

```

ikisehe@dng0025 MINGW64 ~/Desktop/linux_ass
● $ touch assignment_1

ikisehe@dng0025 MINGW64 ~/Desktop/linux_ass
● $ git init
Initialized empty Git repository in C:/Users/ikisehe/Desktop/linux_ass/.git/

ikisehe@dng0025 MINGW64 ~/Desktop/linux_ass (main)
● $ git add .

ikisehe@dng0025 MINGW64 ~/Desktop/linux_ass (main)
● $ git commit -m "first commit"
[main (root-commit) a86bb2f] first commit
Committer: Ikiseh Esther-Joan <ikisehe@dng.local>
Your name and email address were configured automatically based
on your username and hostname. Please check that they are accurate.
You can suppress this message by setting them explicitly:

git config --global user.name "Your Name"
git config --global user.email you@example.com

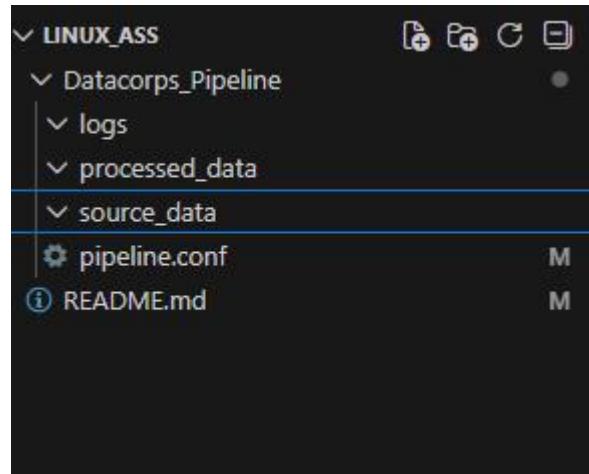
After doing this, you may fix the identity used for this commit with:

git commit --amend --reset-author

1 file changed, 0 insertions(+), 0 deletions(-)
create mode 100644 README.md

ikisehe@dng0025 MINGW64 ~/Desktop/linux_ass (main)
● $ git branch -M main

```



```
ikisehe@dng0025 MINGW64 ~/Desktop/linux_ass (main)
$ git commit -m "first commit"
  git commit --amend --reset-author

1 file changed, 0 insertions(+), 0 deletions(-)
create mode 100644 README.md

ikisehe@dng0025 MINGW64 ~/Desktop/linux_ass (main)
$ git branch -M main

ikisehe@dng0025 MINGW64 ~/Desktop/linux_ass (main)
$ git remote add origin https://github.com/Ikisehestherjoan/Linux-data-engineering-lab.git

ikisehe@dng0025 MINGW64 ~/Desktop/linux_ass (main)
$ git push -u origin main
fatal: An error occurred while sending the request.
fatal: The remote name could not be resolved: 'api.github.com'
Enumerating objects: 3, done.
Counting objects: 100% (3/3), done.
Writing objects: 100% (3/3), 216 bytes | 216.00 KiB/s, done.
Total 3 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
To https://github.com/Ikisehestherjoan/Linux-data-engineering-lab.git
 * [new branch]      main -> main
branch 'main' set up to track 'origin/main'.

ikisehe@dng0025 MINGW64 ~/Desktop/linux_ass (main)
$ 
```

