Programming Exercise 4

Write a C program to list all files whose name matches the filter. Inputs to the program as run time arguments: directory and filename (need to support wildcard)

Example: a.out /home/Ubuntu/abc1.txt

Example: a.out /home/Ubuntu/abc*.txt

Name: Atharva Menkudle

SRN: PES2UG21CS104

Sec: B

Sem: 4

Code:

```c
#include <stdio.h>

#include <stdlib.h>

#include <dirent.h>

#include <sys/types.h>

#include <string.h>

#include <stdbool.h>

bool match(const char *pattern, const char *filename) {

    if (!pattern || !filename) {

        return false;

    }

    if (!*pattern && !*filename) {

        return true;
```

```
    }
    if (*pattern == '*') {
        if (!*(pattern + 1)) {
            return true;
        }
        for (size_t i = 0; *(filename + i); i++) {
            if (match(pattern + 1, filename + i)) {
                return true;
            }
        }
        return false;
    }
    if (*pattern == *filename) {
        return match(pattern + 1, filename + 1);
    }
    return false;
}
int main(int argc, char *argv[]){
    DIR *dir;
    struct dirent *ent;
    char *dirpath, *pattern;
    size_t dirlen;
    if (argc < 2) {
```

```
        fprintf(stderr, "Incorrect use", argv[0]);
        exit(EXIT_FAILURE);
    }
    dirpath = argv[1];
    dirlen = strlen(dirpath);
    if (dirpath[dirlen - 1] == '/') {
        dirpath[dirlen - 1] = '\0';
    }
    if (argc > 2) {
        pattern = argv[2];
    } else {
        pattern = "*";
    }
    if ((dir = opendir(dirpath)) != NULL) {
        while ((ent = readdir(dir)) != NULL) {
            if (ent->d_type == DT_REG && match(pattern, ent->d_name)) {
                printf("%s/%s\n", dirpath, ent->d_name);
            }
        }
        closedir(dir);
    } else {
        perror("Could not open directory");
```

```
        exit(EXIT_FAILURE);

    }

    return 0;

}
```

OUTPUT SCREENSHOTS

```
root@DESKTOP-0L3AL2E:~/Atharva# gcc -o atv PES2UG21CS104_UNIT4.c
root@DESKTOP-0L3AL2E:~/Atharva# ./atv OS_A atv.txt
OS_A/atv.txt
root@DESKTOP-0L3AL2E:~/Atharva# ./atv OS_A atv*.txt
OS_A/atv3.txt
OS_A/atv2.txt
OS_A/atv1.txt
OS_A/atv.txt
root@DESKTOP-0L3AL2E:~/Atharva# ./atv OS_A atv?.txt
OS_A/atv3.txt
OS_A/atv2.txt
OS_A/atv1.txt
root@DESKTOP-0L3AL2E:~/Atharva#
```