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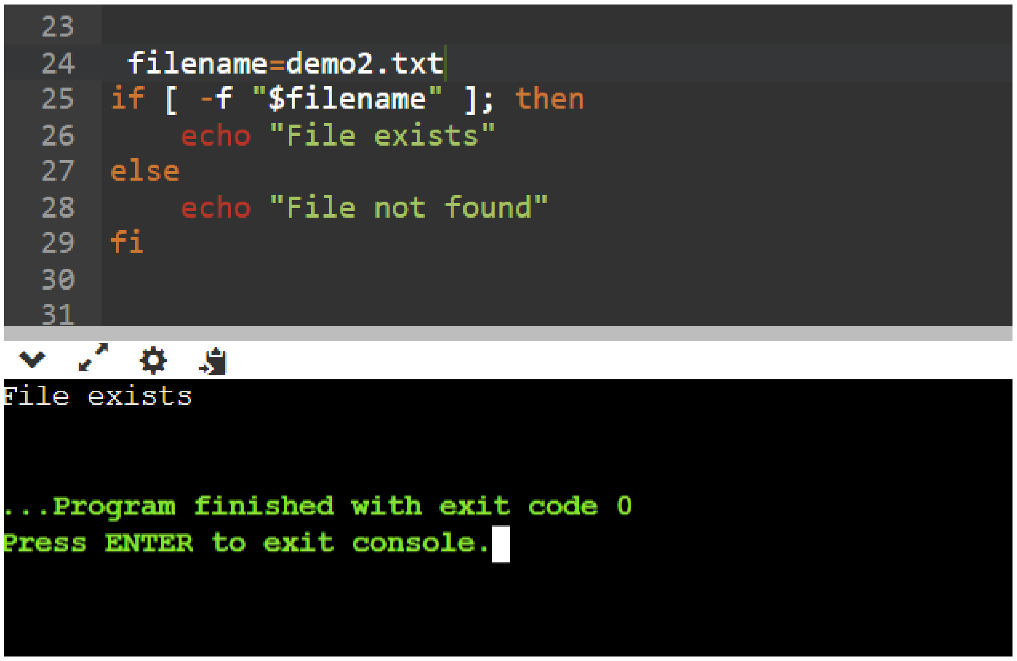
Assignment 1: Ensure the script checks if a specific file (e.g., myfile.txt) exists in the current directory. If it exists, print "File exists", otherwise print "File not found".

Solution:

```
filename=demo2.txt

if [ -f "$filename" ]; then

   echo "File exists"

else

   echo "File not found"

fi
```

O/p



```
 filename=demo2.txt
if [ -f "$filename" ]; then
    echo "File exists"
else
    echo "File not found"
fi
```