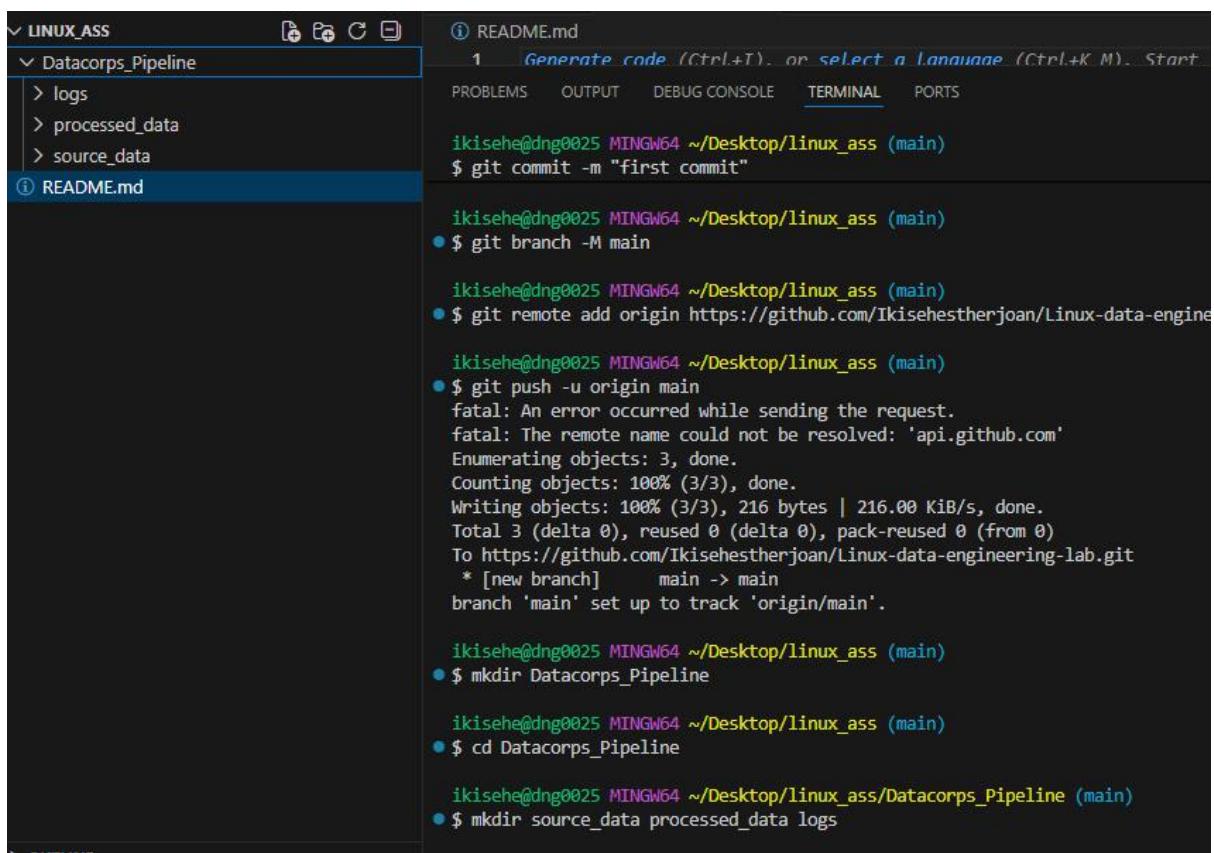
## Task Instructions

### Part 1: File System Navigation & Structure

**Goal:** Create the directory structure required for the data pipeline.

1. Navigate to your repository directory in your terminal.
2. Create a directory named datacorp\_pipeline.
3. Inside datacorp\_pipeline, create three sub-directories:

- source\_data
  - processed\_data
  - logs
4. Create an empty file named pipeline.conf inside the datacorp\_pipeline directory.
5. List the contents of the datacorp\_pipeline directory to verify the structure.



```

LINUX_ASS
└── Datacorps_Pipeline
    ├── logs
    ├── processed_data
    └── source_data
    └── README.md

① README.md
1 Generate code (Ctrl+T), or select a language (Ctrl+K M). Start...
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS

ikisehe@dng0025 MINGW64 ~/Desktop/linux_ass (main)
$ git commit -m "first commit"

ikisehe@dng0025 MINGW64 ~/Desktop/linux_ass (main)
$ git branch -M main

ikisehe@dng0025 MINGW64 ~/Desktop/linux_ass (main)
$ git remote add origin https://github.com/Ikisehestherjoan/Linux-data-engineering-lab.git

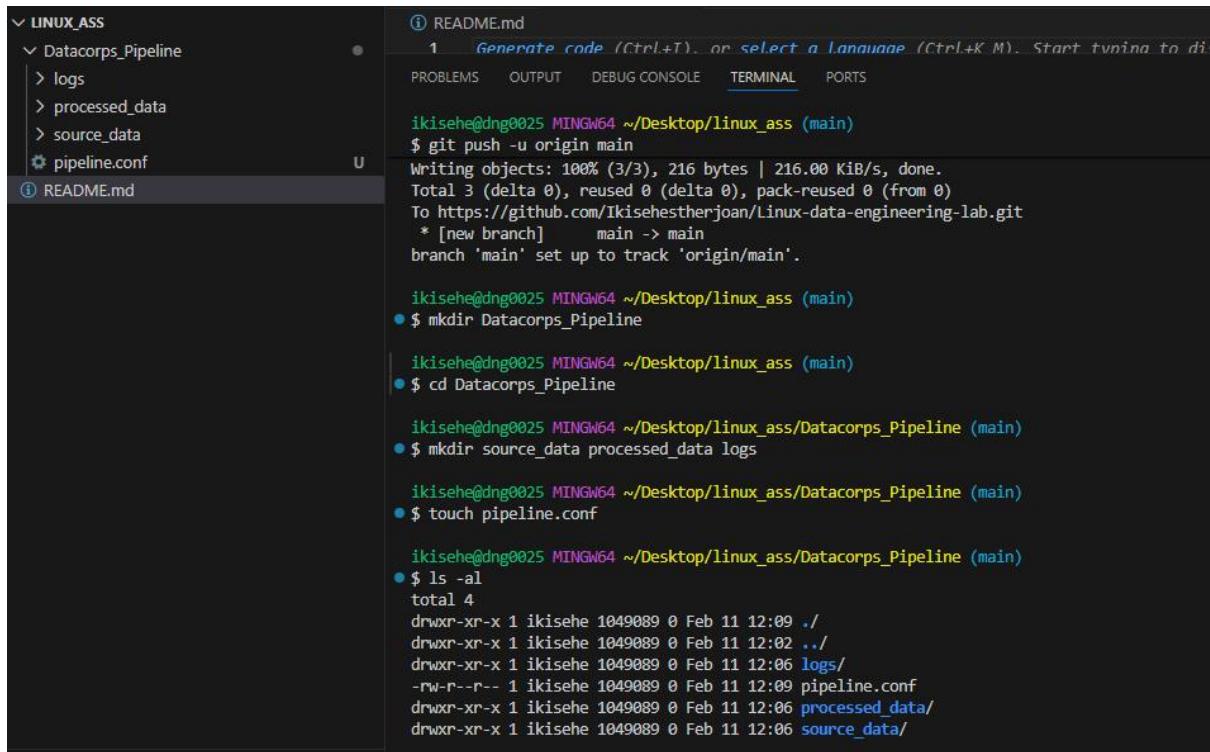
ikisehe@dng0025 MINGW64 ~/Desktop/linux_ass (main)
$ git push -u origin main
fatal: An error occurred while sending the request.
fatal: The remote name could not be resolved: 'api.github.com'
Enumerating objects: 3, done.
Counting objects: 100% (3/3), done.
Writing objects: 100% (3/3), 216 bytes | 216.00 KiB/s, done.
Total 3 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
To https://github.com/Ikisehestherjoan/Linux-data-engineering-lab.git
 * [new branch]      main -> main
branch 'main' set up to track 'origin/main'.

ikisehe@dng0025 MINGW64 ~/Desktop/linux_ass (main)
$ mkdir Datacorps_Pipeline

ikisehe@dng0025 MINGW64 ~/Desktop/linux_ass (main)
$ cd Datacorps_Pipeline

ikisehe@dng0025 MINGW64 ~/Desktop/linux_ass/Datacorps_Pipeline (main)
$ mkdir source_data processed_data logs

```



The screenshot shows a terminal window with a file explorer sidebar on the left. The sidebar displays a directory structure under 'LINUX\_ASS' with a single item 'Datacorps\_Pipeline'. Inside 'Datacorps\_Pipeline', there are three sub-directories: 'logs', 'processed\_data', and 'source\_data', along with a file named 'pipeline.conf'. A file named 'README.md' is also present at the root level.

