

IT 255 Final Project Guidelines and Rubric

Overview

The final project for this course is the creation of a fully functional script, and the demonstration of successful use and navigation of the Linux operating system.

You will complete this project in Codio in the unit titled “Final Project.” As you work on this project, you must complete the “Getting Your Bearings” section in one session. You must also complete the “Executing Tasks” section in one session: You will submit a log file of commands generated by the Linux operating system, and that log of commands will reset when you exit the system. Therefore, plan accordingly and create your log file prior to exiting the system. (See the [Codio website](#) for more information on downloading log files.) This project has directions that include naming conventions for files and directories. Following these naming conventions is important. In the event that your instructor needs to check the directory structure or check your files inside of the Codio environment, having consistent directory and file names will make them easier to find.

In this assignment, you will demonstrate your mastery of the following course outcomes:

- Select appropriate commands for navigating, creating, and organizing the Linux directory structure
- Execute tasks using basic Linux utilities and commands that search, redirect, and manipulate input and output
- Interpret output from executing basic commands for determining status and verifying expected results
- Create a basic Linux script combining multiple commands that simplifies a repeatable task

Scenario

You are starting a new position at an oil and gas company called SNHU-Pipeline Company. They are a well-established company that has been in business for 50 years. So, when it comes to technology, SNHU-Pipeline Company has been slow to evolve, especially in its employee computers and operating systems. As a 100% Microsoft Windows shop, SNHU-Pipeline Company is looking for ways to cut costs, improve reliability, and improve performance for end users and applications services.

Recently, management has learned that you have a background in Linux operating systems and wants to get your thoughts on how they can achieve their goals for end-user enhancements.

Prompt

Management would like to see some example artifacts of Linux being utilized. They have also requested that you develop a backup script showing the capabilities an end user can have in providing themselves a way to back up their own files.

Specifically, the following **critical elements** must be addressed:

Getting Your Bearings: In this section of the final project, you will demonstrate your ability to execute commands to verify and confirm the status of the directory, files, and user account. At the end of this section, you will create a log file that will include a list of all the commands you used to complete these steps.

- I. **Navigate:** The first step in this process, which you will provide evidence for in your log file, is to view the following using Linux commands:
 - A. Current directory
 - B. Current user
 - C. Directory contents
- II. **Command list information:** Your next step will be to utilize a resource inside the Linux operating system that can provide you with more information for how to utilize commands.
 - A. Utilize a **command** to access key command information that would inform which command switch to use to show all files in the directory, including hidden files.
 - B. Review the **directory** contents again utilizing a command with a switch that includes hidden files.
- III. **Locate a file:** Locate and open a file in the Linux workspace directory that contains the following text string: lastbackup.
- IV. **File permissions:** Locate the whoownsme.txt file and confirm that all users have the ability to execute the file.
- V. **Running processes:** View all the processes running in the system in order of priority.
- VI. **Log file:** Utilize a Linux command to create a log file that contains all of the commands you have utilized up to this point, and ensure all of the commands utilized in critical elements I through V are listed. Title this file Bearings_Log_File.txt, and download this file for submission.

Executing tasks: In this section of the project, you will demonstrate your ability execute Linux commands to create files and create and organize the Linux directory structure. At the end of this section, you will create a log file that will include a list of all the commands you used to complete these steps.

- VII. In the workspace directory, **create new directories** titled NEW, BACKUP, and OLD.
- VIII. **Create files:** For this section, you will need to create files using five different methods in preparation for scripting in the following section. Ensure that you place them in the directory titled “NEW”:
 - A. A text file with five lines of text that you chose, titled Personal_Content.txt
 - B. A text file listing the quantity of operating system free space, titled Free_Space_Content.txt
 - C. A text file listing the directory contents of your workspace directory and showing all file permissions, titled: Directory_Content.txt
 - D. A text file with the concatenated output of the Directory_Content.txt file (Title the new file Copied_Content.txt.)
 - E. A text file showing the current month, day, and time (Title this file Time_File.txt.)
- IX. **Modify and move files:** Utilize Linux commands to rename files and copy them to a different directory in preparation for the backup script in the following section. Rename the files by adding the suffix “_OLD” to them, and move the files from the “NEW” directory to the “OLD” directory.

