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Module 5 Assessment

Create a Bash script `file_analyzer.sh` to demonstrate the following concepts:

1. Recursive functions
   Write a recursive function to search for files in a directory and its subdirectories containing a specific keyword.

2. Redirection and error handling
   Log errors (e.g., invalid arguments, missing files) to `errors.log` and display them in the terminal.

3. Here document and here string
   Use a here document to display a help menu when the `--help` option is passed.
   Search for a keyword in a specific file using a here string.

4. Special parameters
   Use parameters like `$0`, `$#`, `$?`, and `$@` to provide meaningful feedback.

5. Regular expressions
   Validate inputs with regular expressions (Check if the file exists and the keyword is not empty and valid).

6. Command-line arguments using getopts
   Use `getopts` to handle:

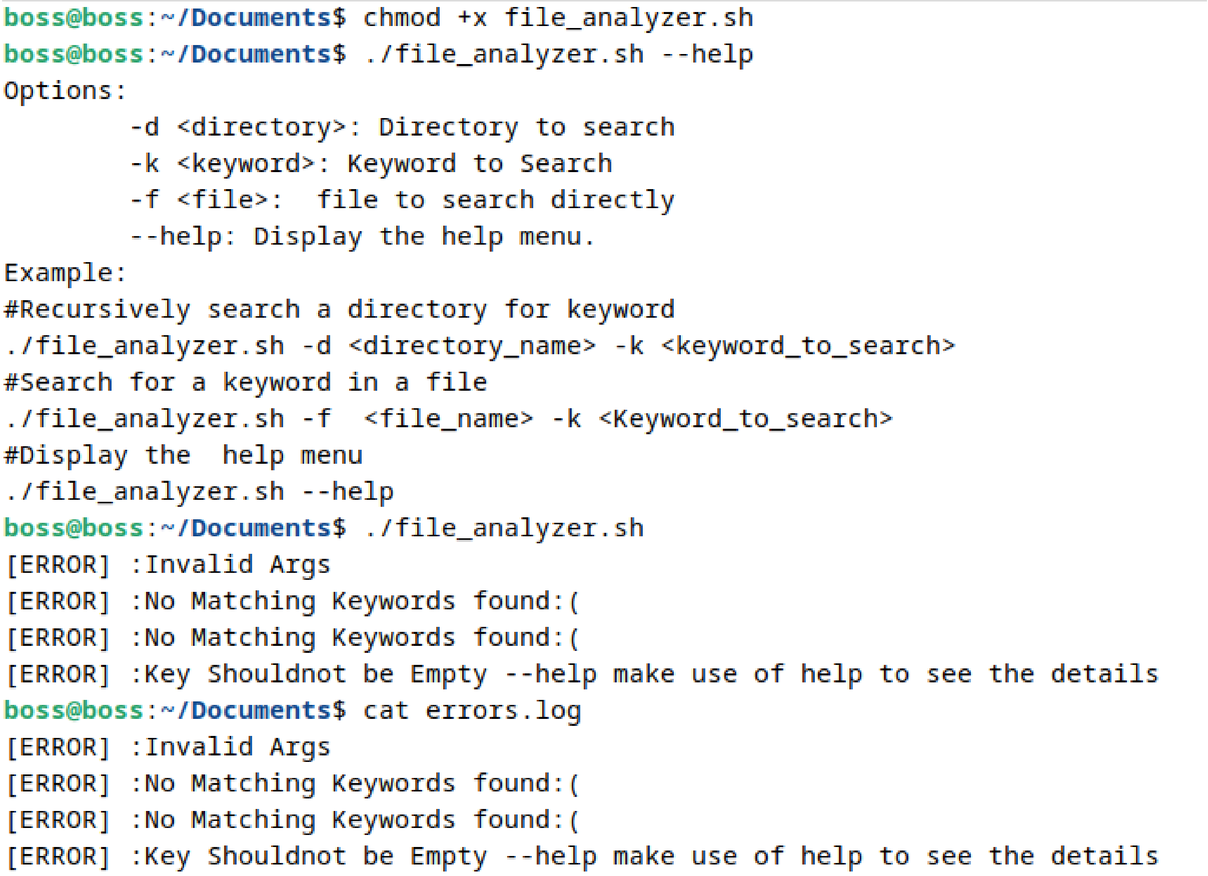
- `-d <directory>`: Directory to search
- `-k <keyword>`: Keyword to search
- `-f <file>`: File to search directly
- `--help`: Display the help menu

Example usage:

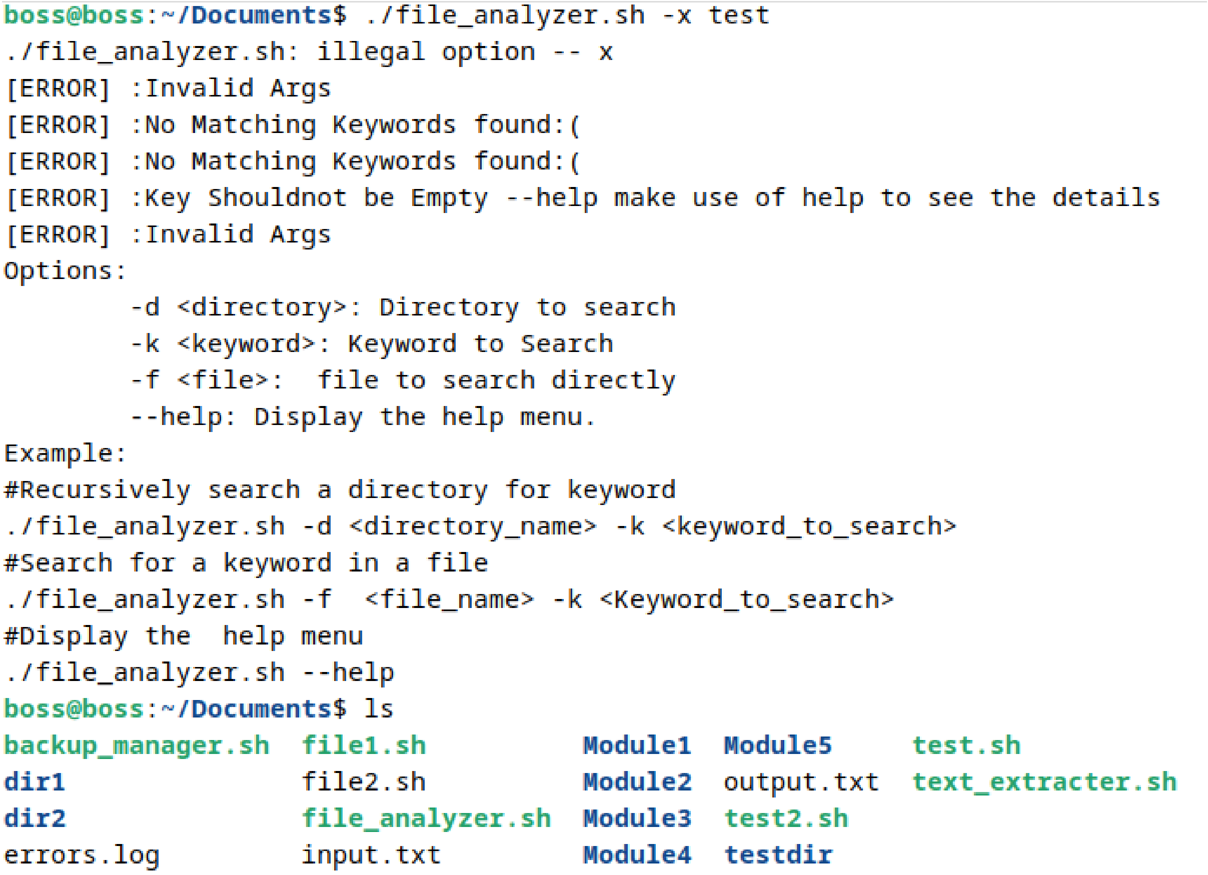
Recursively search a directory for a keyword
./file_analyzer.sh -d logs -k error

Search for a keyword in a file
./file_analyzer.sh -f script.sh -k TODO

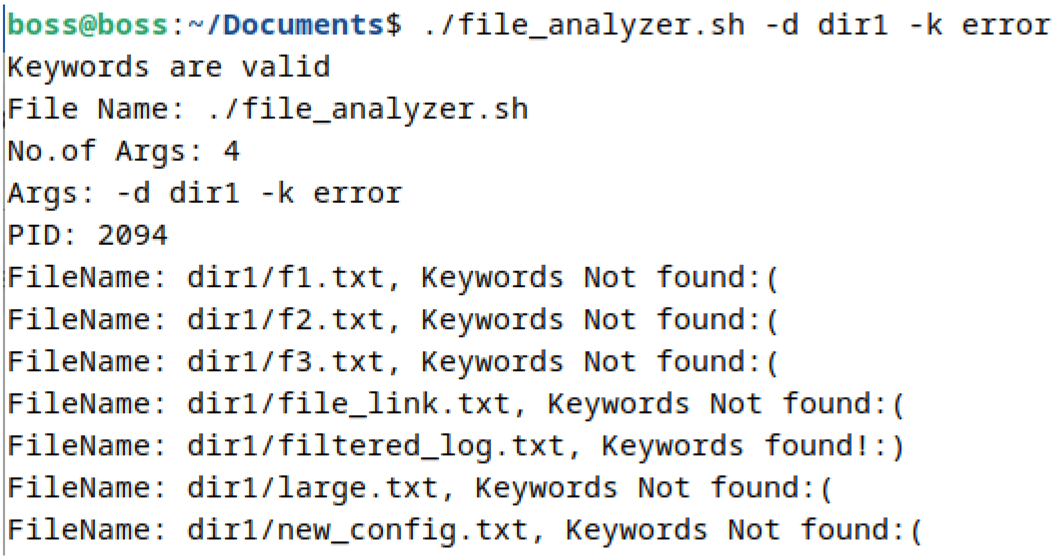
Display the help menu
./file_analyzer.sh --help



