

```
#!/bin/bash
```

```
echo "[1/15] Creating ProjectAutomation folder in home  
directory..."
```

```
mkdir ~/ProjectAutomation
```

```
echo "[2/15] Navigating into ProjectAutomation..."
```

```
cd ~/ProjectAutomation
```

```
echo "[3/15] Creating Reports, Logs, and Scripts  
subdirectories..."
```

```
mkdir Reports Logs Scripts
```

```
echo "[4/15] Creating ReadMe.txt in Reports with a brief  
description..."
```

```
echo "This project automates file organization and system  
checks." > Reports/ReadMe.txt
```

```
echo "[5/15] Appending a timestamp to ReadMe.txt..."
```

```
date >> Reports/ReadMe.txt
```

```
echo "[6/15] Copying ReadMe.txt to Logs folder..."
```

```
cp Reports/ReadMe.txt Logs/
```

```
echo "[7/15] Listing files in Reports to FileList.txt..."
```

```
ls -l Reports > Reports/FileList.txt
```

```
echo "[8/15] Writing system uptime to Logs/SystemUptime.txt..."
```

```
uptime > Logs/SystemUptime.txt
```

```
echo "[9/15] Saving disk usage of home directory to  
Reports/DiskUsage.txt..."
```

```
du -sh ~ > Reports/DiskUsage.txt
```

```
echo "[10/15] Checking memory and saving to  
Logs/MemoryCheck.txt..."
```

```
free -h > Logs/MemoryCheck.txt
```

```
echo "[11/15] Creating symbolic link to ReadMe.txt in Scripts..."
```

```
ln -s ../Reports/ReadMe.txt Scripts/ReadMeLink.txt
```

```
echo "[12/15] Changing FileList.txt permissions to read-only..."
```

```
chmod 444 Reports/FileList.txt
```

```
echo "[13/15] Echoing task completion..."
```

```
echo "All tasks completed successfully."
```

```
echo "[14/15] Compressing ProjectAutomation folder..."
```

```
cd ~
```

```
tar -czvf ProjectAutomation.tar.gz ProjectAutomation
```

```
echo "[15/15] Displaying archive size..."
```

```
du -sh ProjectAutomation.tar.gz
```

```
echo "✔ Script completed!"
```

Step-by-Step Explanation

1. Creates a folder named ProjectAutomation in the user's home directory.
2. Navigates into the ProjectAutomation directory.
3. Creates three subdirectories: Reports, Logs, and Scripts.
4. Creates ReadMe.txt with a brief project description in Reports.
5. Appends a timestamp to ReadMe.txt.
6. Copies ReadMe.txt into the Logs folder.
7. Lists all files in Reports and saves it to FileList.txt.
8. Logs system uptime to SystemUptime.txt in Logs.
9. Saves home directory disk usage to DiskUsage.txt in Reports.
10. Checks available memory and writes output to MemoryCheck.txt in Logs.
11. Creates a symbolic link to ReadMe.txt in the Scripts folder.
12. Changes permissions of FileList.txt to read-only for all users.
13. Prints a task completion message to the terminal.
14. Compresses the ProjectAutomation folder to ProjectAutomation.tar.gz.
15. Displays the size of the archive in the terminal.

Screenshots

```
redbeard@theredbeardguy: /mnt/c/Users/falle/Desktop/Module 7

(redbeard@theredbeardguy)-[/mnt/c/Users/falle/Desktop/Module 7]
$ ./automation_script.sh
[1/15] Creating ProjectAutomation folder in home directory...
[2/15] Navigating into ProjectAutomation...
[3/15] Creating Reports, Logs, and Scripts subdirectories...
[4/15] Creating ReadMe.txt in Reports with a brief description...
[5/15] Appending a timestamp to ReadMe.txt...
[6/15] Copying ReadMe.txt to Logs folder...
[7/15] Listing files in Reports to FileList.txt...
[8/15] Writing system uptime to Logs/SystemUptime.txt...
[9/15] Saving disk usage of home directory to Reports/DiskUsage.txt...
[10/15] Checking memory and saving to Logs/MemoryCheck.txt...
[11/15] Creating symbolic link to ReadMe.txt in Scripts...
[12/15] Changing FileList.txt permissions to read-only...
[13/15] Echoing task completion...
All tasks completed successfully.
[14/15] Compressing ProjectAutomation folder...
ProjectAutomation/
ProjectAutomation/Reports/
ProjectAutomation/Reports/DiskUsage.txt
ProjectAutomation/Reports/ReadMe.txt
ProjectAutomation/Reports/FileList.txt
ProjectAutomation/Logs/
ProjectAutomation/Logs/SystemUptime.txt
ProjectAutomation/Logs/ReadMe.txt
ProjectAutomation/Logs/MemoryCheck.txt
ProjectAutomation/Scripts/
ProjectAutomation/Scripts/ReadMeLink.txt
[15/15] Displaying archive size...
4.0K   ProjectAutomation.tar.gz
☑ Script completed!

(redbeard@theredbeardguy)-[/mnt/c/Users/falle/Desktop/Module 7]
$ _
```

```
redbeard@theredbeardguy: /mnt/c/Users/falle/Desktop/Module 7
[10/15] Checking memory and saving to Logs/MemoryCheck.txt...
[11/15] Creating symbolic link to ReadMe.txt in Scripts...
[12/15] Changing FileList.txt permissions to read-only...
[13/15] Echoing task completion...
All tasks completed successfully.
[14/15] Compressing ProjectAutomation folder...
ProjectAutomation/
ProjectAutomation/Reports/
ProjectAutomation/Reports/DiskUsage.txt
ProjectAutomation/Reports/ReadMe.txt
ProjectAutomation/Reports/FileList.txt
ProjectAutomation/Logs/
ProjectAutomation/Logs/SystemUptime.txt
ProjectAutomation/Logs/ReadMe.txt
ProjectAutomation/Logs/MemoryCheck.txt
ProjectAutomation/Scripts/
ProjectAutomation/Scripts/ReadMeLink.txt
[15/15] Displaying archive size...
4.0K   ProjectAutomation.tar.gz
☑ Script completed!

(redbeard@theredbeardguy)-[/mnt/c/Users/falle/Desktop/Module 7]
$ tree ~/ProjectAutomation
/home/redbeard/ProjectAutomation
├── Logs
│   ├── MemoryCheck.txt
│   ├── ReadMe.txt
│   └── SystemUptime.txt
├── Reports
│   ├── DiskUsage.txt
│   ├── FileList.txt
│   └── ReadMe.txt
└── Scripts
    └── ReadMeLink.txt -> ../Reports/ReadMe.txt

4 directories, 7 files

(redbeard@theredbeardguy)-[/mnt/c/Users/falle/Desktop/Module 7]
$
```

Reflection

This assignment helped me reinforce my understanding of Bash scripting and Linux system tools. I learned how to automate routine tasks and manage files and system information efficiently.

This project strengthened my understanding of Bash scripting and Linux command-line tools. I learned how to automate file organization, gather system stats, and apply permissions efficiently.

