

NIM : L200180048

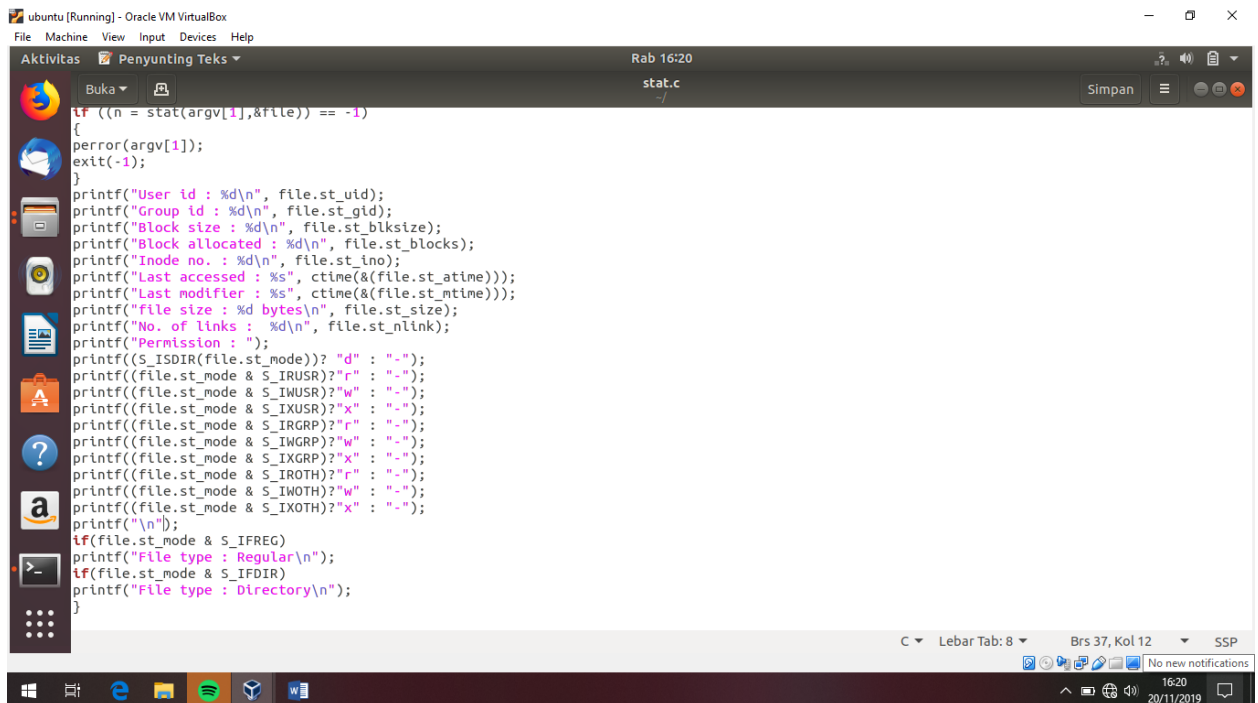
Stat.c



The screenshot shows a code editor window titled 'stat.c' with the following C code:

```
#include <stdio.h>
#include <sys/stat.h>
#include <stdlib.h>
#include <time.h>

int main(int argc, char*argv[]){
    struct stat
    file; int n;
    if (argc != 2)
    {
        printf("Usage: ./a.out <filename>\n"); exit(-1);
    }
    if ((n = stat(argv[1],&file)) == -1)
    {
        perror(argv[1]);
        exit(-1);
    }
    printf("User id : %d\n", file.st_uid);
    printf("Group id : %d\n", file.st_gid);
    printf("Block size : %d\n", file.st_blksize);
    printf("Block allocated : %d\n", file.st_blocks);
    printf("Inode no. : %d\n", file.st_ino);
    printf("Last accessed : %s", ctime(&(file.st_atime)));
    printf("Last modifier : %s", ctime(&(file.st_mtime)));
    printf("file size : %d bytes\n", file.st_size);
    printf("No. of links : %d\n", file.st_nlink);
    printf("Permissions : ");
    printf(((S_ISDIR(file.st_mode)) ? "d" : "-"));
    printf(((file.st_mode & S_IRUSR) ? "r" : "-"));
    printf(((file.st_mode & S_IWUSR) ? "w" : "-"));
    printf(((file.st_mode & S_IXUSR) ? "x" : "-"));
    printf(((file.st_mode & S_IRGRP) ? "r" : "-"));
    printf(((file.st_mode & S_IWGRP) ? "w" : "-"));
    printf("\n");
}
```