The terminal window has tabs for 'README.md', 'PROBLEMS', 'OUTPUT', 'DEBUG CONSOLE', 'TERMINAL', and 'PORTS'. The 'TERMINAL' tab is active. The terminal output shows the following sequence of commands:

```

ikisehe@dng0025 MINGW64 ~/Desktop/linux_ass (main)
$ git push -u origin main
Writing objects: 100% (3/3), 216 bytes | 216.00 KiB/s, done.
Total 3 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
To https://github.com/Ikisehestherjoan/Linux-data-engineering-lab.git
 * [new branch]      main -> main
branch 'main' set up to track 'origin/main'.

```

Then, the user runs several commands to create directories and files:

```

ikisehe@dng0025 MINGW64 ~/Desktop/linux_ass (main)
$ mkdir Datacorps_Pipeline
ikisehe@dng0025 MINGW64 ~/Desktop/linux_ass (main)
$ cd Datacorps_Pipeline
ikisehe@dng0025 MINGW64 ~/Desktop/linux_ass/Datacorps_Pipeline (main)
$ mkdir source_data processed_data logs
ikisehe@dng0025 MINGW64 ~/Desktop/linux_ass/Datacorps_Pipeline (main)
$ touch pipeline.conf
ikisehe@dng0025 MINGW64 ~/Desktop/linux_ass/Datacorps_Pipeline (main)
$ ls -al
total 4
drwxr-xr-x 1 ikisehe 1049089 0 Feb 11 12:09 .
drwxr-xr-x 1 ikisehe 1049089 0 Feb 11 12:02 ...
drwxr-xr-x 1 ikisehe 1049089 0 Feb 11 12:06 logs/
-rw-r--r-- 1 ikisehe 1049089 0 Feb 11 12:09 pipeline.conf
drwxr-xr-x 1 ikisehe 1049089 0 Feb 11 12:06 processed_data/
drwxr-xr-x 1 ikisehe 1049089 0 Feb 11 12:06 source_data/

```

## Part 2: File Permissions & Ownership

**Goal:** Secure the sensitive source data.

1. Navigate into the datacorp\_pipeline directory.
2. Change the permissions of the source\_data directory so that **only the owner** has Read, Write, and Execute permissions. No one else (Group or Others) should have any access.
3. Verify the permission change by listing the directory details in "long format".

```
esther@dng0025:/c/Users/ikisehe/Desktop/linux_ass$ cd Datacorps_Pipeline
esther@dng0025:/c/Users/ikisehe/Desktop/linux_ass/Datacorps_Pipeline$ ls -al
total 0
drwxrwxrwx 1 esther esther 4096 Feb 11 12:09 .
drwxrwxrwx 1 esther esther 4096 Feb 11 12:02 .
drwxrwxrwx 1 esther esther 4096 Feb 11 12:06 logs
-rwxrwxrwx 1 esther esther 0 Feb 11 12:09 pipeline.conf
drwxrwxrwx 1 esther esther 4096 Feb 11 12:06 processed_data
drwxrwxrwx 1 esther esther 4096 Feb 11 12:06 source_data
esther@dng0025:/c/Users/ikisehe/Desktop/linux_ass/Datacorps_Pipeline$ chmod 700 source_data
esther@dng0025:/c/Users/ikisehe/Desktop/linux_ass/Datacorps_Pipeline$ ls -l
total 0
drwxrwxrwx 1 esther esther 4096 Feb 11 12:06 logs
-rwxrwxrwx 1 esther esther 0 Feb 11 12:09 pipeline.conf
drwxrwxrwx 1 esther esther 4096 Feb 11 12:06 processed_data
drwx----- 1 esther esther 4096 Feb 11 12:06 source_data
esther@dng0025:/c/Users/ikisehe/Desktop/linux_ass/Datacorps_Pipeline$
```

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## Part 3: Environment Variables

**Goal:** Set up environment configurations for the pipeline.

1. Create a temporary environment variable named ETL\_STAGE and set its value to staging.
2. Print the value of ETL\_STAGE to the terminal to verify it is set.

```
esther@dng0025:/c/Users/ikisehe/Desktop/linux_ass/Datacorps_Pipeline$ export ETL_STAGE=staging
esther@dng0025:/c/Users/ikisehe/Desktop/linux_ass/Datacorps_Pipeline$ echo $ETL_STAGE
staging
esther@dng0025:/c/Users/ikisehe/Desktop/linux_ass/Datacorps_Pipeline$
```

## Part 4: Process Management

**Goal:** Manage a "stuck" background process.

1. Start a "dummy" process that sleeps for 500 seconds in the background.  
(Hint: Use the sleep command combined with an operator to push it to the background).

