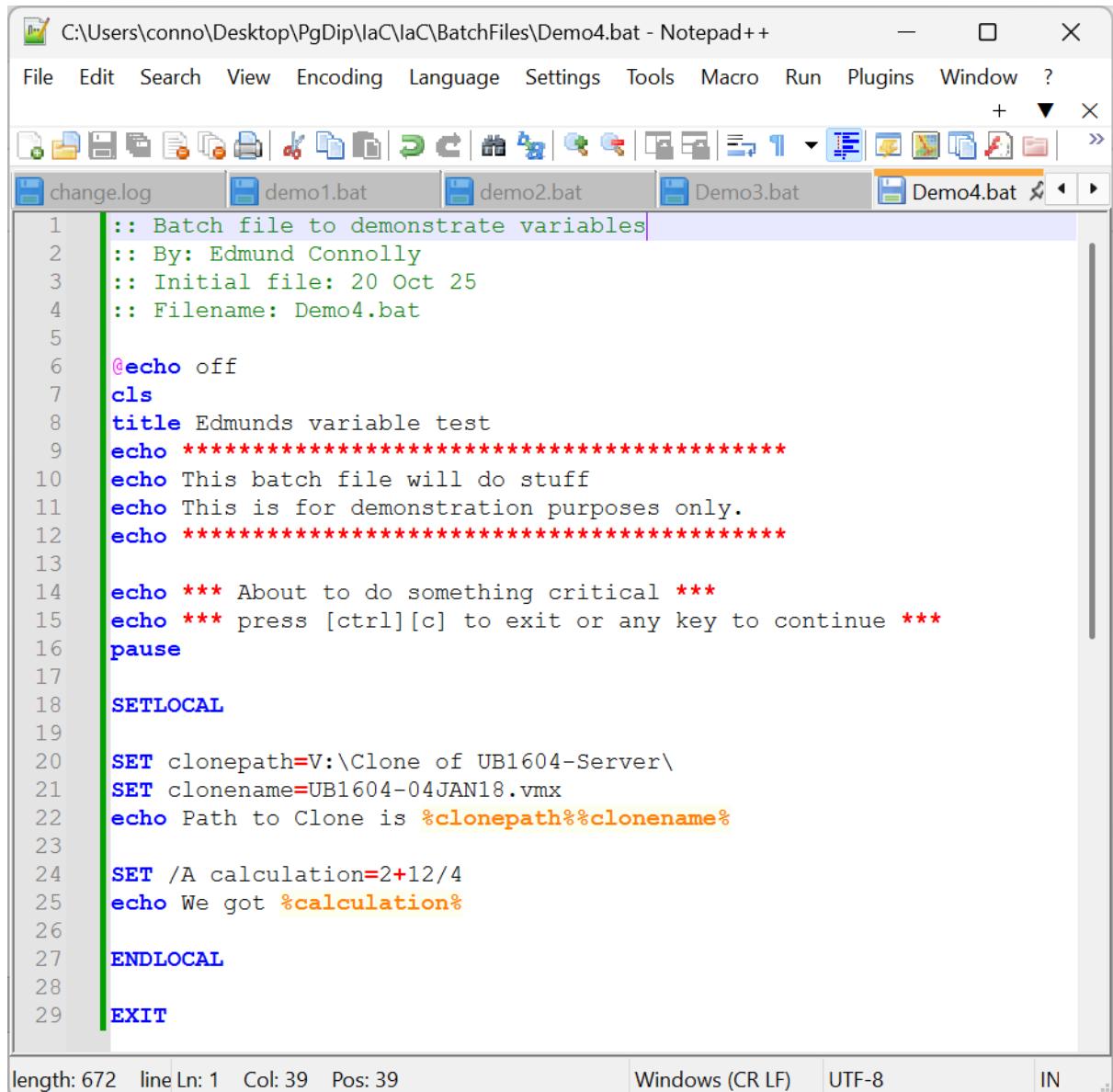
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```
"*****  
This batch file will do stuff  
This is for demonstration purposes only.  
*****"  
ECHO is off.  
*** About to do something critical ***  
*** press [ctrl][c] to exit or any key to continue ***  
Press any key to continue . . . |
```

Figure 6 - Result of Demo3.bat

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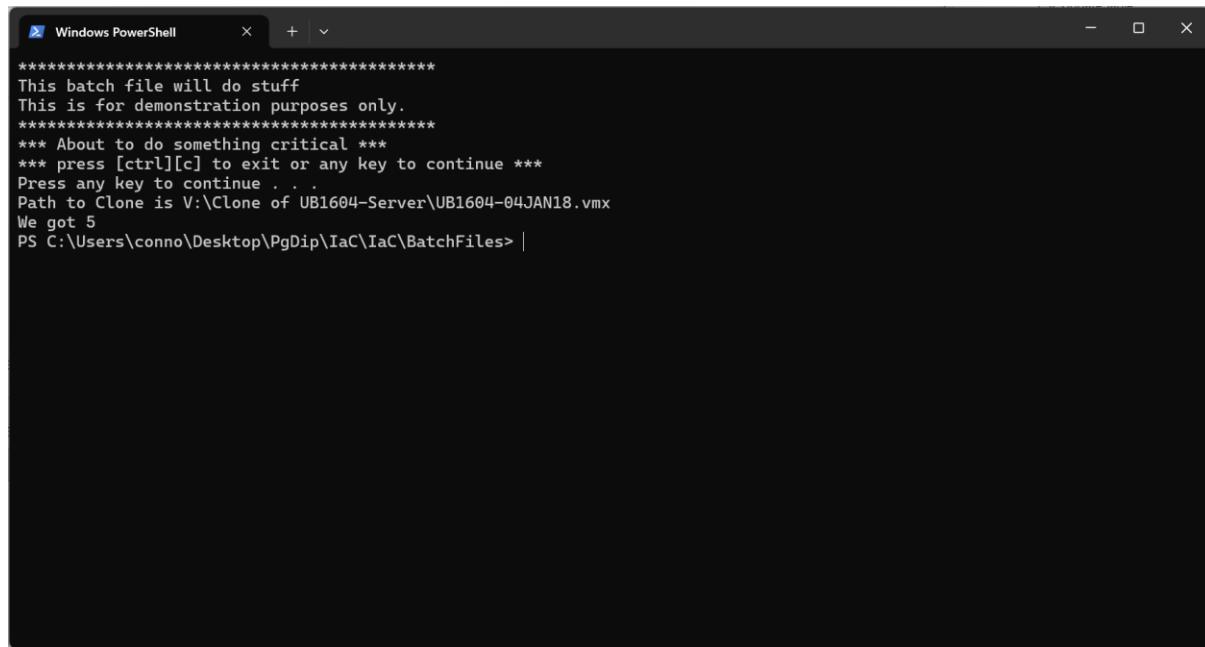
The screenshot shows the Notepad++ application window with the file `Demo4.bat` open. The code in the editor is as follows:

```
1 :: Batch file to demonstrate variables
2 :: By: Edmund Connolly
3 :: Initial file: 20 Oct 25
4 :: Filename: Demo4.bat
5
6 @echo off
7 cls
8 title Edmunds variable test
9 echo ****
10 echo This batch file will do stuff
11 echo This is for demonstration purposes only.
12 echo ****
13
14 echo *** About to do something critical ***
15 echo *** press [ctrl][c] to exit or any key to continue ***
16 pause
17
18 SETLOCAL
19
20 SET clonepath=V:\Clone of UB1604-Server\
21 SET clonename=UB1604-04JAN18.vmx
22 echo Path to Clone is %clonepath%&%clonename%
23
24 SET /A calculation=2+12/4
25 echo We got %calculation%
26
27 ENDLOCAL
28
29 EXIT
```

The status bar at the bottom of the Notepad++ window displays the following information: length: 672, line Ln: 1, Col: 39, Pos: 39, Windows (CR LF), UTF-8, IN.

Figure 7 - Demo4.bat code screenshot

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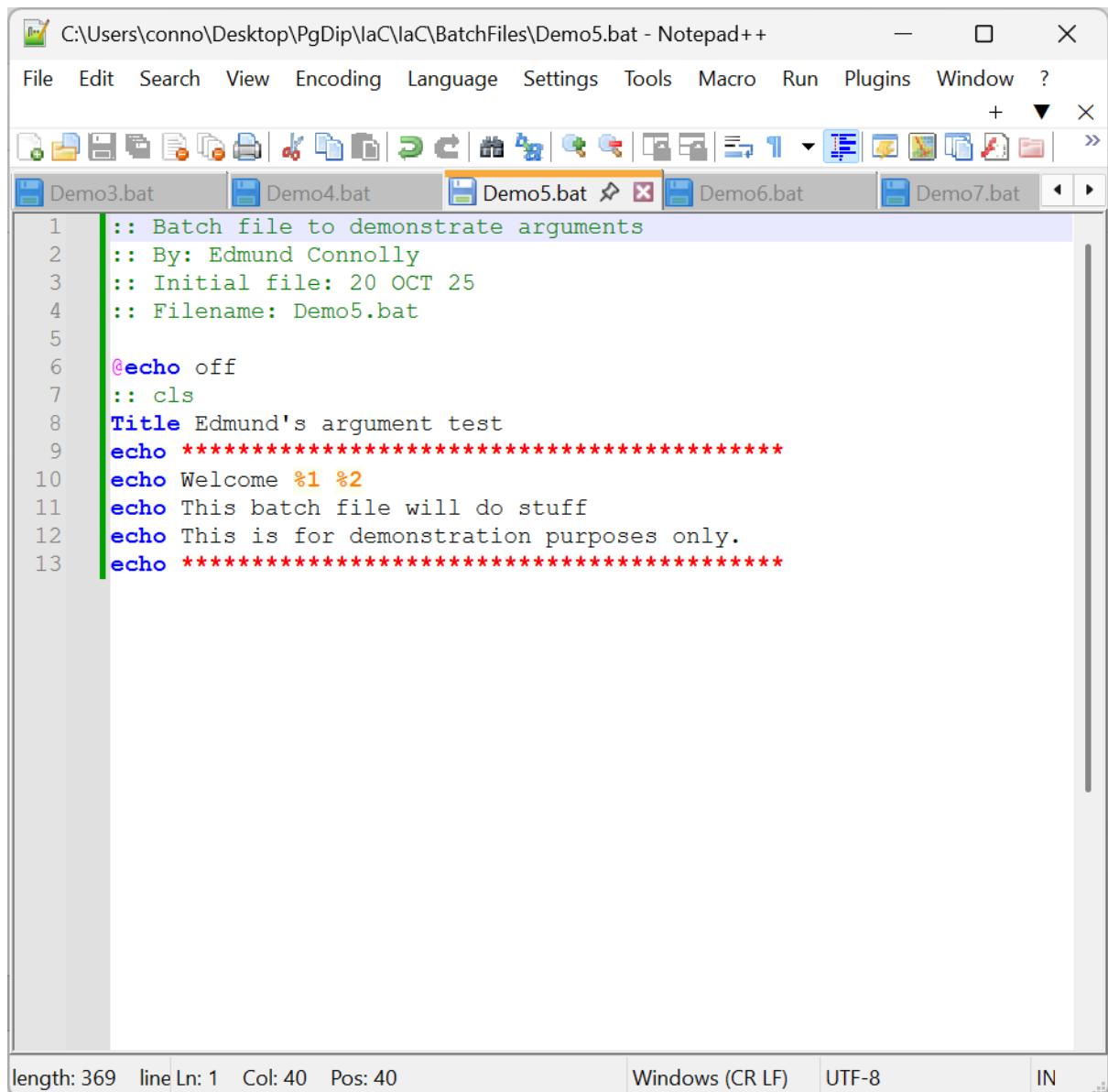


A screenshot of a Windows PowerShell window titled "Windows PowerShell". The window contains the following text output from a batch file:

```
*****
This batch file will do stuff
This is for demonstration purposes only.
*****
*** About to do something critical ***
*** press [ctrl][c] to exit or any key to continue ***
Press any key to continue . .
Path to Clone is V:\Clone of UB1604-Server\UB1604-04JAN18.vmx
We got 5
PS C:\Users\conno\Desktop\PgDip\IaC\IaC\BatchFiles> |
```

Figure 8 - Result of Demo4.bat

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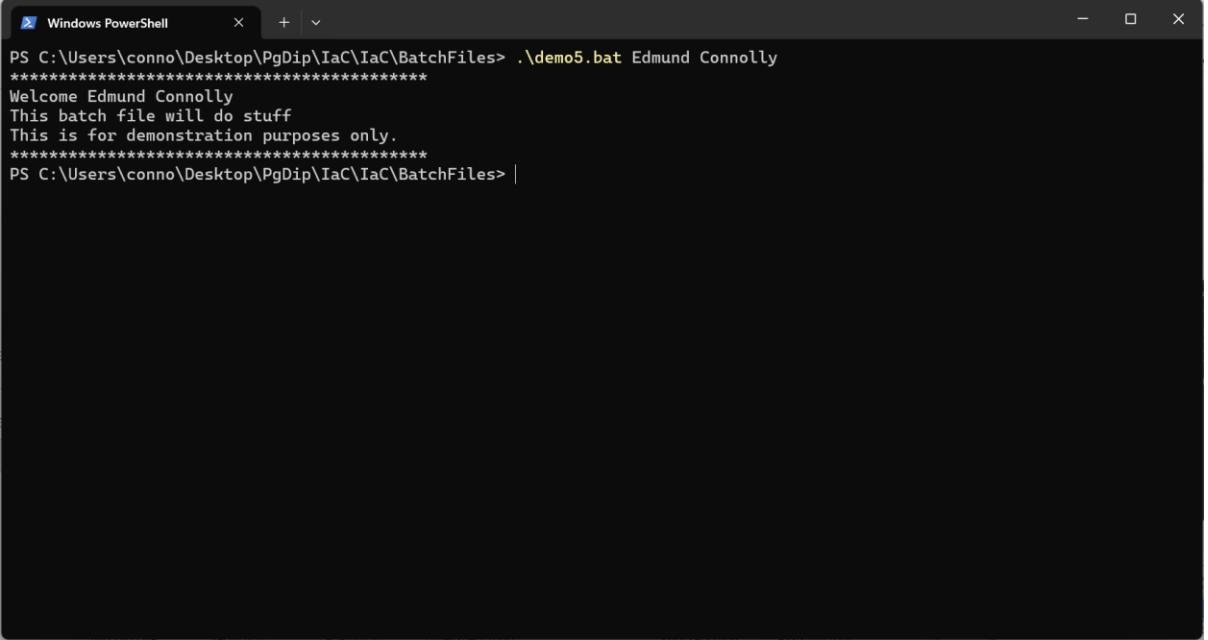
The screenshot shows a Notepad++ window with the title bar "C:\Users\conno\Desktop\PgDip\laC\laC\BatchFiles\Demo5.bat - Notepad++". The menu bar includes File, Edit, Search, View, Encoding, Language, Settings, Tools, Macro, Run, Plugins, Window, and Help. The toolbar below the menu has various icons for file operations like Open, Save, Print, and Find. Below the toolbar, several tabs are visible: Demo3.bat, Demo4.bat, Demo5.bat (which is the active tab), Demo6.bat, and Demo7.bat. The main code editor area contains the following batch script:

```
1 :: Batch file to demonstrate arguments
2 :: By: Edmund Connolly
3 :: Initial file: 20 OCT 25
4 :: Filename: Demo5.bat
5
6 @echo off
7 :: cls
8 Title Edmund's argument test
9 echo ****
10 echo Welcome %1 %2
11 echo This batch file will do stuff
12 echo This is for demonstration purposes only.
13 echo ****
```

At the bottom of the Notepad++ window, status bars show "length: 369 line Ln: 1 Col: 40 Pos: 40", "Windows (CR LF)", "UTF-8", and "IN".

Figure 9 - Demo5.bat Code Screenshot

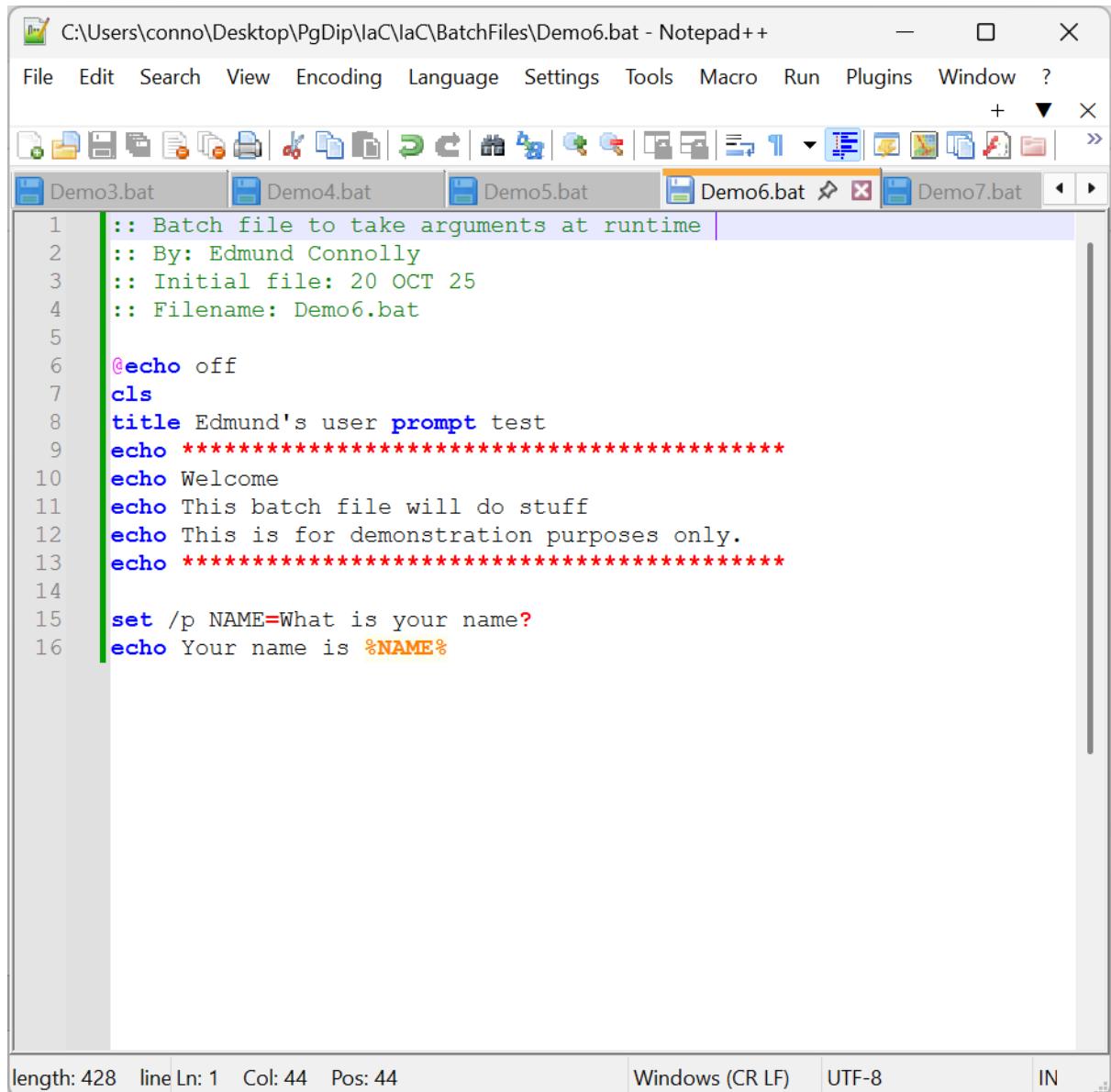
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A screenshot of a Windows PowerShell window titled "Windows PowerShell". The window shows the command ".\demo5.bat Edmund Connolly" being run from the directory "C:\Users\conno\Desktop\PgDip\IaC\IaC\BatchFiles". The output of the script is displayed, including a welcome message, a note about the batch file's purpose, and a final prompt.

```
PS C:\Users\conno\Desktop\PgDip\IaC\IaC\BatchFiles> .\demo5.bat Edmund Connolly
*****
Welcome Edmund Connolly
This batch file will do stuff
This is for demonstration purposes only.
*****
PS C:\Users\conno\Desktop\PgDip\IaC\IaC\BatchFiles> |
```

Figure 10 - Result of Demo5.bat

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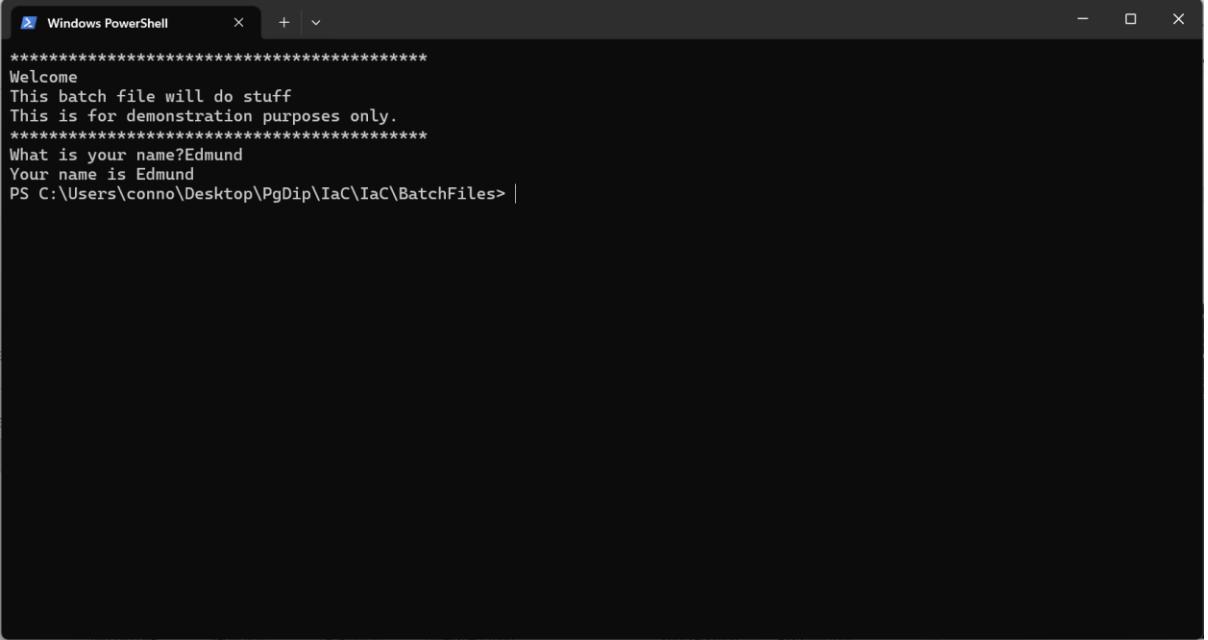
The screenshot shows the Notepad++ application window with the file 'Demo6.bat' open. The window title bar reads 'C:\Users\conno\Desktop\PgDip\laC\laC\BatchFiles\Demo6.bat - Notepad++'. The menu bar includes File, Edit, Search, View, Encoding, Language, Settings, Tools, Macro, Run, Plugins, Window, and Help. The toolbar below the menu has various icons for file operations. Below the toolbar, several tabs are visible, with 'Demo6.bat' being the active tab. The code in the editor is as follows:

```
1 :: Batch file to take arguments at runtime |
2 :: By: Edmund Connolly
3 :: Initial file: 20 OCT 25
4 :: Filename: Demo6.bat
5
6 @echo off
7 cls
8 title Edmund's user prompt test
9 echo ****
10 echo Welcome
11 echo This batch file will do stuff
12 echo This is for demonstration purposes only.
13 echo ****
14
15 set /p NAME=What is your name?
16 echo Your name is %NAME%
```

At the bottom of the Notepad++ window, status bars show 'length: 428 line Ln: 1 Col: 44 Pos: 44', 'Windows (CR LF)', 'UTF-8', and 'IN'.

Figure 11 - Demo6.bat Code Screenshot

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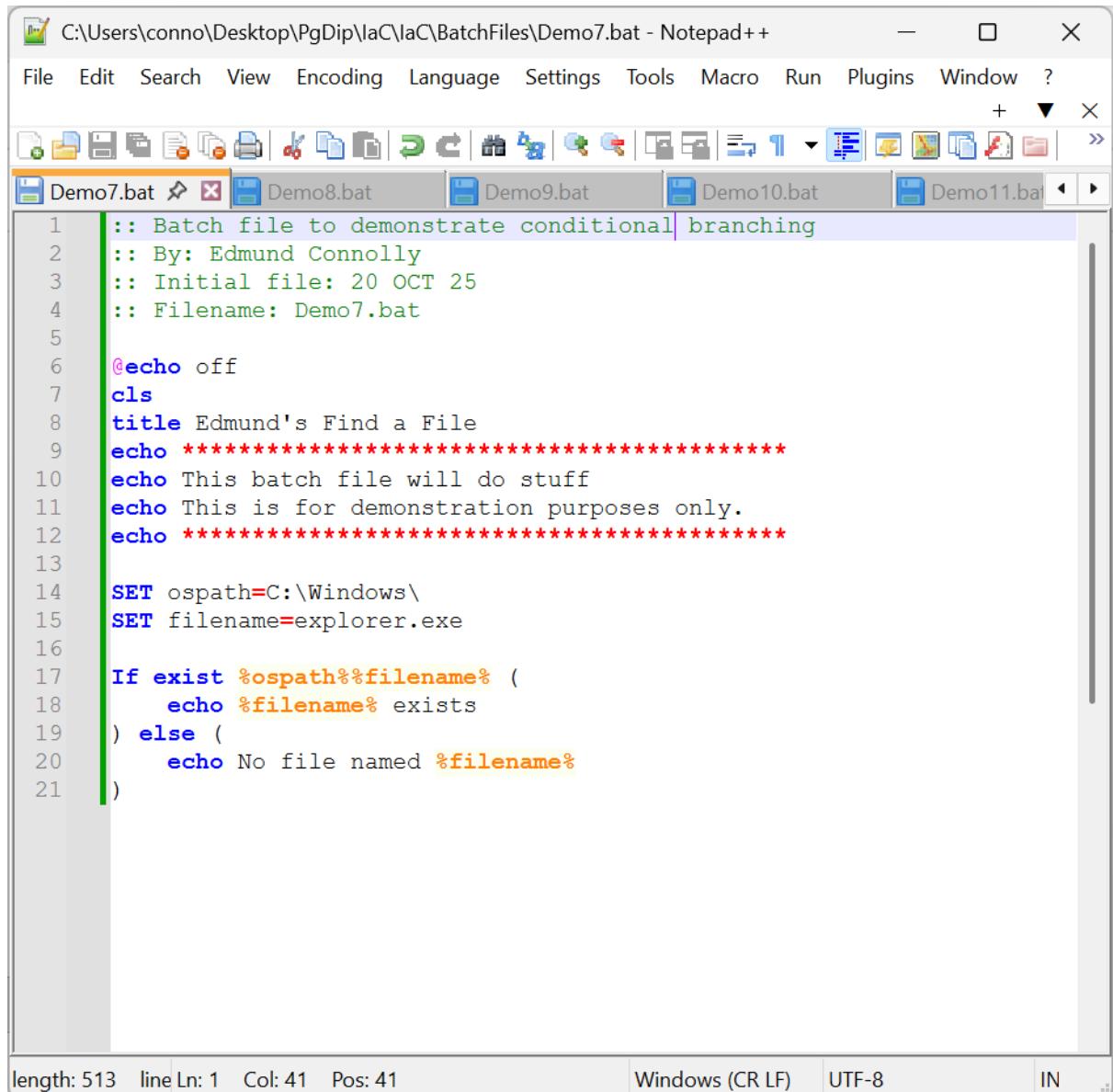


A screenshot of a Windows PowerShell window titled "Windows PowerShell". The window contains the following text:

```
*****
Welcome
This batch file will do stuff
This is for demonstration purposes only.
*****
What is your name?Edmund
Your name is Edmund
PS C:\Users\conno\Desktop\PgDip\IaC\IaC\BatchFiles> |
```

Figure 12 - Result of Demo6.bat

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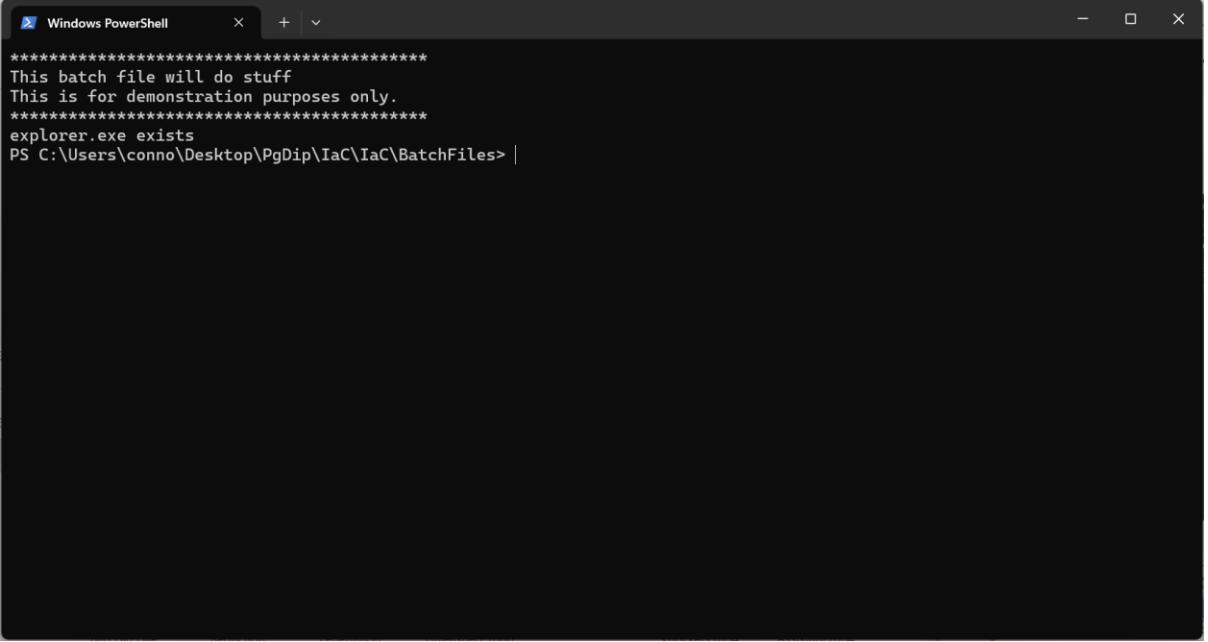
The screenshot shows the Notepad++ application window with the file `Demo7.bat` open. The window title bar reads `C:\Users\conno\Desktop\PgDip\laC\laC\BatchFiles\Demo7.bat - Notepad++`. The menu bar includes File, Edit, Search, View, Encoding, Language, Settings, Tools, Macro, Run, Plugins, Window, and Help. The toolbar contains various icons for file operations. Below the toolbar, several tabs are visible, with `Demo7.bat` being the active tab. The code editor displays the following batch script:

```
1 :: Batch file to demonstrate conditional branching
2 :: By: Edmund Connolly
3 :: Initial file: 20 OCT 25
4 :: Filename: Demo7.bat
5
6 @echo off
7 cls
8 title Edmund's Find a File
9 echo ****
10 echo This batch file will do stuff
11 echo This is for demonstration purposes only.
12 echo ****
13
14 SET ospath=C:\Windows\
15 SET filename=explorer.exe
16
17 If exist %ospath%&%filename% (
18     echo %filename% exists
19 ) else (
20     echo No file named %filename%
21 )
```

The status bar at the bottom shows the following information: length: 513, line Ln: 1, Col: 41, Pos: 41, Windows (CR LF), UTF-8, and IN.

Figure 13 - Demo7.bat Code Screenshot

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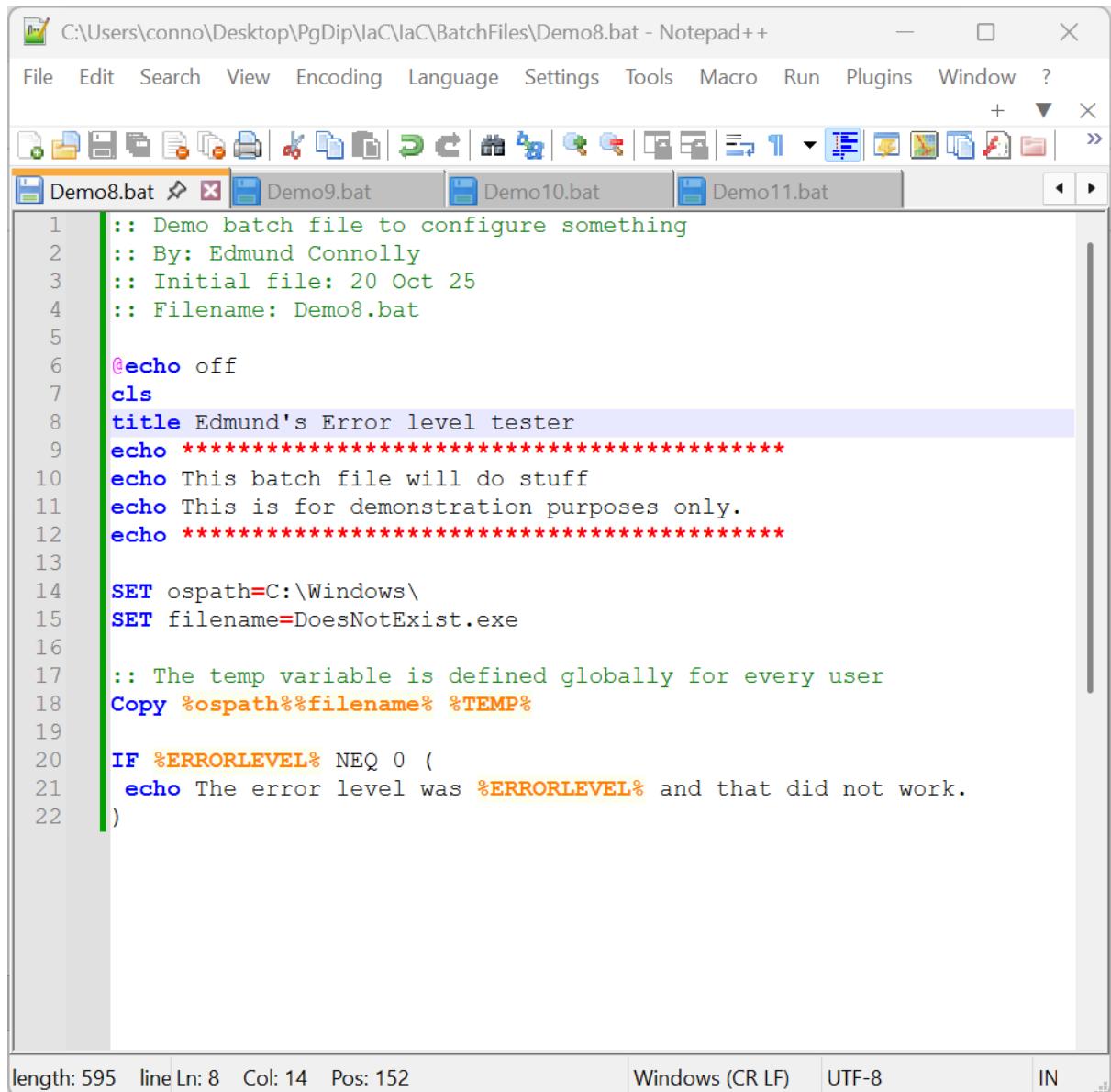


A screenshot of a Windows PowerShell window titled "Windows PowerShell". The window shows the command "PS C:\Users\conno\Desktop\PgDip\IaC\IaC\BatchFiles> |" and the output of the script "Demo7.bat". The output is as follows:

```
*****
This batch file will do stuff
This is for demonstration purposes only.
*****
explorer.exe exists
```

Figure 14 - Result of Demo7.bat

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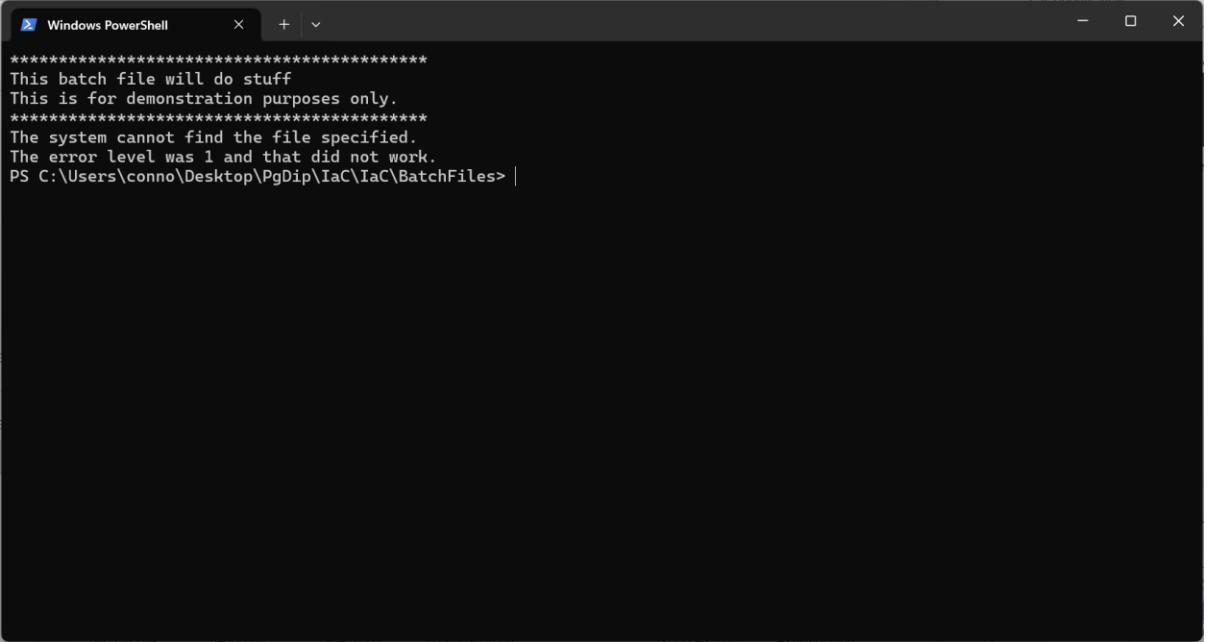
The screenshot shows the Notepad++ application window with the file C:\Users\conno\Desktop\PgDip\laC\laC\BatchFiles\Demo8.bat open. The menu bar includes File, Edit, Search, View, Encoding, Language, Settings, Tools, Macro, Run, Plugins, Window, and Help. The toolbar contains various icons for file operations. Below the menu is a tab bar with four tabs: Demo8.bat (selected), Demo9.bat, Demo10.bat, and Demo11.bat. The main editor area displays the following batch script code:

```
1 :: Demo batch file to configure something
2 :: By: Edmund Connolly
3 :: Initial file: 20 Oct 25
4 :: Filename: Demo8.bat
5
6 @echo off
7 cls
8 title Edmund's Error level tester
9 echo ****
10 echo This batch file will do stuff
11 echo This is for demonstration purposes only.
12 echo ****
13
14 SET ospath=C:\Windows\
15 SET filename=DoesNotExist.exe
16
17 :: The temp variable is defined globally for every user
18 Copy %ospath%%filename% %TEMP%
19
20 IF %ERRORLEVEL% NEQ 0 (
21   echo The error level was %ERRORLEVEL% and that did not work.
22 )
```

The status bar at the bottom shows: length: 595 line Ln: 8 Col: 14 Pos: 152 Windows (CR LF) UTF-8 IN.

Figure 15 - Demo8.bat code screenshot

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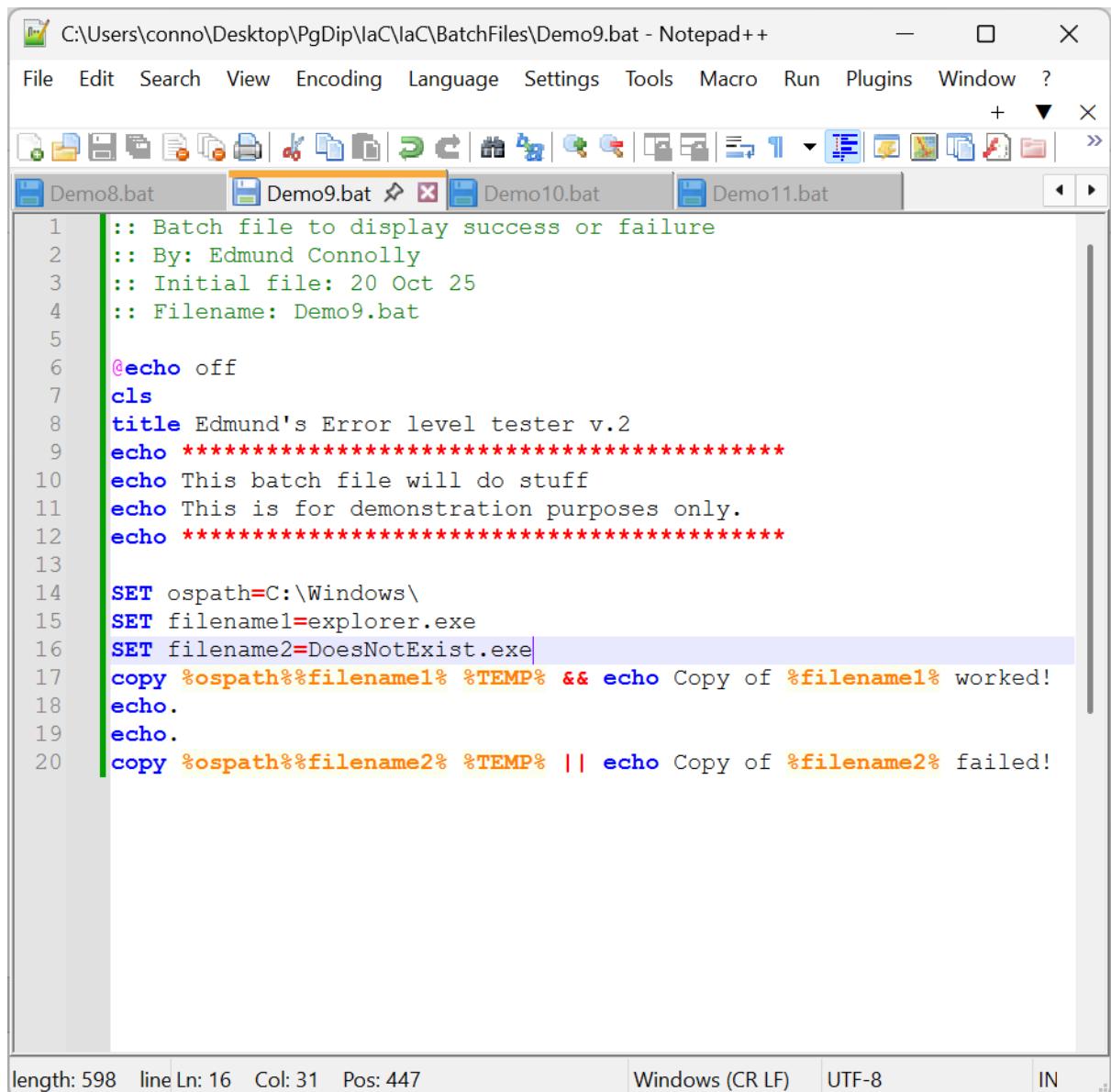


A screenshot of a Windows PowerShell window titled "Windows PowerShell". The window shows the command PS C:\Users\conno\Desktop\PgDip\IaC\IaC\BatchFiles> | followed by several lines of text output. The output is formatted with four lines of asterisks at the top and bottom, and three lines of descriptive text in the center.

