

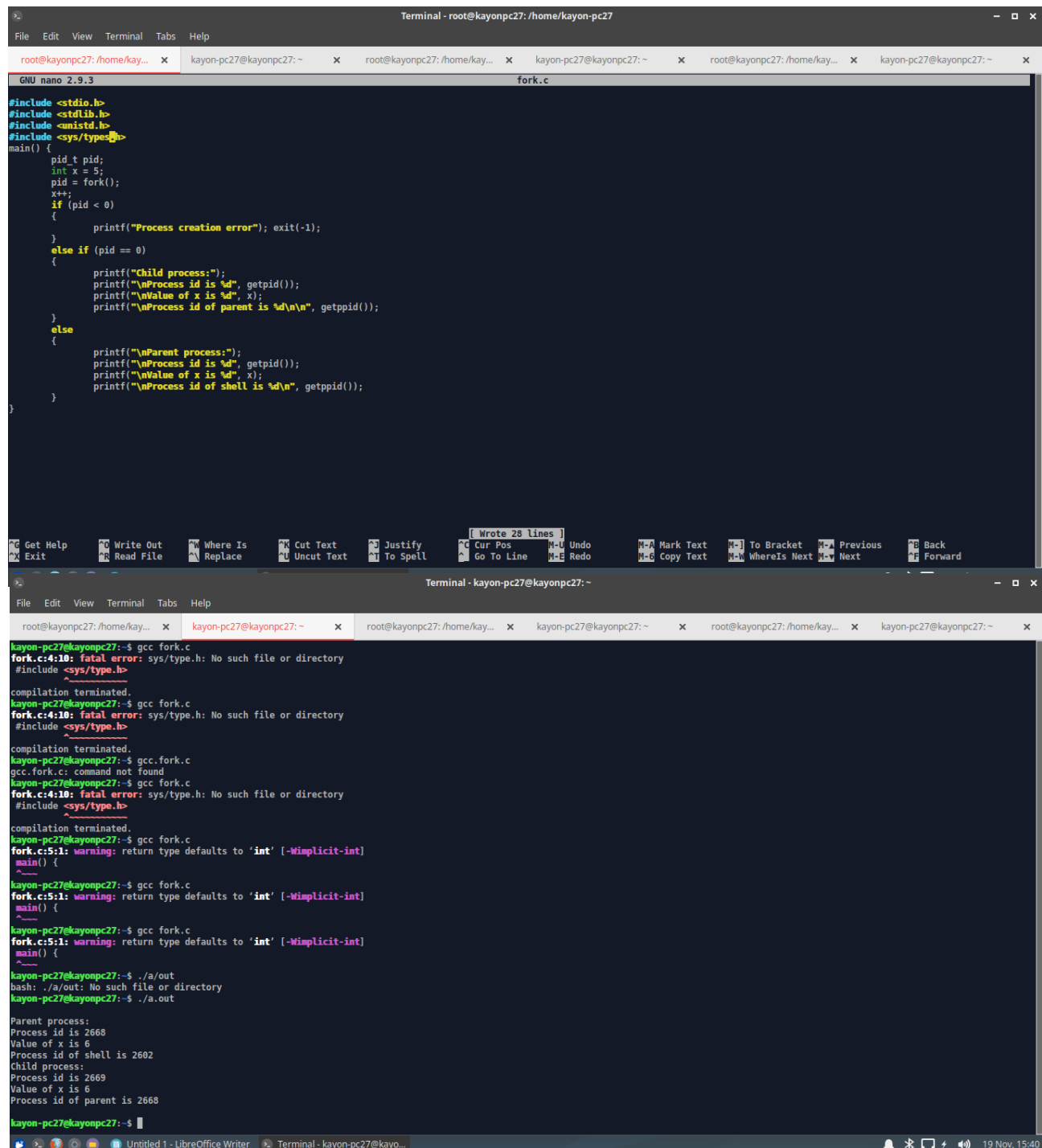
Nama : Aisyah Goevara

NIM : L200180034

Kelas : A

Laporan Praktikum SO Modul 8

Kode program fork.c



```
GNU nano 2.9.3 fork.c
#include <stdio.h>
#include <stdlib.h>
#include <unistd.h>
#include <sys/types.h>

main() {
    pid_t pid;
    int x = 5;
    pid = fork();
    x++;
    if (pid < 0)
    {
        printf("Process creation error"); exit(-1);
    }
    else if (pid == 0)
    {
        printf("Child process:");
        printf("\nProcess id is %d", getpid());
        printf("\nValue of x is %d", x);
        printf("\nProcess id of parent is %d\n", getppid());
    }
    else
    {
        printf("\nParent process:");
        printf("\nProcess id is %d", getpid());
        printf("\nValue of x is %d", x);
        printf("\nProcess id of shell is %d\n", getppid());
    }
}

Wrote 28 lines
G Get Help  W Write Out  W Where Is  C Cut Text  J Justify  C Cur Pos  M-U Undo  M-A Mark Text  M-J To Bracket  M-A Previous  B Back
X Exit      R Read File  A Replace  U Uncut Text  I To Spell  G Go To Line  M-E Redo  M-C Copy Text  M-W WhereIs Next  M-N Next  F Forward

Terminal - kayon-pc27@kayonpc27: ~