Remember that your modified files should use an appropriate naming convention: XXXX_XXXX_OLD.txt. Ensure that your modified files reside in the OLD directory, and that your original files reside in the NEW directory.

- X. **Log file:** Create a log file of all the commands you have utilized up to this point. Title this file Tasks_Log_File.txt, and download it for submission.

Script: In this section of your final project, you will write a basic script to create and back up files. You will create this script with the vi editor. The script will combine multiple commands and simplify a repeatable task. Your script should be named Firstname_Lastname.BASH. Your script and your Linux directory structure should demonstrate that you have correctly written the script to do the following:

- XI. **Create files:** In this section, you will demonstrate your ability to utilize various Linux commands to create text files. Create these files in the NEW directory. Ensure that the commands in your log file show that the following three text files were created using three different methods. Create the following files:
- A text file listing the quantity of operating system free space, titled Free_Space_Content.txt
 - A text file listing the directory contents of the OLD folder, titled OLD_Content.txt
 - A text file showing the current month, day, and time (Title this file Time_File.txt.)
- XII. **Modify and Move files:** Utilize Linux commands to copy files to a different directory and rename them.
- Copy the following selected files from the **OLD** directory to the **BACKUP** directory. Ensure that you change the filename suffix from XXX_OLD to XXX_BACKUP.
 - Free_Space_Content_OLD.txt
 - Directory_Content_OLD.txt
 - Time_File_OLD.txt
 - Move all files** from the NEW directory to the BACKUP directory (no renaming necessary). Clean up the Linux directory structure by deleting the items in the NEW directory.
- XIII. **Execute the script:** At this point, you will need to complete and execute the newly created script and complete a successful directory backup process.
- XIV. **Assess output:** Finally, analyze the Linux directory structure and file contents to confirm successful script implementation. Ensure that you download your script and your Script_Assessment.txt file for submission.
- Create a text file titled Script_Assessment.txt in the NEW directory; write a paragraph identifying the commands that you used in your script, and assess the success of your script.

Final Project Rubric

Guidelines for Submission: Your final project will be submitted in several different parts. You will submit the following to Brightspace:

- Two history log files
- Your script

- Your Script_Assessment.txt file

Refer to [this Codio instruction set](#) for information on how to download your history log file.

Critical Elements	Exemplary	Proficient	Needs Improvement	Not Evident	Value
Getting Your Bearings: Navigate		Log file provides evidence that all of the required navigation areas were viewed (100%)	Log file provides evidence that some but not all of the required navigation areas were viewed (55%)	Does not provide a log file to provide evidence of viewing of the navigation areas (0%)	5.94
Getting Your Bearings: Command List Information: Command		Utilized a command to access key command information that would inform which command switch to use to show all files in the directory, including hidden files (100%)	Utilized a command to access key command information, but information did not inform which command switch to use to show all files in the directory, including hidden files (55%)	Did not utilize a command to access key command information that would inform which command switch to use to show all files in the directory, including hidden files (0%)	7.92
Getting Your Bearings: Command List Information: Directory		Utilizes a command to review the directory contents again with a switch that includes hidden files (100%)	Utilizes a command to review the directory contents again but does not use a switch to include hidden files (55%)	Does not utilize a command to review the directory files again (0%)	5.94
Getting Your Bearings: Locate a File		Located and opened a file in the Linux workspace directory that contains the text string lastbackup (100%)	Located a file in the Linux workspace directory that contains the text string lastbackup, but did not open the file (55%)	Did not locate or open a file in the Linux workspace directory that contains the text string lastbackup (0%)	5.94
Getting Your Bearings: File Permissions		Located the whoownsme.txt file and confirmed that all users have the ability to execute the file (100%)	Located the whoownsme.txt file and but did not confirm that all users have the ability to execute the file (55%)	Did not locate the whoownsme.txt file (0%)	4.75
Getting Your Bearings: Running Processes		Viewed an ordered list of computer processes in order of priority (100%)	Viewed an ordered list of computer processes, but list is not in order of priority (55%)	Did not view an ordered list of computer processes (0%)	4.75