```
*****
This batch file will do stuff
This is for demonstration purposes only.
*****
The system cannot find the file specified.
The error level was 1 and that did not work.
PS C:\Users\conno\Desktop\PgDip\IaC\IaC\BatchFiles> |
```

Figure 16 - Result of Demo8.bat

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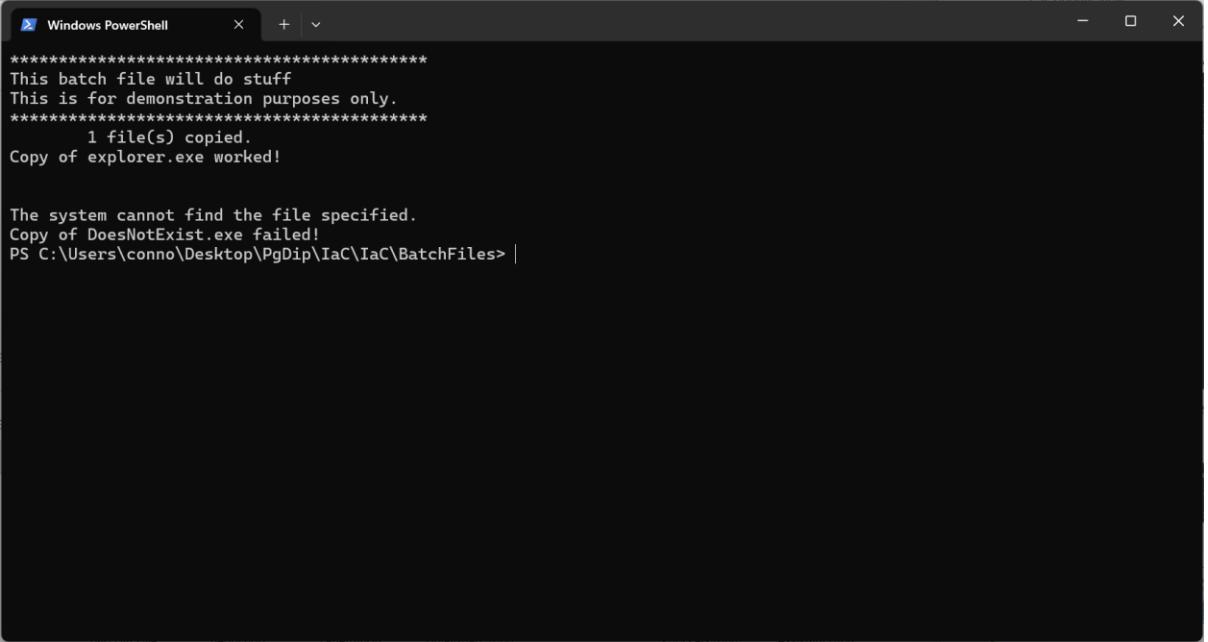
The screenshot shows a Notepad++ window with the file C:\Users\conno\Desktop\PgDip\laC\laC\BatchFiles\Demo9.bat open. The menu bar includes File, Edit, Search, View, Encoding, Language, Settings, Tools, Macro, Run, Plugins, Window, and Help. The toolbar contains various icons for file operations. Below the menu is a tab bar with four tabs: Demo8.bat, Demo9.bat (which is the active tab), Demo10.bat, and Demo11.bat. The main editor area contains the following batch script:

```
1 :: Batch file to display success or failure
2 :: By: Edmund Connolly
3 :: Initial file: 20 Oct 25
4 :: Filename: Demo9.bat
5
6 @echo off
7 cls
8 title Edmund's Error level tester v.2
9 echo ****
10 echo This batch file will do stuff
11 echo This is for demonstration purposes only.
12 echo ****
13
14 SET ospath=C:\Windows\
15 SET filename1=explorer.exe
16 SET filename2=DoesNotExist.exe
17 copy %ospath%%filename1% %TEMP% && echo Copy of %filename1% worked!
18 echo.
19 echo.
20 copy %ospath%%filename2% %TEMP% || echo Copy of %filename2% failed!
```

At the bottom of the Notepad++ window, status information is displayed: length: 598, line Ln: 16, Col: 31, Pos: 447, Windows (CR LF), UTF-8, and IN.

Figure 17 - Demo9.bat Code Screenshot

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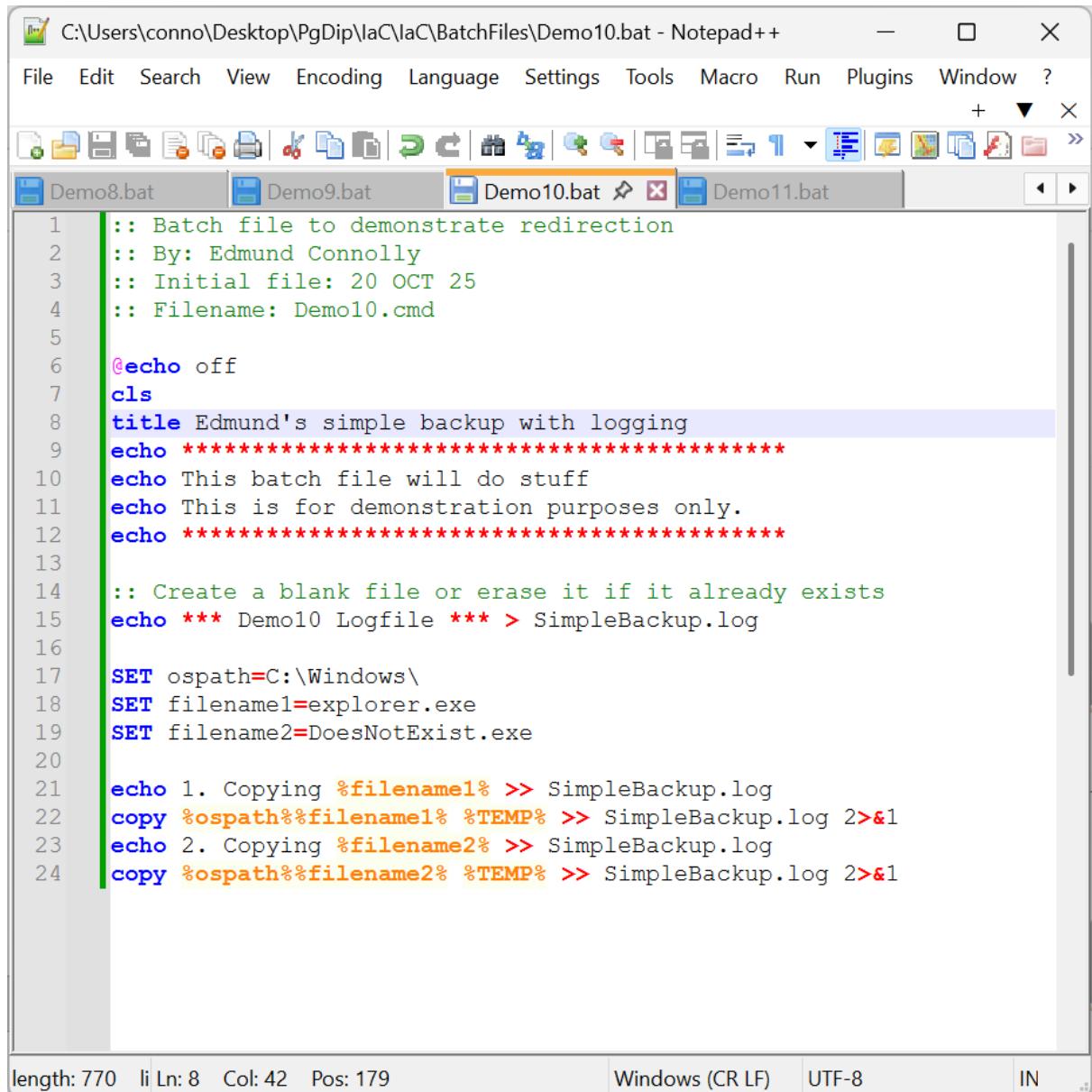
A screenshot of a Windows PowerShell window titled "Windows PowerShell". The window contains the following text output:

```
*****
This batch file will do stuff
This is for demonstration purposes only.
*****
    1 file(s) copied.
Copy of explorer.exe worked!

The system cannot find the file specified.
Copy of DoesNotExist.exe failed!
PS C:\Users\conno\Desktop\PgDip\IaC\IaC\BatchFiles> |
```

Figure 18- Result of Demo9.bat

Laboratory Report

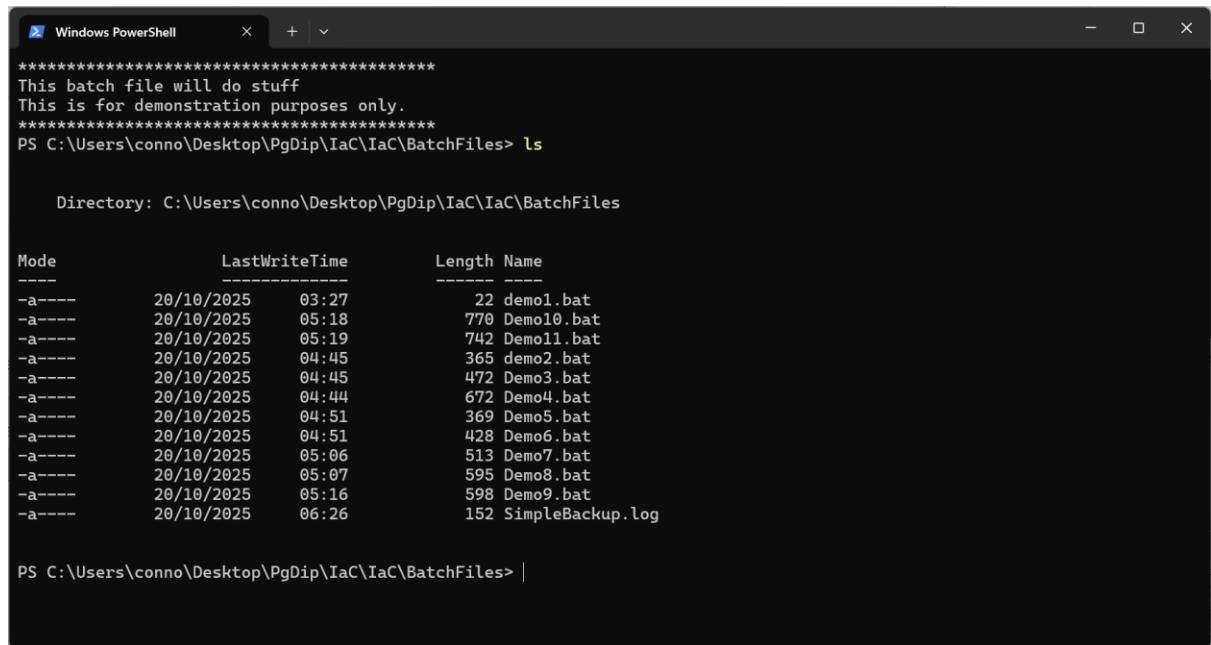


```
1 :: Batch file to demonstrate redirection
2 :: By: Edmund Connolly
3 :: Initial file: 20 OCT 25
4 :: Filename: Demo10.cmd
5
6 @echo off
7 cls
8 title Edmund's simple backup with logging
9 echo ****
10 echo This batch file will do stuff
11 echo This is for demonstration purposes only.
12 echo ****
13
14 :: Create a blank file or erase it if it already exists
15 echo *** Demo10 Logfile *** > SimpleBackup.log
16
17 SET ospath=C:\Windows\
18 SET filename1=explorer.exe
19 SET filename2=DoesNotExist.exe
20
21 echo 1. Copying %filename1% >> SimpleBackup.log
22 copy %ospath%%filename1% %TEMP% >> SimpleBackup.log 2>&1
23 echo 2. Copying %filename2% >> SimpleBackup.log
24 copy %ospath%%filename2% %TEMP% >> SimpleBackup.log 2>&1
```

length: 770 li Ln: 8 Col: 42 Pos: 179 Windows (CR LF) UTF-8 IN

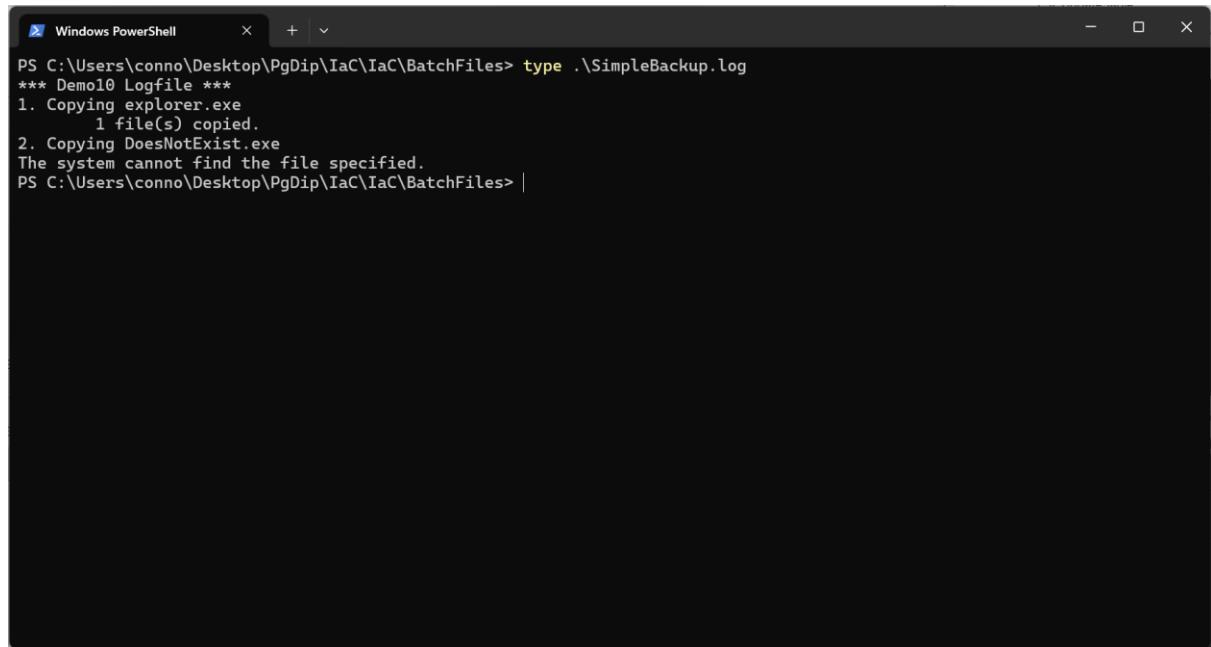
Figure 19 - Demo10.bat Code Screenshot

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```
Windows PowerShell ***** This batch file will do stuff This is for demonstration purposes only. ***** PS C:\Users\conno\Desktop\PgDip\IaC\IaC\BatchFiles> ls Directory: C:\Users\conno\Desktop\PgDip\IaC\IaC\BatchFiles Mode LastWriteTime Length Name ---- ----- ----- 22 demo1.bat -a--- 20/10/2025 03:27 770 Demo10.bat -a--- 20/10/2025 05:18 742 Demo11.bat -a--- 20/10/2025 05:19 365 demo2.bat -a--- 20/10/2025 04:45 472 Demo3.bat -a--- 20/10/2025 04:45 672 Demo4.bat -a--- 20/10/2025 04:51 369 Demo5.bat -a--- 20/10/2025 04:51 428 Demo6.bat -a--- 20/10/2025 05:06 513 Demo7.bat -a--- 20/10/2025 05:07 595 Demo8.bat -a--- 20/10/2025 05:16 598 Demo9.bat -a--- 20/10/2025 06:26 152 SimpleBackup.log PS C:\Users\conno\Desktop\PgDip\IaC\IaC\BatchFiles> |
```

