

## Programming Exercise-4

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**Q1)** 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

Code:

```
1 #include <dirent.h>
2 #include <stdbool.h>
3 #include <stdio.h>
4 #include <stdlib.h>
5 #include <string.h>
6 #include <sys/types.h>
7
8 bool match(const char *pattern, const char *filename) {
9     if (!pattern || !filename) {
10         return false;
11     }
12
13     if (!*pattern && !*filename) {
14         return true;
15     }
16
17     if (*pattern == '*') {
18         if (*(pattern + 1)) {
19             return true;
20         }
21         for (size_t i = 0; *(filename + i); i++) {
22             if (match(pattern + 1, filename + i)) {
23                 return true;
24             }
25         }
26         return false;
27     }
28
29     if (*pattern == *filename) {
30         return match(pattern + 1, filename + 1);
31     }
32     return false;
33 }
```

```

1  int main(int argc, char *argv[]) {
2      DIR *dir;
3      struct dirent *ent;
4      char *dirpath, *pattern;
5      size_t dirlen;
6
7      if (argc < 2) {
8          fprintf(stderr, "Incorrect use:%s\n", argv[0]);
9          exit(EXIT_FAILURE);
10     }
11     dirpath = argv[1];
12     dirlen = strlen(dirpath);
13     if (dirpath[dirlen - 1] == '/') {
14         dirpath[dirlen - 1] = '\0';
15     }
16     if (argc > 2) {
17         pattern = argv[2];
18     }
19     else {
20         pattern = "*";
21     }
22
23     if ((dir = opendir(dirpath)) != NULL) {
24         while ((ent = readdir(dir)) != NULL) {
25             if (ent->d_type == DT_REG && match(pattern, ent->d_name)) {
26                 printf("%s/%s\n", dirpath, ent->d_name);
27             }
28         }
29         closedir(dir);
30     }
31     else {
32         perror("Could not open directory");
33         exit(EXIT_FAILURE);
34     }
35
36     return 0;
37 }

```

Output:

```

siri@DESKTOP-F9UMPJU:~/L4$ ./a.out /home/siri/MiniProject "process_creator.c"
/home/siri/MiniProject/process_creator.c
siri@DESKTOP-F9UMPJU:~/L4$ ./a.out /home/siri/MiniProject "pro*"
/home/siri/MiniProject/process_creator.c
/home/siri/MiniProject/process_tree_module.c

```