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28. Write a C program for simulation of GREP UNIX command

AIM

To develop a C program that simulates the functionality of the grep UNIX command.

ALGORITHM

1. **Start**
2. Accept the pattern to search and the file name from the user.
3. Open the specified file in read mode.
4. If the file cannot be opened, display an error message and terminate.
5. Read each line from the file using a loop.
6. Check if the pattern exists in the current line using strstr().
7. If the pattern is found, display the line.
8. Close the file after processing all lines.
9. **Stop**

PROCEDURE

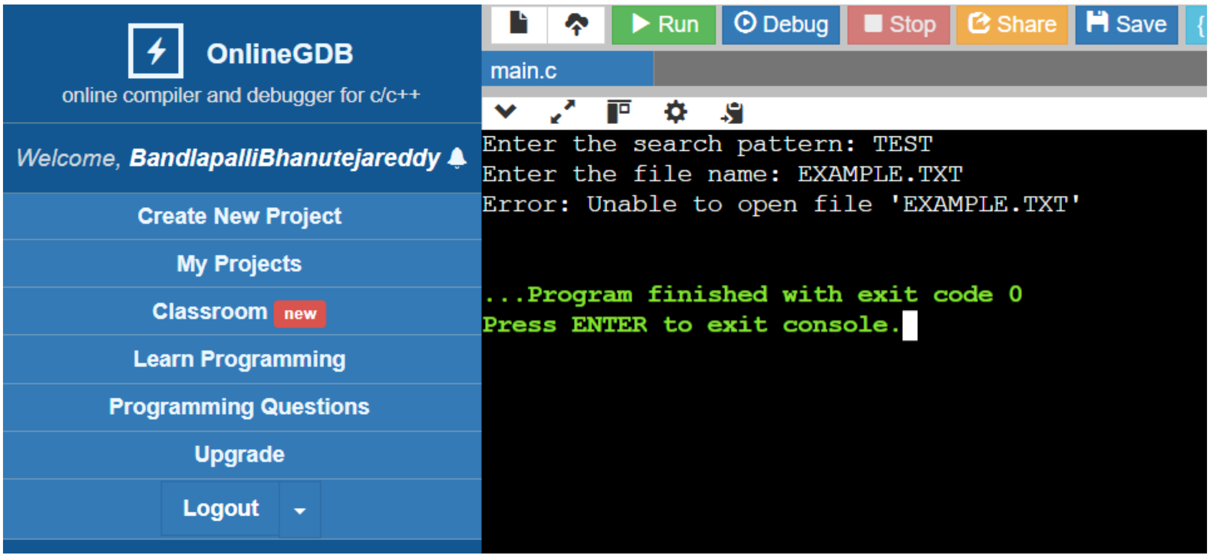
1. Include necessary libraries for file handling and string manipulation.
2. Accept input for the search pattern and file name.
3. Use fgets() to read each line from the file.
4. Use strstr() to check if the search pattern exists in the current line.
5. Print lines that match the pattern.
6. Handle errors gracefully, such as invalid file paths or empty files.

CODE:

```
#include <stdio.h>

#include <stdlib.h>

#include <string.h>
```

```
void simulateGrep(const char *pattern, const char *filename) {
    FILE *file = fopen(filename, "r");
    if (file == NULL) {
        printf("Error: Unable to open file '%s'\n", filename);
        return;
    }

    char line[1024];
    int lineNumber = 1, found = 0;

    printf("Lines containing pattern '%s':\n", pattern);
    while (fgets(line, sizeof(line), file) != NULL) {
        if (strstr(line, pattern) != NULL) {
            printf("Line %d: %s", lineNumber, line);
            found = 1;
        }
        lineNumber++;
    }

    if (!found) {
        printf("No match found for pattern '%s'.\n", pattern);
    }

    fclose(file);
}

int main() {
    char pattern[256], filename[256];
    printf("Enter the search pattern: ");
    fgets(pattern, sizeof(pattern), stdin);
    pattern[strcspn(pattern, "\n")] = '\0'; // Remove newline character from input

    printf("Enter the file name: ");
    fgets(filename, sizeof(filename), stdin);
    filename[strcspn(filename, "\n")] = '\0'; // Remove newline character from input

    simulateGrep(pattern, filename);

    return 0;
}
```

OUTPUT:



```
Enter the search pattern: TEST
Enter the file name: EXAMPLE.TXT
Error: Unable to open file 'EXAMPLE.TXT'


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