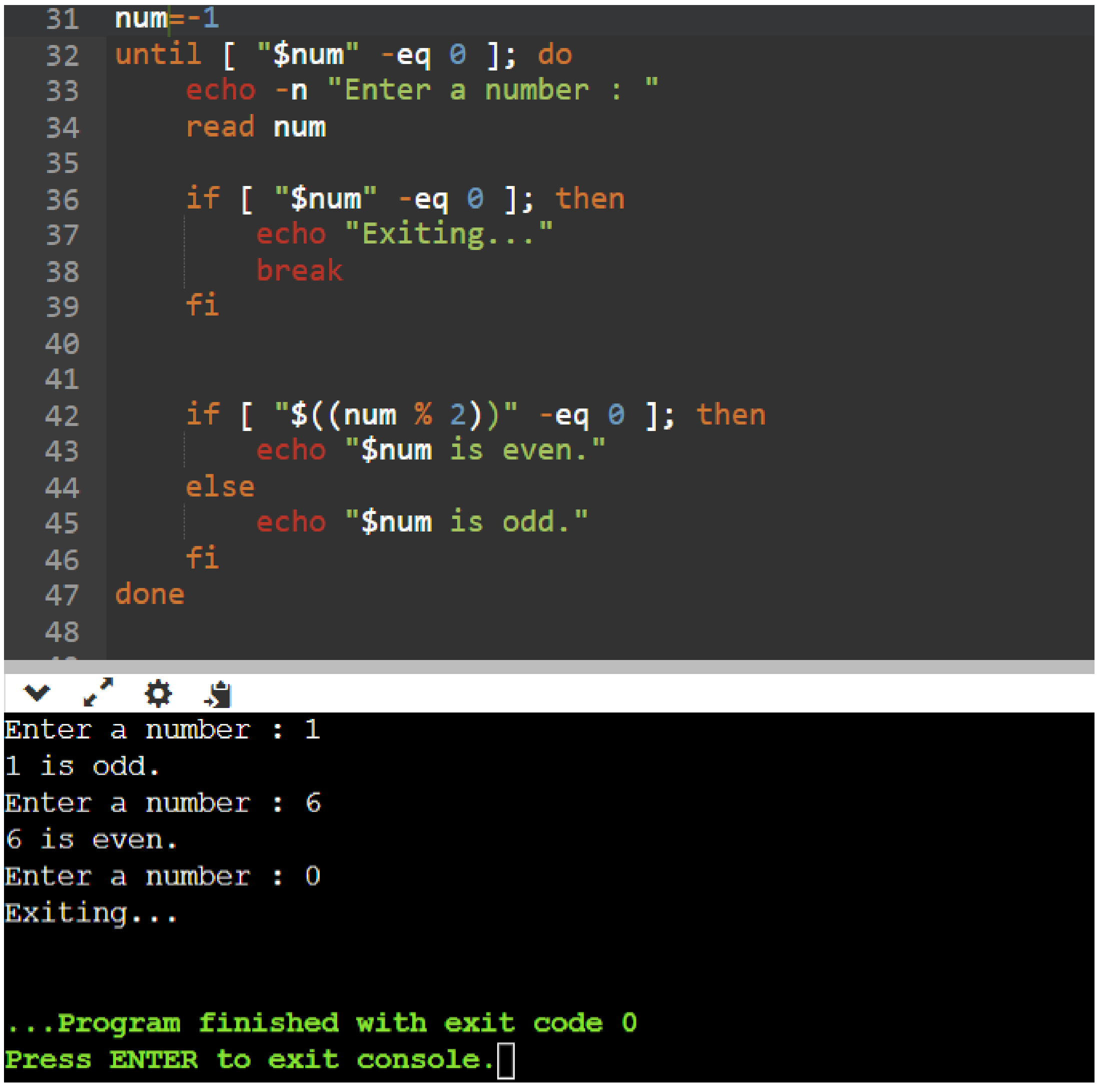
```
File exists


...Program finished with exit code 0
Press ENTER to exit console.
```

Assignment 2: Write a script that reads numbers from the user until they enter '0'. The script should also print whether each number is odd or even.

Solution:

```
num=-1
until [ "$num" -eq 0 ]; do
  echo -n "Enter a number : "
  read num

  if [ "$num" -eq 0 ]; then
    echo "Exiting..."
    break
  fi


  if [ "$((num % 2))" -eq 0 ]; then
    echo "$num is even."
  else
    echo "$num is odd."
  fi
done
```

o/p:



```bash
num=-1
until [ "$num" -eq 0 ]; do
    echo -n "Enter a number : "
    read num

    if [ "$num" -eq 0 ]; then
        echo "Exiting..."
        break
    fi


    if [ "$((num % 2))" -eq 0 ]; then
        echo "$num is even."
    else
        echo "$num is odd."
    fi
done
```