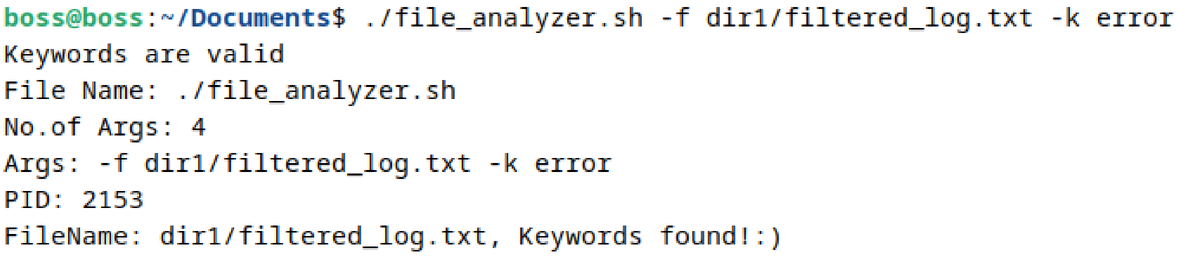
```
boss@boss:~/Documents$ chmod +x file_analyzer.sh
boss@boss:~/Documents$ ./file_analyzer.sh --help
Options:
        -d <directory>: Directory to search
        -k <keyword>: Keyword to Search
        -f <file>:  file to search directly
        --help: Display the help menu.
Example:
#Recursively search a directory for keyword
./file_analyzer.sh -d <directory_name> -k <keyword_to_search>
#Search for a keyword in a file
./file_analyzer.sh -f  <file_name> -k <Keyword_to_search>
#Display the  help menu
./file_analyzer.sh --help
boss@boss:~/Documents$ ./file_analyzer.sh
[ERROR] :Invalid Args
[ERROR] :No Matching Keywords found:(
[ERROR] :No Matching Keywords found:(
[ERROR] :Key Shouldnot be Empty --help make use of help to see the details
boss@boss:~/Documents$ cat errors.log
[ERROR] :Invalid Args
[ERROR] :No Matching Keywords found:(
[ERROR] :No Matching Keywords found:(
[ERROR] :Key Shouldnot be Empty --help make use of help to see the details
```



```
boss@boss:~/Documents$ ./file_analyzer.sh -x test
./file_analyzer.sh: illegal option -- x
[ERROR] :Invalid Args
[ERROR] :No Matching Keywords found:(
[ERROR] :No Matching Keywords found:(
[ERROR] :Key Shouldnot be Empty --help make use of help to see the details
[ERROR] :Invalid Args
Options:
        -d <directory>: Directory to search
        -k <keyword>: Keyword to Search
        -f <file>:  file to search directly
        --help: Display the help menu.
Example:
#Recursively search a directory for keyword
./file_analyzer.sh -d <directory_name> -k <keyword_to_search>
#Search for a keyword in a file
./file_analyzer.sh -f  <file_name> -k <Keyword_to_search>
#Display the  help menu
./file_analyzer.sh --help
boss@boss:~/Documents$ ls
backup_manager.sh  file1.sh          Module1  Module5     test.sh
dir1               file2.sh          Module2  output.txt  text_extracter.sh
dir2               file_analyzer.sh  Module3  test2.sh
errors.log         input.txt         Module4  testdir
```



```
boss@boss:~/Documents$ ./file_analyzer.sh -d dir1 -k error
Keywords are valid
File Name: ./file_analyzer.sh
No.of Args: 4
Args: -d dir1 -k error
PID: 2094
FileName: dir1/f1.txt, Keywords Not found:(
FileName: dir1/f2.txt, Keywords Not found:(
FileName: dir1/f3.txt, Keywords Not found:(
FileName: dir1/file_link.txt, Keywords Not found:(
FileName: dir1/filtered_log.txt, Keywords found!:)
FileName: dir1/large.txt, Keywords Not found:(
FileName: dir1/new_config.txt, Keywords Not found:(
```



```
boss@boss:~/Documents$ ./file_analyzer.sh -f dir1/filtered_log.txt -k error
Keywords are valid
File Name: ./file_analyzer.sh
No.of Args: 4
Args: -f dir1/filtered_log.txt -k error
PID: 2153
FileName: dir1/filtered_log.txt, Keywords found!:)
```