2. Find the **Process ID (PID)** of this sleep command using a process listing tool.
3. Kill the process using its PID.
4. Verify the process is gone.

```
esther@dng0025:/c/Users/ikisehe/Desktop/linux_ass/Datacorps_Pipeline$ sleep 500 &
[1] 998
esther@dng0025:/c/Users/ikisehe/Desktop/linux_ass/Datacorps_Pipeline$ ps aux | grep sleep
esther    998  0.0  0.0  7236 1920 pts/0    S   14:21  0:00 sleep 500
esther   1001  0.0  0.0  8168 2304 pts/0    S+  14:22  0:00 grep --color=auto sleep
esther@dng0025:/c/Users/ikisehe/Desktop/linux_ass/Datacorps_Pipeline$ kill 998
esther@dng0025:/c/Users/ikisehe/Desktop/linux_ass/Datacorps_Pipeline$ ps aux | grep sleep
esther   1003  0.0  0.0  8168 2304 pts/0    S+  14:22  0:00 grep --color=auto sleep
[1]+  Terminated                  sleep 500
esther@dng0025:/c/Users/ikisehe/Desktop/linux_ass/Datacorps_Pipeline$
```

## Part 5: Package Management

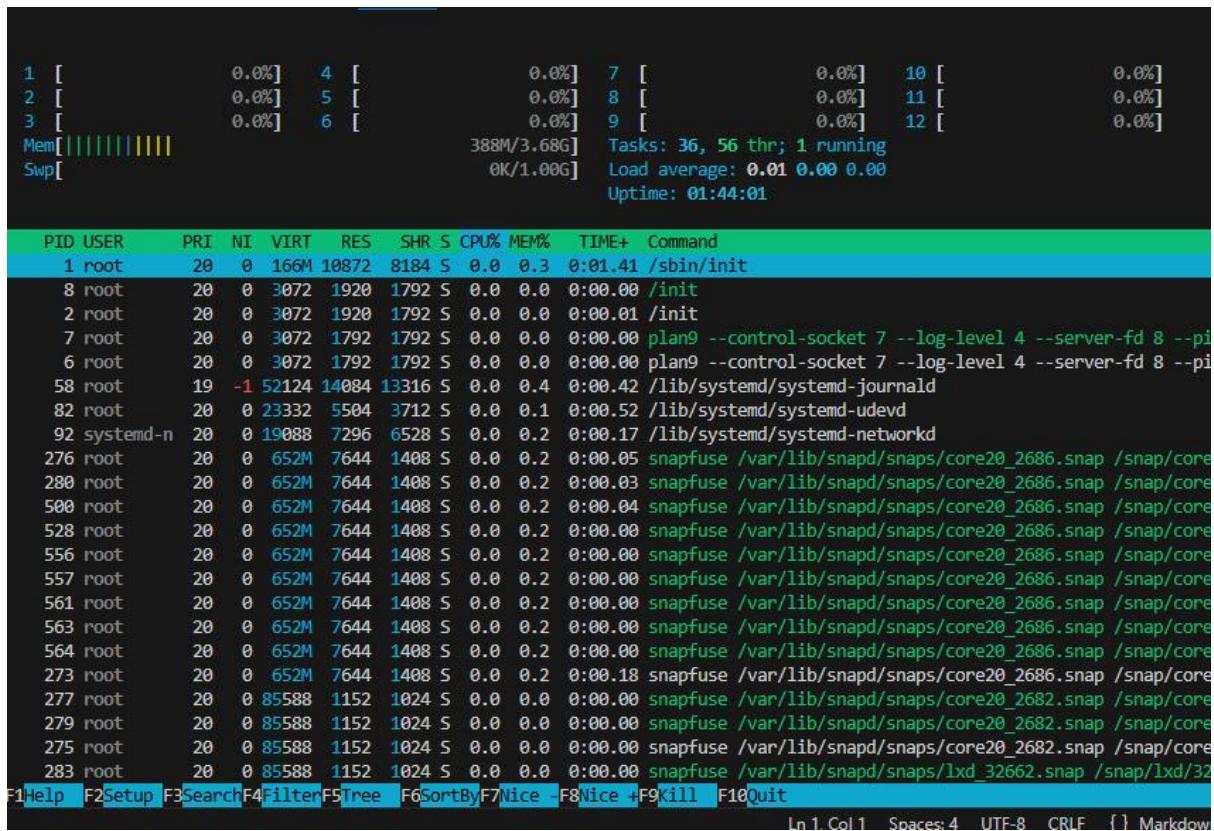
*(Skip this step if using Git Bash on Windows)* **Goal:** Ensure the server has necessary monitoring tools.