Getting Your Bearings: Log File		Utilized a Linux command to create a log file that contains all of the commands utilized up to this point, and ensured all of the commands utilized in critical elements I through V are listed (100%)	Utilized a Linux command to create a log file, but log file does not contain all of the commands utilized up to this point (55%)	Did not utilize a Linux command to create a log file that contains all of the commands utilized up to this point, and did not ensure that all of the commands utilized in critical elements I through V are listed (0%)	4.75
Executing Tasks: Create New Directories		Directories titled NEW, BACKUP, and OLD were created in the workspace directory (100%)	Directories were created, but some directories are missing or were not created in the workspace directory (55%)	Directories were not created	5.94
Executing Tasks: Create Files		Files were created using five different methods and were placed in the NEW directory (100%)	Files were created, but five different methods were not used, or files were not placed in the NEW directory (55%)	Files were not created (0%)	7.92
Executing Tasks: Modify and Move Files:		Moved the files from the NEW directory to the OLD directory and modified their file names by adding the suffix _OLD (100%)	Moved and modified files, but the task execution is incomplete or inaccurate (55%)	Did not move or modify files (0%)	7.92
Executing Tasks: Log File		Utilized a Linux command to create a log file that contains all of the commands utilized up to this point, and ensured all of the commands utilized in critical elements I through V are listed (100%)	Utilized a Linux command to create a log file, but log file does not contain all of the commands utilized up to this point (55%)	Did not utilize a Linux command to create a log file that contains all of the commands utilized up to this point, and did not ensure that all the commands utilized in critical elements I through V are listed (0%)	4.75
Script: Create Files		Files were created using three different methods and were created in the NEW directory (100%)	Files were created, but three different methods were not used, or files were not created in the NEW directory (55%)	Files were not created (0%)	5.94
Script: Modify and Move Files: OLD to BACKUP		Copied the following selected files from the OLD directory to the BACKUP directory and changed the filename suffix from XXX_OLD to XXX_BACKUP (100%)	Copied files from the OLD directory to the BACKUP directory, but the method resulted in an incomplete copy or copy errors, or filenames were not changed (55%)	Did not copy files and did not change the filename suffix (0%)	5.94

Script: Modify and Move Files: Move all Files		Moved all files from the NEW directory to the BACKUP directory and cleaned up the Linux directory structure by deleting items in the NEW directory (100%)	Moved files from the NEW directory to the BACKUP directory and cleaned up the Linux directory structure by deleting items in the NEW directory, but modification of the directory structure is incomplete or contains errors (55%)	Did not move files and did not clean up the Linux directory structure (0%)	5.94
Script: Execute the Script		Completes and executes the script, and completes successful directory backup process (100%)	Completes the scripts, but execution or directory backup process has errors or is unsuccessful (55%)	Did not complete or execute the script (0%)	5.94
Script: Assess Output	Meets “Proficient” criteria, and assessment of the success of the script demonstrates a sophisticated awareness (100%)	Created a text file in the NEW directory titled Script_Assessment.txt and wrote a paragraph that identified the commands that were used in the script, and assessed the success of the script (85%)	Created a text file in the NEW titled Script_Assessment.txt and wrote a paragraph that identified the commands that were used in the script, and assessed the success of the script, but the identified list and assessment lack key details or support (55%)	Did not create a text file in the NEW directory and did not write a paragraph that identified the commands that were used in the script, and did not assess the success of the script (0%)	4.75
Articulation of Response	Submission is free of errors related to citations, grammar, spelling, syntax, and organization and is presented in a professional and easy-to-read format (100%)	Submission has no major errors related to citations, grammar, spelling, syntax, or organization (85%)	Submission has major errors related to citations, grammar, spelling, syntax, or organization that negatively impact readability and articulation of main ideas (55%)	Submission has critical errors related to citations, grammar, spelling, syntax, or organization that prevent understanding of ideas (0%)	4.97
Total					100%