Linux assignment :7

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1] A Bash shell script is plain text file containing a series of commands that are executed by Bash shell.

Example:

Display greeting and current date.

```
echo "Hello, World!"

echo "Today is $(date)"
```

2] Step 1: Create a new file for the script

Example: hello.sh

Step 2: Add the shebang line

Step 3: Add the command to print

Step 4: Make the script executable

3] In a shell script, the primary purpose of the hash symbol (#) is to denote a comment. Any text following a # on a given line, until the end of that line, is considered a comment and is ignored by the shell interpreter during execution.

4] Variables in a shell script are not explicitly declared with a data type like int, float, double, string, Boolean, or char. They are typeless and are created when a value is assigned to them.

For example:

To store an integer: my_int=10

To store a string: my_string="Hello, World!"

5] Step 1: Create a new file for shell script

Step 2: Add the shebang line

Step 3: Use the data command

Step 4: add comments and an echo statement for clarity

Step 5: Save and make the script executable

Step 6: Run the script

6]

The primary difference between a constant and a variable in a bash script is that a variable's value can be changed or reassigned during the script's execution, while a constant's value is fixed and cannot be modified after its initial assignment.

Variable: A variable is a named storage location whose value can be altered as the program runs. In bash, variables are typically declared and assigned a value using the syntax variable name=value. The value can be changed later in the script.

Constant: A constant is a value that is assigned to a name and cannot be changed during the program's execution. While bash does not have a native "constant" keyword like some other programming languages, the readonly command is used to create a constant-like behavior. Once a variable is declared as readonly, its value cannot be changed. For example:
readonly NAME="John".

```
7]echo "Enter the first integer number:"

read num1

echo "Enter the second integer number:"

read num2

sum=$((num1 + num2))

echo "The sum of $num1 and $num2 is: $sum"
```

8] In shell scripting source command is used to execute commands from a specified file within the current shell environment. This distinguishes it from simply executing a script, which typically runs in a subshell.

- Loading configuration
- Importing functions and variables
- Modifying environment variables

9] Debugging a shell script involves identifying and resolving errors

The two methods are

1. Using the set -x command for execution tracing
    - To enable tracing for the entire script
    - To enable tracing for specific script
2. Inserting echo statements for variable inspection and flow control
    - To incept variable values
    - To trace execution flow

10]

```
#!/bin/bash

# Define the filename

FILENAME="my_temp_file.txt"

# Create the file

echo "Creating file: $FILENAME"

touch "$FILENAME"

# Check if file creation was successful

if [ -f "$FILENAME" ]; then

  echo "File '$FILENAME' created successfully."

else

  echo "Error: Failed to create file '$FILENAME'."

  exit 1

fi

# Pause for a moment to observe the file (optional)

sleep 2

# Delete the file

echo "Deleting file: $FILENAME"

rm "$FILENAME"

# Check if file deletion was successful

if [ ! -f "$FILENAME" ]; then

  echo "File '$FILENAME' deleted successfully."

else

  echo "Error: Failed to delete file '$FILENAME'."

  exit 1

fi
```