kayon-pc27@kayonpc27:~$ gcc fork.c
fork.c:4:10: fatal error: sys/types.h: No such file or directory
#include <sys/types.h>
         ^
compilation terminated.
kayon-pc27@kayonpc27:~$ gcc fork.c
fork.c:4:10: fatal error: sys/types.h: No such file or directory
#include <sys/types.h>
         ^
compilation terminated.
kayon-pc27@kayonpc27:~$ gcc fork.c
gcc.fork.c: command not found
kayon-pc27@kayonpc27:~$ gcc fork.c
fork.c:4:10: fatal error: sys/types.h: No such file or directory
#include <sys/types.h>
         ^
compilation terminated.
kayon-pc27@kayonpc27:~$ gcc fork.c
fork.c:5:1: warning: return type defaults to 'int' [-Wimplicit-int]
main() {
^
kayon-pc27@kayonpc27:~$ gcc fork.c
fork.c:5:1: warning: return type defaults to 'int' [-Wimplicit-int]
main() {
^
kayon-pc27@kayonpc27:~$ gcc fork.c
fork.c:5:1: warning: return type defaults to 'int' [-Wimplicit-int]
main() {
^
kayon-pc27@kayonpc27:~$ ./a.out
bash: ./a.out: No such file or directory
kayon-pc27@kayonpc27:~$ ./a.out

Parent process:
Process id is 2668
Value of x is 6
Process id of shell is 2602
Child process:
Process id is 2669
Value of x is 6
Process id of parent is 2668
kayon-pc27@kayonpc27:~$
```