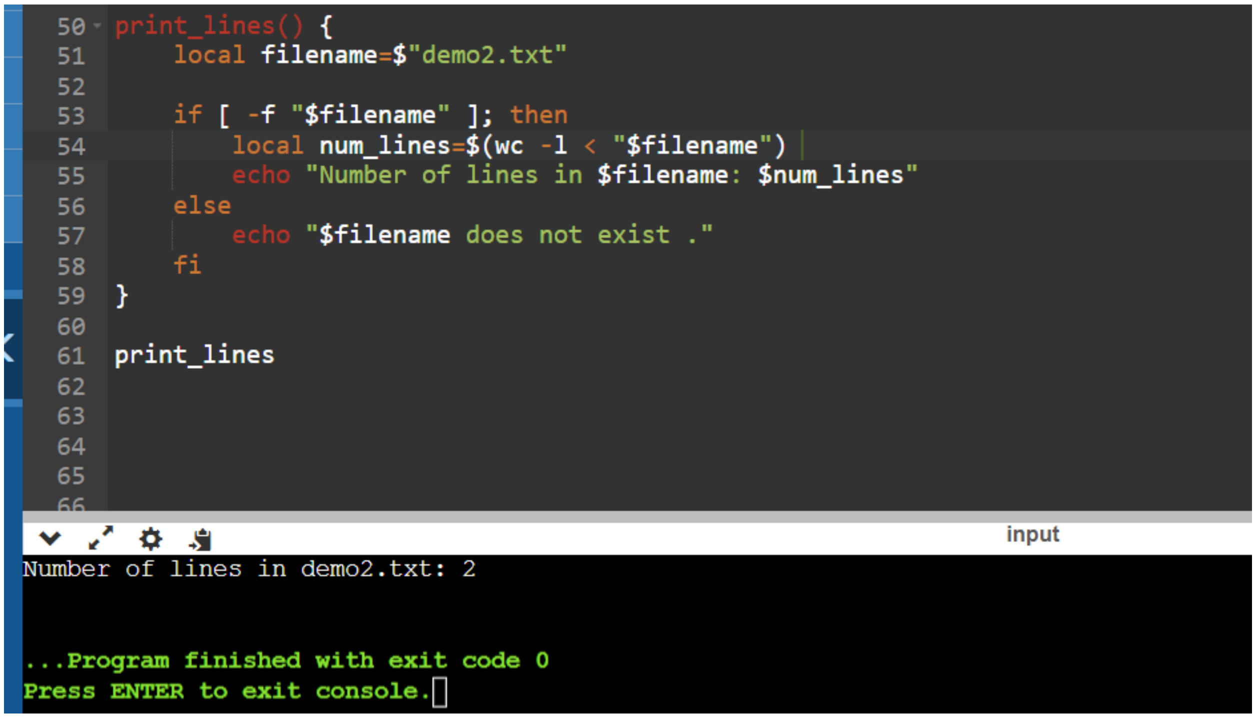
```
Enter a number : 1
1 is odd.
Enter a number : 6
6 is even.
Enter a number : 0
Exiting...


...Program finished with exit code 0
Press ENTER to exit console.
```

Assignment 3: Create a function that takes a filename as an argument and prints the number of lines in the file. Call this function from your script with different filenames.

Solution:

```
print_lines() {
  local filename=$"demo2.txt"


  if [ -f "$filename" ]; then
    local num_lines=$(wc -l < "$filename")
    echo "Number of lines in $filename: $num_lines"
  else
    echo "$filename does not exist ."
  fi
}

print_lines
```

o/p:



```
print_lines() {
    local filename=$"demo2.txt"

    if [ -f "$filename" ]; then
        local num_lines=$(wc -l < "$filename")
        echo "Number of lines in $filename: $num_lines"
    else
        echo "$filename does not exist ."
    fi
}

print_lines
```

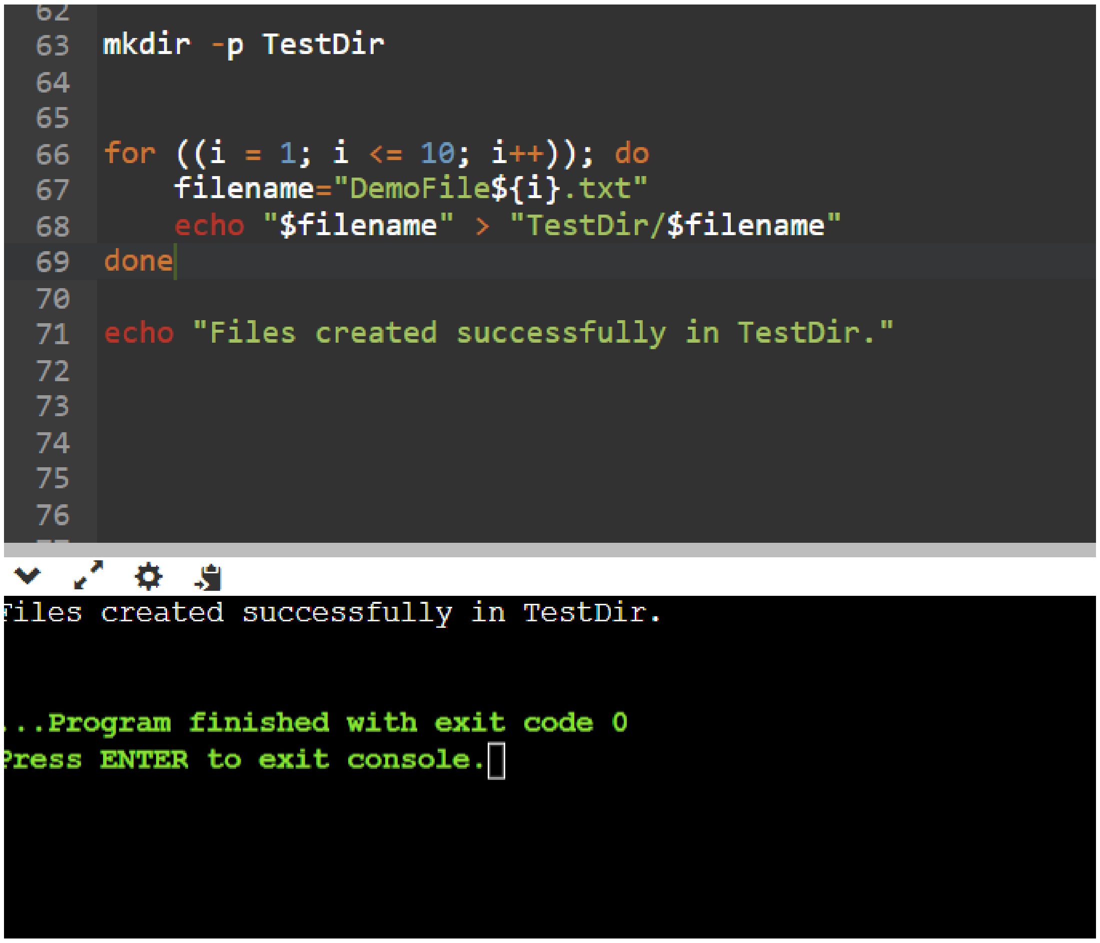
```
Number of lines in demo2.txt: 2


...Program finished with exit code 0
Press ENTER to exit console.
```