1. Update your system's package repository lists.
2. Install a command-line system monitor tool called htop.
3. Run htop to verify it is installed, then quit the application.

```

[+] Terminal 1                               Sleep 9s
esther@dng0025:/c/Users/ikisehe/Desktop/linux_ass/Datacorps_Pipeline$ sudo --version
Sudo version 1.8.31
Sudoers policy plugin version 1.8.31
Sudoers file grammar version 46
Sudoers I/O plugin version 1.8.31
esther@dng0025:/c/Users/ikisehe/Desktop/linux_ass/Datacorps_Pipeline$ sudo apt update
[sudo] password for esther:
Hit:1 http://archive.ubuntu.com/ubuntu focal InRelease
Get:2 http://archive.ubuntu.com/ubuntu focal-updates InRelease [128 kB]
Get:3 http://security.ubuntu.com/ubuntu focal-security InRelease [128 kB]
Get:4 http://archive.ubuntu.com/ubuntu focal-backports InRelease [128 kB]
Get:5 http://archive.ubuntu.com/ubuntu focal-updates/main amd64 Packages [3957 kB]
Fetched 4341 kB in 7s (586 kB/s)
Reading package lists... Done
Building dependency tree
Reading state information... Done
7 packages can be upgraded. Run 'apt list --upgradable' to see them.
esther@dng0025:/c/Users/ikisehe/Desktop/linux_ass/Datacorps_Pipeline$ sudo apt install htop
Reading package lists... Done
Building dependency tree
Reading state information... Done
htop is already the newest version (2.2.0-2build1).
htop set to manually installed.
0 upgraded, 0 newly installed, 0 to remove and 7 not upgraded.
esther@dng0025:/c/Users/ikisehe/Desktop/linux_ass/Datacorps_Pipeline$ htop

```



## Part 6: System Monitoring & I/O Redirection

**Goal:** Check server capacity and save the report.

1. Run a command that displays the **disk space usage** of your system in a "human-readable" format.
2. Instead of printing this to the screen, redirect the output to a file named `disk_report.txt` inside your logs directory.
3. Use a command to display the contents of `logs/disk_report.txt` to the terminal to verify it worked.

```
esther@dng0025:/c/Users/ikisehe/Desktop/linux_ass/Datacorps_Pipeline$ ls -lh
total 0
drwxrwxrwx 1 esther esther 4.0K Feb 11 12:06 logs
-rwxrwxrwx 1 esther esther 0 Feb 11 12:09 pipeline.conf
drwxrwxrwx 1 esther esther 4.0K Feb 11 12:06 processed_data
drwx----- 1 esther esther 4.0K Feb 11 12:06 source_data
```

The screenshot shows a terminal window with a file tree on the left and system information on the right. The file tree includes `LINUX_ASS`, `Datacorps_Pipeline`, `logs`, `disk_report.txt`, `processed_data`, `source_data`, `pipeline.conf`, and `README.md`. The system information section displays:

- Documentation: <https://help.ubuntu.com>
- Management: <https://landscape.canonical.com>
- Support: <https://ubuntu.com/pro>
- System information as of Fri Feb 13 14:36:37 WAT 2026
- System load: 0.96 Processes: 66
- Usage of /: 0.3% of 1006.85GB Users logged in: 0
- Memory usage: 11% IPv4 address for eth0: 172.28.104.190
- Swap usage: 0%
- Expanded Security Maintenance for Infrastructure is not enabled.
- 66 updates can be applied immediately.
- 26 of these updates are standard security updates.
- To see these additional updates run: `apt list --upgradable`
- 90 additional security updates can be applied with ESM Infra.
- Learn more about enabling ESM Infra service for Ubuntu 20.04 at <https://ubuntu.com/20-04>

At the bottom, there are links for `OUTLINE` and `TIMELINE`.

```
Datacorps_Pipeline README.md
esther@dng0025:/c/Users/ikisehe/Desktop/linux_ass$ touch disk_report.txt /Datacorps_Pipeline/logs
touch: cannot touch '/Datacorps_Pipeline/logs': No such file or directory
esther@dng0025:/c/Users/ikisehe/Desktop/linux_ass$ touch Datacorps_Pipeline/logs/disk_report.txt
esther@dng0025:/c/Users/ikisehe/Desktop/linux_ass$ ls -l >Datacorps_Pipeline/logs/disk_report.txt
esther@dng0025:/c/Users/ikisehe/Desktop/linux_ass$
```

In 5 Col 1 Spaces:4 UTF-8 LF {

```
esther@dng0025:/c/Users/ikisehe/Desktop/linux_ass$ cat Datacorps_Pipeline/logs/disk_report.txt
total 0
drwxrwxrwx 1 esther esther 4096 Feb 11 12:09 Datacorps_Pipeline
-rw-rw-rwx 1 esther esther    0 Feb 10 15:26 README.md
-rw-r--r-- 1 esther esther    0 Feb 13 14:49 disk_report.txt
```

```
esther@dng0025:/c/Users/ikisehe/Desktop/linux_ass$ ls -l
total 0
drwxrwxrwx 1 esther esther 4096 Feb 13 15:58 Datacorps_Pipeline
-rw-rw-rwx 1 esther esther    0 Feb 10 15:26 README.md
-rw-r--r-- 1 esther esther    0 Feb 13 14:49 disk_report.txt
esther@dng0025:/c/Users/ikisehe/Desktop/linux_ass$ cd Datacorps_Pipeline
esther@dng0025:/c/Users/ikisehe/Desktop/linux_ass/Datacorps_Pipeline$ ls
Daily_maintenance.sh  logs  pipeline.conf  processed_data  source_data
esther@dng0025:/c/Users/ikisehe/Desktop/linux_ass/Datacorps_Pipeline$ ls -l
total 0
-rw-r--r-- 1 esther esther   83 Feb 13 16:06 Daily_maintenance.sh
drwxrwxrwx 1 esther esther 4096 Feb 13 14:58 logs
-rw-rw-rwx 1 esther esther    0 Feb 11 12:09 pipeline.conf
drwxrwxrwx 1 esther esther 4096 Feb 11 12:06 processed_data
drwx----- 1 esther esther 4096 Feb 11 12:06 source_data
esther@dng0025:/c/Users/ikisehe/Desktop/linux_ass/Datacorps_Pipeline$ chmod +x Daily_maintenance.sh
esther@dng0025:/c/Users/ikisehe/Desktop/linux_ass/Datacorps_Pipeline$ ls -l
total 0
-rwxr-xr-x 1 esther esther   83 Feb 13 16:06 Daily_maintenance.sh
drwxrwxrwx 1 esther esther 4096 Feb 13 14:58 logs
-rw-rw-rwx 1 esther esther    0 Feb 11 12:09 pipeline.conf
drwxrwxrwx 1 esther esther 4096 Feb 11 12:06 processed_data
drwx----- 1 esther esther 4096 Feb 11 12:06 source_data
```

```
esther@dng0025:/c/Users/ikisehe/Desktop/linux_ass/Datacorps_Pipeline$ ./Daily_maintenance.sh
Starting daily maintenance on Today is Friday, 13 February 2026
esther@dng0025:/c/Users/ikisehe/Desktop/linux_ass/Datacorps_Pipeline$
```