The screenshot shows the same C program with additional file type checks added to the end of the main function:

```
if ((n = stat(argv[1],&file)) == -1)
{
    perror(argv[1]);
    exit(-1);
}
printf("User id : %d\n", file.st_uid);
printf("Group id : %d\n", file.st_gid);
printf("Block size : %d\n", file.st_blksize);
printf("Block allocated : %d\n", file.st_blocks);
printf("Inode no. : %d\n", file.st_ino);
printf("Last accessed : %s", ctime(&(file.st_atime)));
printf("Last modifier : %s", ctime(&(file.st_mtime)));
printf("file size : %d bytes\n", file.st_size);
printf("No. of links : %d\n", file.st_nlink);
printf("Permission : ");
printf(((S_ISDIR(file.st_mode)) ? "d" : "-"));
printf(((file.st_mode & S_IRUSR) ? "r" : "-"));
printf(((file.st_mode & S_IWUSR) ? "w" : "-"));
printf(((file.st_mode & S_IXUSR) ? "x" : "-"));
printf(((file.st_mode & S_IRGRP) ? "r" : "-"));
printf(((file.st_mode & S_IWGRP) ? "w" : "-"));
printf(((file.st_mode & S_IXGRP) ? "x" : "-"));
printf(((file.st_mode & S_IROTH) ? "r" : "-"));
printf(((file.st_mode & S_IWOTH) ? "w" : "-"));
printf(((file.st_mode & S_IXOTH) ? "x" : "-"));
printf("\n");
if(file.st_mode & S_IFREG)
printf("File type : Regular\n");
if(file.st_mode & S_IFDIR)
printf("File type : Directory\n");
}
```

```
ubuntu [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Aktivitas Terminal
Rab 11:36
fan@fan-VirtualBox: ~

fan@fan-VirtualBox:~$ mousepad stat.c

(mousepad:8125): Gtk-WARNING **: 11:22:04.430: Theme parsing error: <data>:2:29: The style property GtkButton:default-border is deprecated and shouldn't be used anymore. It will be removed in a future version
(mousepad:8125): Gtk-WARNING **: 11:22:04.430: Theme parsing error: <data>:3:37: The style property GtkButton:default-outside-border is deprecated and shouldn't be used anymore. It will be removed in a future version
(mousepad:8125): Gtk-WARNING **: 11:22:04.430: Theme parsing error: <data>:4:27: The style property GtkButton:inner-border is deprecated and shouldn't be used anymore. It will be removed in a future version
(mousepad:8125): Gtk-WARNING **: 11:22:04.430: Theme parsing error: <data>:5:31: The style property GtkWidget:focus-line-width is deprecated and shouldn't be used anymore. It will be removed in a future version
(mousepad:8125): Gtk-WARNING **: 11:22:04.430: Theme parsing error: <data>:6:28: The style property GtkWidget:focus-padding is deprecated and shouldn't be used anymore. It will be removed in a future version
fan@fan-VirtualBox:~$ gcc stat.c
stat.c: In function 'main':
stat.c:19:23: warning: format '%d' expects argument of type 'int', but argument 2 has type '__blksize_t {aka long int}' [-Wformat=]
printf("Block size : %d\n", file.st_blksize);
                        ^~
stat.c:20:28: warning: format '%d' expects argument of type 'int', but argument 2 has type '__blkcnt_t {aka long int}' [-Wformat=]
printf("Block allocated : %d\n", file.st_blocks);
                           ^~
stat.c:21:22: warning: format '%d' expects argument of type 'int', but argument 2 has type '__ino_t {aka long unsigned int}' [-Wformat=]
printf("Inode no. : %d\n", file.st_ino);
                        ^~
stat.c:24:22: warning: format '%d' expects argument of type 'int', but argument 2 has type '__off_t {aka long int}' [-Wformat=]
```

```
ubuntu [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Aktivitas Terminal
Rab 11:37
fan@fan-VirtualBox: ~

fan@fan-VirtualBox:~$ gcc stat.c
stat.c:20:28: warning: format '%d' expects argument of type 'int', but argument 2 has type '__blkcnt_t {aka long int}' [-Wformat=]
printf("Block allocated : %d\n", file.st_blocks);
                           ^~
stat.c:21:22: warning: format '%d' expects argument of type 'int', but argument 2 has type '__ino_t {aka long unsigned int}' [-Wformat=]
printf("Inode no. : %d\n", file.st_ino);
                        ^~
stat.c:24:22: warning: format '%d' expects argument of type 'int', but argument 2 has type '__off_t {aka long int}' [-Wformat=]
printf("file size : %d bytes\n", file.st_size);
                        ^~
stat.c:25:26: warning: format '%d' expects argument of type 'int', but argument 2 has type '__nlink_t {aka long unsigned int}' [-Wformat=]
printf("No. of links : %d\n", file.st_nlink);
                        ^~
fan@fan-VirtualBox:~$ ./a.out
Usage: ./a.out <filename>
fan@fan-VirtualBox:~$ ./a.out stat.c
User id : 1000
Group id : 1000
Block size : 4096
Block allocated : 8
Inode no. : 393256
Last accessed : Wed Nov 20 11:22:36 2019
Last modifier : Wed Nov 20 11:22:21 2019
file size : 1298 bytes
No. of links : 1
Permission : -rw-r--r--
File type : Regular
```