Assignment 4: Write a script that creates a directory named TestDir and inside it, creates ten files named File1.txt, File2.txt, ... File10.txt. Each file should contain its filename as its content (e.g., File1.txt contains "File1.txt").

Solution:

```
mkdir -p TestDir

for ((i = 1; i <= 10; i++)); do

  filename="DemoFile${i}.txt"

    echo "$filename" > "TestDir/$filename"

done


echo "Files created successfully in TestDir."
```

o/p



```
mkdir -p TestDir


for ((i = 1; i <= 10; i++)); do
    filename="DemoFile${i}.txt"
    echo "$filename" > "TestDir/$filename"
done

echo "Files created successfully in TestDir."
```

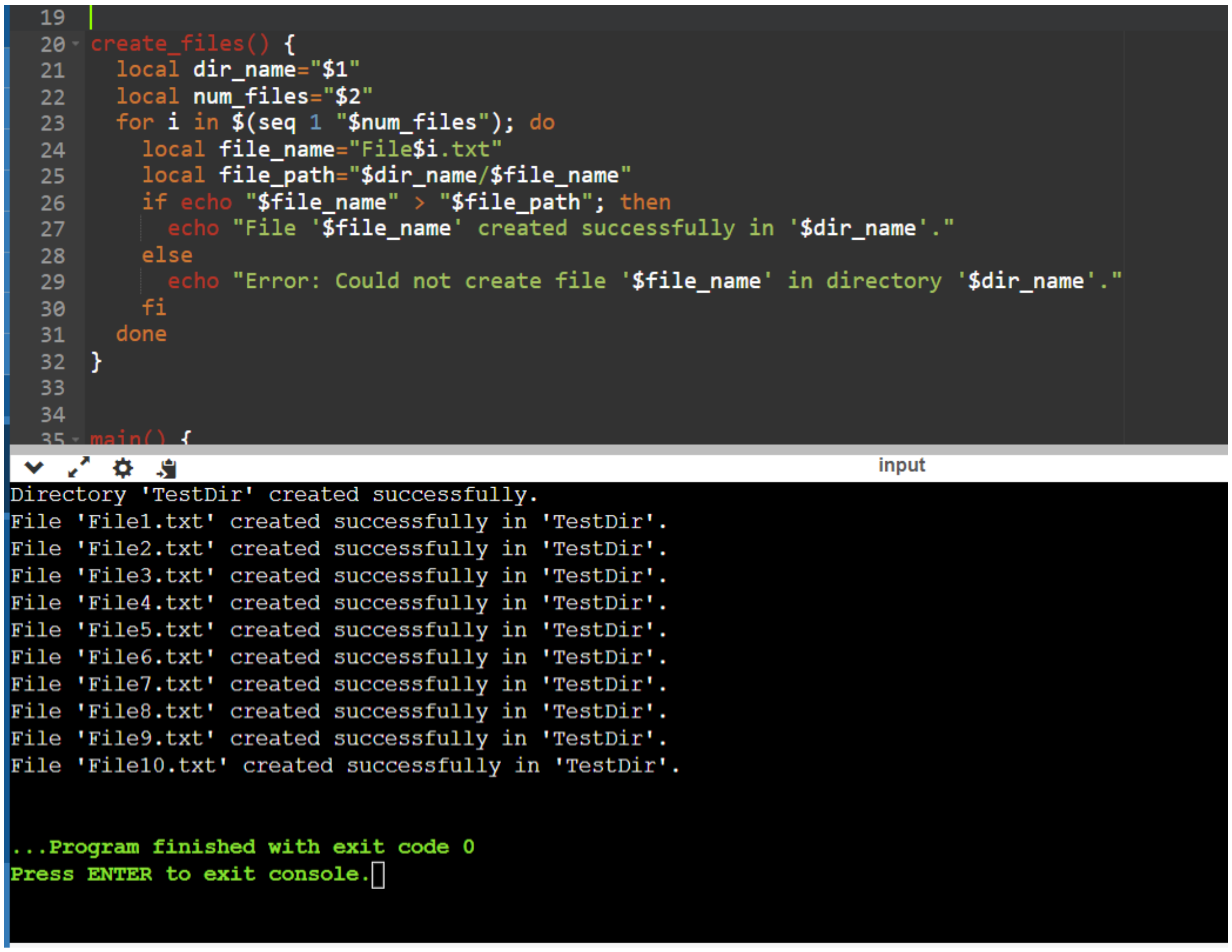
```
Files created successfully in TestDir.


...Program finished with exit code 0
Press ENTER to exit console.
```