Figure 20 - Result of Demo10.bat



```
Windows PowerShell PS C:\Users\conno\Desktop\PgDip\IaC\IaC\BatchFiles> type .\SimpleBackup.log *** Demo10 Logfile *** 1. Copying explorer.exe 1 file(s) copied. 2. Copying DoesNotExist.exe The system cannot find the file specified. PS C:\Users\conno\Desktop\PgDip\IaC\IaC\BatchFiles> |
```

Figure 21 - Contents of SimpleBackup.log

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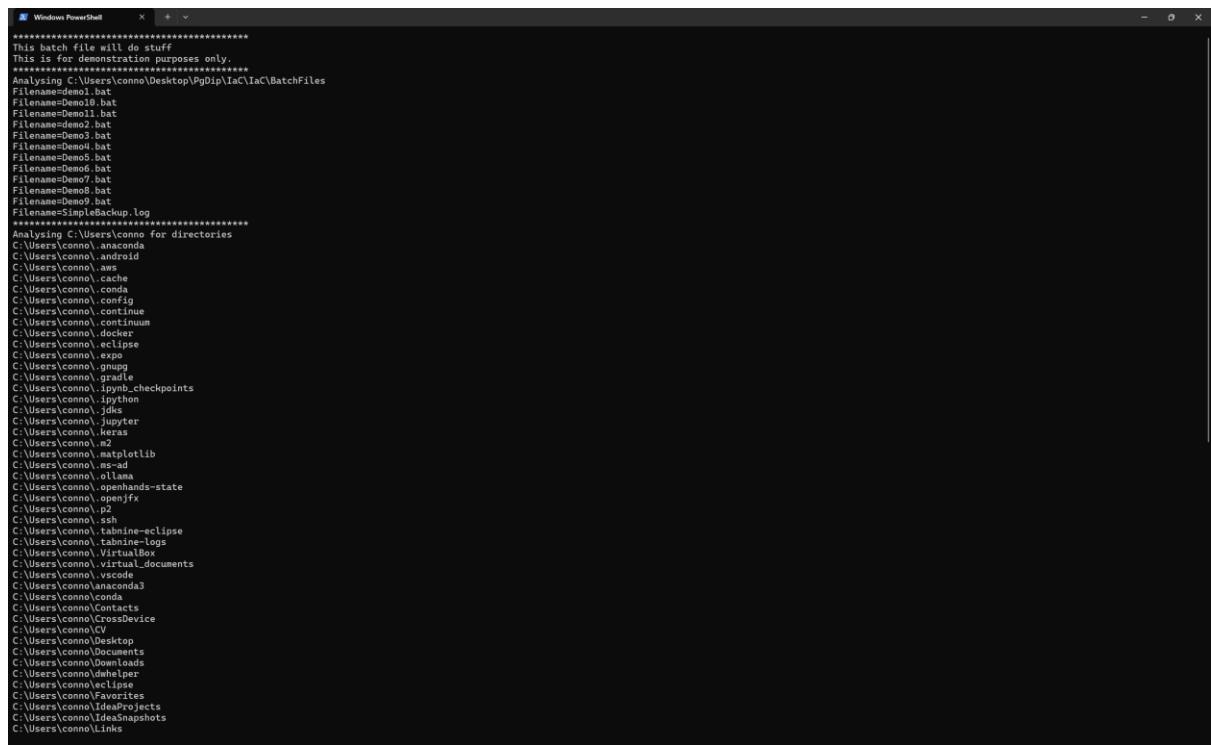
The screenshot shows a Notepad++ window with the title bar "C:\Users\conno\Desktop\PgDip\laC\laC\BatchFiles\Demo11.bat - Notepad++". The menu bar includes File, Edit, Search, View, Encoding, Language, Settings, Tools, Macro, Run, Plugins, Window, and Help. The toolbar contains various icons for file operations like Open, Save, Print, and Find. Below the toolbar, tabs for Demo8.bat, Demo9.bat, Demo10.bat, and Demo11.bat are visible, with Demo11.bat currently selected. The main editor area displays the following batch script:

```
1 :: Batch file to demonstrate loops
2 :: By: Edmund Connolly
3 :: Initial file: 20 OCT 25
4 :: Filename: Dem011.cmd
5
6 @echo off
7 cls
8 title Edmunds file and directory counter
9 echo ****
10 echo This batch file will do stuff
11 echo This is for demonstration purposes only.
12 echo ****
13
14 :: Iterate through all the files in the current directory
15 echo Analysing %CD%
16 FOR %%I IN (*) DO @ECHO Filename=%%I
17 echo ****
18 :: The environment variable USERPROFILE points at the users home fo
19 echo Analysing %USERPROFILE% for directories
20 FOR /D %%I IN (%USERPROFILE%\*) DO @ECHO %%I
21 echo ****
```

At the bottom of the Notepad++ window, status bars show "length: 742 li Ln: 7 Col: 4 Pos: 131", "Windows (CR LF)", "UTF-8", and "IN".

Figure 22 - Demo11.bat code screenshot

Laboratory Report



```
Windows PowerShell

This batch file will do stuff
=====
This is for demonstration purposes only.
=====
Analysing C:\Users\conn0\Desktop\PgDip\laC\laC\BatchFiles
Filename=Demo1.bat
Filename=Demo10.bat
Filename=Demo11.bat
Filename=Demo2.bat
Filename=Demo3.bat
Filename=Demo4.bat
Filename=Demo5.bat
Filename=Demo6.bat
Filename=Demo7.bat
Filename=Demo8.bat
Filename=Demo9.bat
Filename=SimpleBackup.log
=====
Analysing C:\Users\conn0 for directories
C:\Users\conn0\anaconda
C:\Users\conn0\.android
C:\Users\conn0\.apt
C:\Users\conn0\.cache
C:\Users\conn0\.conda
C:\Users\conn0\.config
C:\Users\conn0\.continuum
C:\Users\conn0\.gradle
C:\Users\conn0\.docker
C:\Users\conn0\.eclipse
C:\Users\conn0\.expo
C:\Users\conn0\.gnupg
C:\Users\conn0\.gradle
C:\Users\conn0.ipynb_checkpoints
C:\Users\conn0\.ipython
C:\Users\conn0\.jddk
C:\Users\conn0\.jupyter
C:\Users\conn0\.keras
C:\Users\conn0\.m2
C:\Users\conn0\.matplotlib
C:\Users\conn0\.maven
C:\Users\conn0\.platform
C:\Users\conn0\.openhands-state
C:\Users\conn0\.openjfx
C:\Users\conn0\.p2
C:\Users\conn0\.ssh
C:\Users\conn0\tahini-eclipse
C:\Users\conn0\tahini-logs
C:\Users\conn0\VirtualBox
C:\Users\conn0\virtual_documents
C:\Users\conn0\.wallede
C:\Users\conn0\anaconda3
C:\Users\conn0\conda
C:\Users\conn0\Contacts
C:\Users\conn0\CrossDevice
C:\Users\conn0\Downloads
C:\Users\conn0\Desktop
C:\Users\conn0\Documents
C:\Users\conn0\Downloads
C:\Users\conn0\Dropbox
C:\Users\conn0\elliptix
C:\Users\conn0\Favorites
C:\Users\conn0\IdeaProjects
C:\Users\conn0\IdeaSnapshots
C:\Users\conn0\Links
```

Figure 23 - Results of Demo11.bat