Dirlist.c

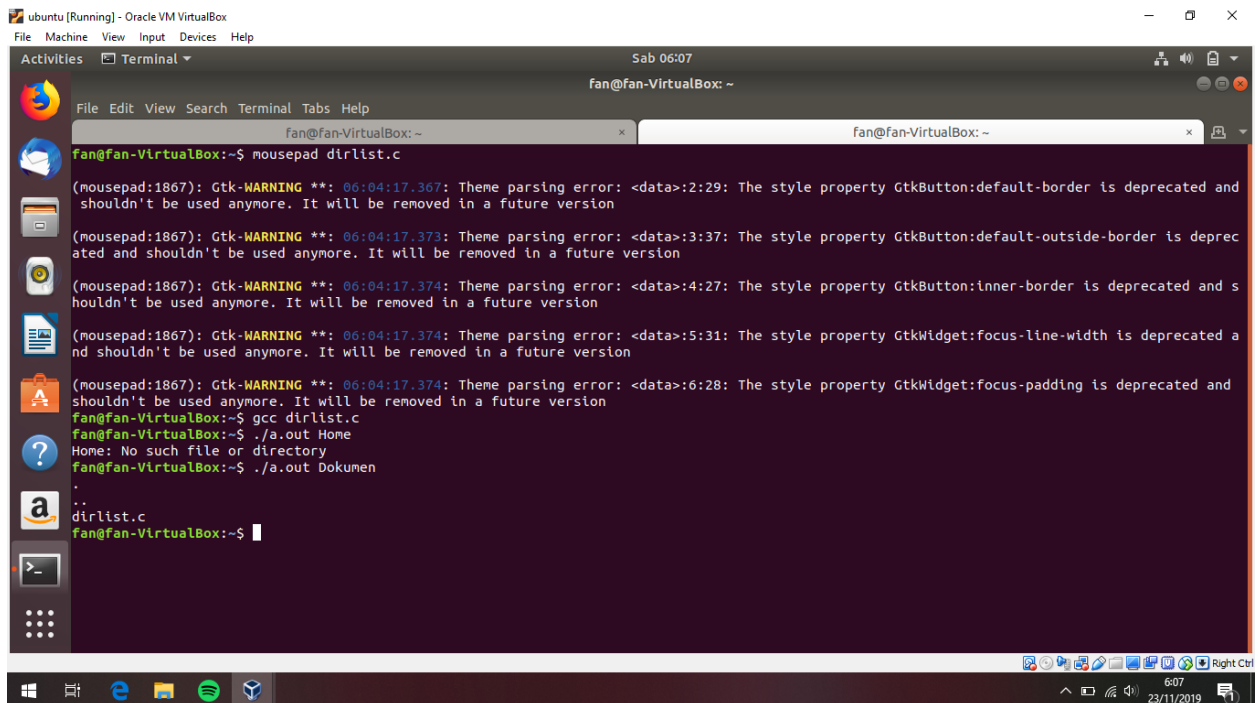


The screenshot shows a text editor window titled 'dirlist.c' in an Ubuntu VM. The code is as follows:

```
#include <stdio.h>
#include <dirent.h>
#include <stdlib.h>

int main (int argc, char*argv[]){
    struct dirent *dptr;
    DIR *dname;
    if (argc != 2)
    {
        printf("Usage: ./a.out <dirname>\n");
        exit(-1);
    }
    if ((dname = opendir(argv[1])) == NULL)
    {
        perror(argv[1]);
        exit(-1);
    }
    while(dptr=readdir(dname))
    printf("%s\n",dptr->d_name);
    closedir(dname);
}
```

The status bar at the bottom indicates 'Ln 1, Col 1' and 'INS'.



The screenshot shows a terminal window in an Ubuntu VM. The user runs the following commands:

```
fan@fan-VirtualBox:~$ mousepad dirlist.c
(mousepad:1867): Gtk-WARNING **: 06:04:17.367: Theme parsing error: <data>:2:29: The style property GtkButton:default-border is deprecated and shouldn't be used anymore. It will be removed in a future version
(mousepad:1867): Gtk-WARNING **: 06:04:17.373: Theme parsing error: <data>:3:37: The style property GtkButton:default-outside-border is deprecated and shouldn't be used anymore. It will be removed in a future version
(mousepad:1867): Gtk-WARNING **: 06:04:17.374: Theme parsing error: <data>:4:27: The style property GtkButton:inner-border is deprecated and shouldn't be used anymore. It will be removed in a future version
(mousepad:1867): Gtk-WARNING **: 06:04:17.374: Theme parsing error: <data>:5:31: The style property GtkWidget:focus-line-width is deprecated and shouldn't be used anymore. It will be removed in a future version
(mousepad:1867): Gtk-WARNING **: 06:04:17.374: Theme parsing error: <data>:6:28: The style property GtkWidget:focus-padding is deprecated and shouldn't be used anymore. It will be removed in a future version
fan@fan-VirtualBox:~$ gcc dirlist.c
fan@fan-VirtualBox:~$ ./a.out Home
Home: No such file or directory
fan@fan-VirtualBox:~$ ./a.out Dokumen
.
..
dirlist.c
fan@fan-VirtualBox:~$
```

The status bar at the bottom indicates '607' and '23/11/2019'.