Assignment 5: Modify the script to handle errors, such as the directory already existing or lacking permissions to create files.

Solution:

```
create_directory() {
  local dir_name="$1"
  if mkdir "$dir_name" 2>/dev/null; then
    echo "Directory '$dir_name' created successfully."
  else
    if [ -d "$dir_name" ]; then
      echo "Directory '$dir_name' already exists."
    else
      echo "Error: Could not create directory '$dir_name'."
    fi
  fi
}



create_files() {
  local dir_name="$1"
  local num_files="$2"
  for i in $(seq 1 "$num_files"); do
    local file_name="File$i.txt"
    local file_path="$dir_name/$file_name"
    if echo "$file_name" > "$file_path"; then
      echo "File '$file_name' created successfully in '$dir_name'."
    else
      echo "Error: Could not create file '$file_name' in directory '$dir_name'."
    fi
  done
}


main() {
  local dir_name="TestDir"
  local num_files=10

  create_directory "$dir_name"
  create_files "$dir_name" "$num_files"
}


main
```

o/p:



```bash

create_files() {
  local dir_name="$1"
  local num_files="$2"
  for i in $(seq 1 "$num_files"); do
    local file_name="File$i.txt"
    local file_path="$dir_name/$file_name"
    if echo "$file_name" > "$file_path"; then
      echo "File '$file_name' created successfully in '$dir_name'."
    else
      echo "Error: Could not create file '$file_name' in directory '$dir_name'."
    fi
  done
}


main() {
```

```
Directory 'TestDir' created successfully.
File 'File1.txt' created successfully in 'TestDir'.
File 'File2.txt' created successfully in 'TestDir'.
File 'File3.txt' created successfully in 'TestDir'.
File 'File4.txt' created successfully in 'TestDir'.
File 'File5.txt' created successfully in 'TestDir'.
File 'File6.txt' created successfully in 'TestDir'.
File 'File7.txt' created successfully in 'TestDir'.
File 'File8.txt' created successfully in 'TestDir'.
File 'File9.txt' created successfully in 'TestDir'.
File 'File10.txt' created successfully in 'TestDir'.


...Program finished with exit code 0
Press ENTER to exit console.
```

Add a debugging mode that prints additional information when enabled.

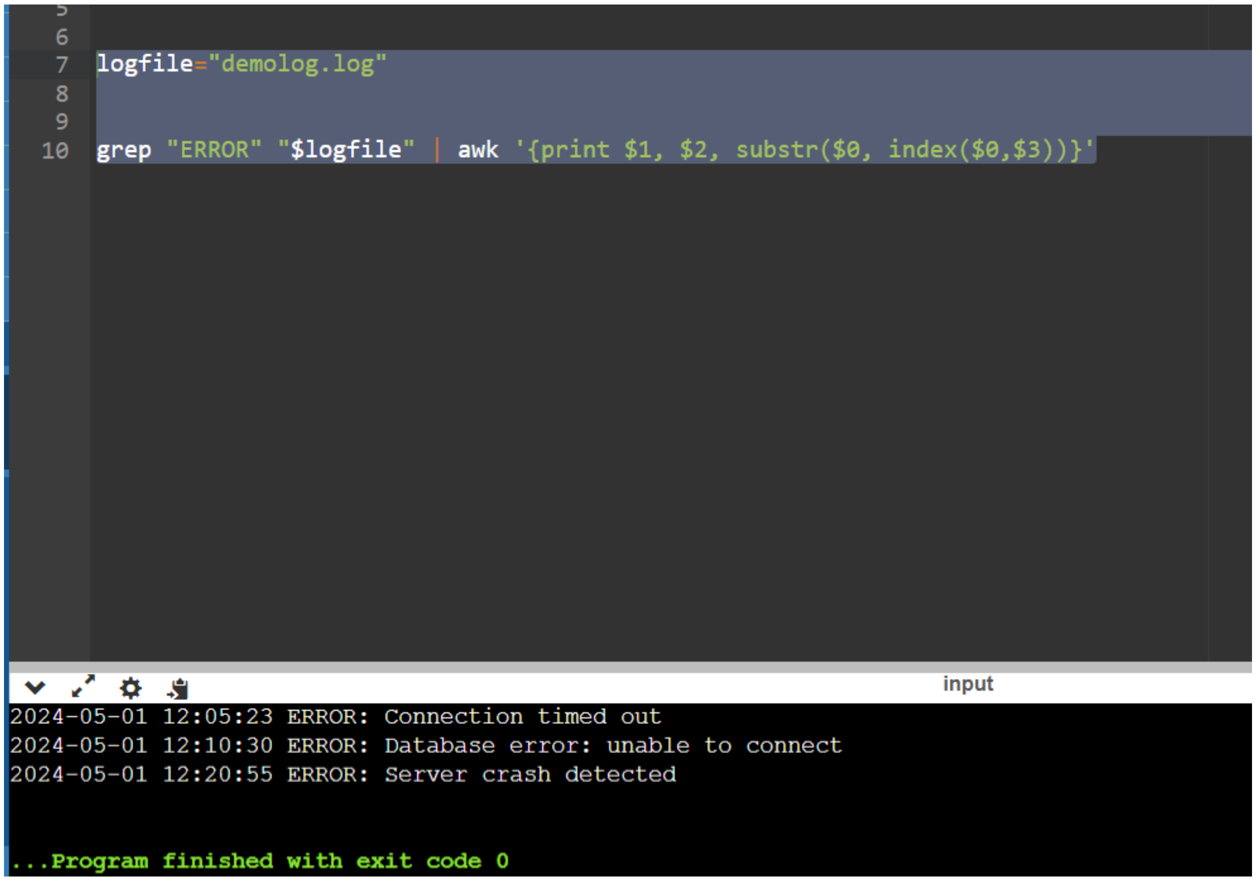
Assignment 6: Given a sample log file, write a script using grep to extract all lines containing "ERROR". Use awk to print the date, time, and error message of each extracted line.

Data Processing with sed

Solution:

```
logfile="demolog.log"



grep "ERROR" "$logfile" | awk '{print $1, $2, substr($0, index($0,$3))}'
```

o/p:



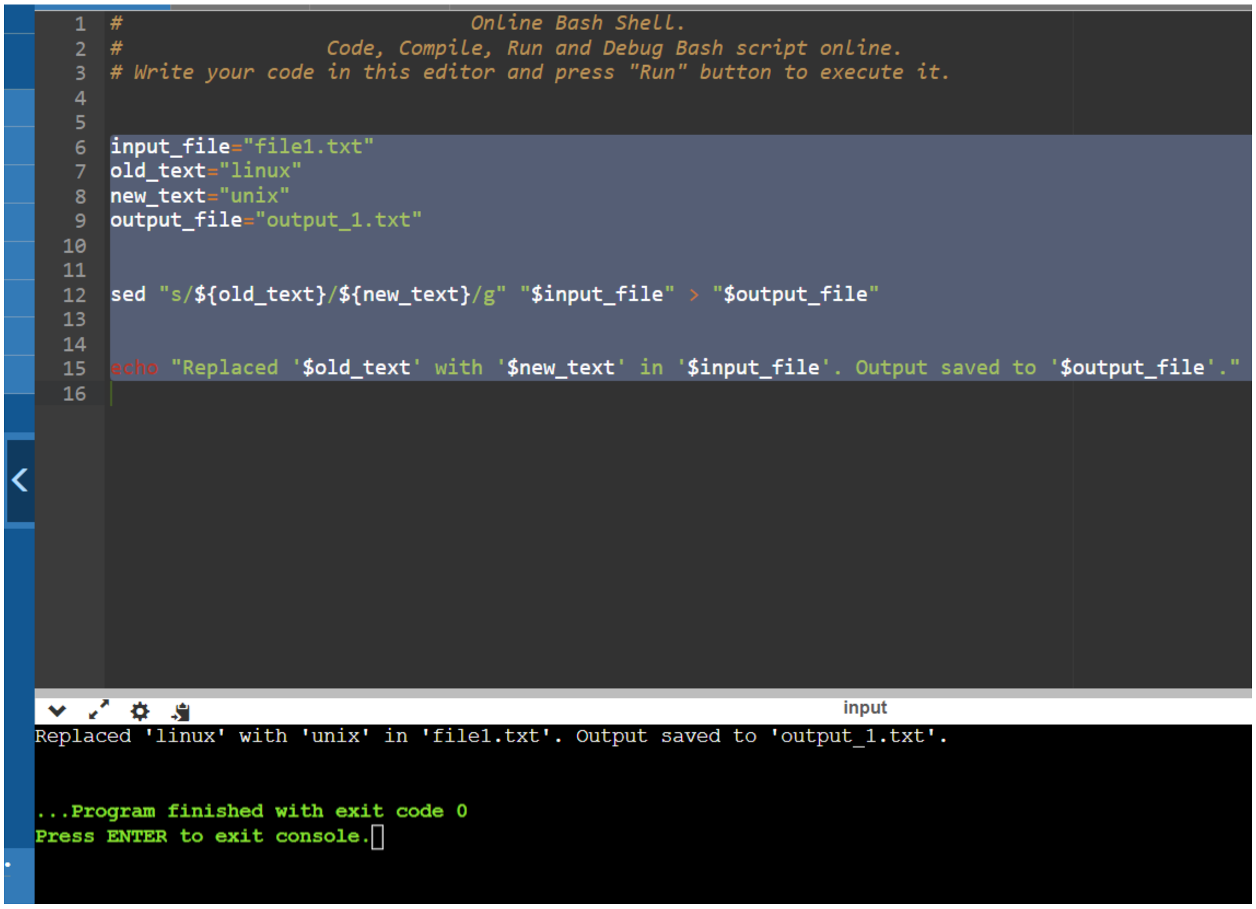
```
logfile="demolog.log"


grep "ERROR" "$logfile" | awk '{print $1, $2, substr($0, index($0,$3))}'
```

```
2024-05-01 12:05:23 ERROR: Connection timed out
2024-05-01 12:10:30 ERROR: Database error: unable to connect
2024-05-01 12:20:55 ERROR: Server crash detected


...Program finished with exit code 0
```

Assignment 7: Create a script that takes a text file and replaces all occurrences of "old_text" with "new_text". Use sed to perform this operation and output the result to a new file.

```
input_file="file1.txt"

old_text="linux"

new_text="unix"

output_file="output_1.txt"



sed "s/${old_text}/${new_text}/g" "$input_file" > "$output_file"



echo "Replaced '$old_text' with '$new_text' in '$input_file'. Output saved to '$output_file'."
```

O/p:



```bash
#                           Online Bash Shell.
#                   Code, Compile, Run and Debug Bash script online.
# Write your code in this editor and press "Run" button to execute it.


input_file="file1.txt"
old_text="linux"
new_text="unix"
output_file="output_1.txt"


sed "s/${old_text}/${new_text}/g" "$input_file" > "$output_file"


echo "Replaced '$old_text' with '$new_text' in '$input_file'. Output saved to '$output_file'."

```

```
Replaced 'linux' with 'unix' in 'file1.txt'. Output saved to 'output_1.txt'.


...Program finished with exit code 0
Press ENTER to exit console.
```