Kode program wait.c

```
Terminal - root@kayonpc27: /home/kayon-pc27
File Edit View Terminal Tabs Help
root@kayonpc27: /home/kay... x kayon-pc27@kayonpc27: ~ x root@kayonpc27: /home/kay... x kayon-pc27@kayonpc27: ~ x root@kayonpc27: /home/kay... x kayon-pc27@kayonpc27: ~ x
GNU nano 2.9.3 wait.c
#include <stdio.h>
#include <stdlib.h>
#include <unistd.h>
#include <sys/types.h>
#include <sys/wait.h>
main() {
    int i, status;
    pid_t pid;
    pid = fork();

    if (pid < 0) {
        printf("\nPembuatan proses gagal\n");
        exit(-1);
    }
    else if (pid > 0)
    {
        wait(NULL);
        printf("\nParent starts\nNomor Genap:");
        for (i=2; i<=10; i+=2)
            printf(" %3d", i);
        printf("\nParent ends\n");
    }
    else if (pid == 0)
    {
        printf("\nChild starts\nNomor Ganjil:");
        for (i=1; i<=10; i+=2)
            printf(" %3d", i);
        printf("\nChild ends\n");
    }
}
```

```
Terminal - kayon-pc27@kayonpc27: ~
File Edit View Terminal Tabs Help
root@kayonpc27: /home/kay... x kayon-pc27@kayonpc27: ~ x root@kayonpc27: /home/kay... x kayon-pc27@kayonpc27: ~ x root@kayonpc27: /home/kay... x kayon-pc27@kayonpc27: ~ x
kayon-pc27@kayonpc27:~$ gcc exec.c
gcc: error: exec.c: No such file or directory
gcc: fatal error: no input files
compilation terminated.
kayon-pc27@kayonpc27:~$ gcc wait.c
wait.c:6:1: warning: return type defaults to 'int' [-Wimplicit-int]
main() {
^~~~~~
kayon-pc27@kayonpc27:~$ ./a.out /bin/ls ls
bash: ./a.out: No such file or directory
kayon-pc27@kayonpc27:~$ ./a.out
bash: ./a.out: No such file or directory
kayon-pc27@kayonpc27:~$ ./a.out
Child starts
Nomor Ganjil: 1 3 5 7 9
Child ends

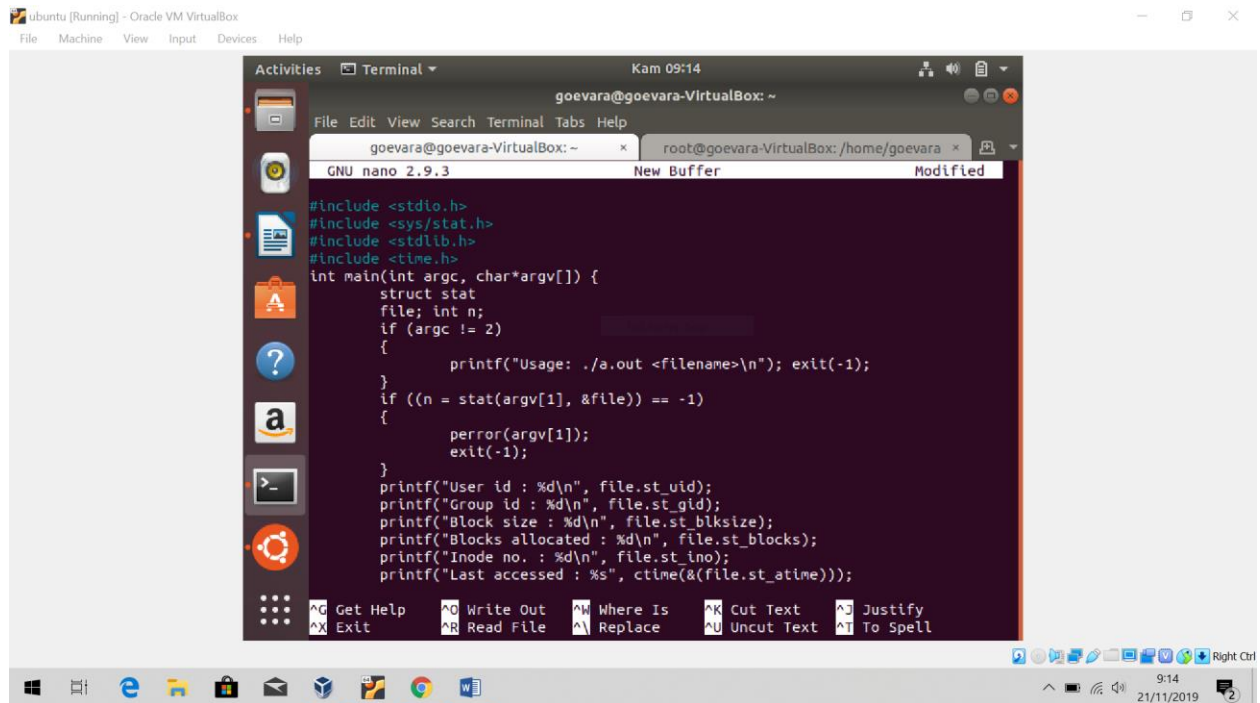
Parent starts
Nomor Genap: 2 4 6 8 10
Parent ends
kayon-pc27@kayonpc27:~$
```

Code program exec.c

```
Terminal - root@kayonpc27: /home/kayon-pc27
File Edit View Terminal Tabs Help
root@kayonpc27: /home/kay... x kayon-pc27@kayonpc27: ~ x root@kayonpc27: /home/kay... x kayon-pc27@kayonpc27: ~ x root@kayonpc27: /home/kay... x kayon-pc27@kayonpc27: ~ x
GNU nano 2.9.3 exec.c
#include <stdio.h>
#include <sys/types.h>
#include <unistd.h>
#include <stdlib.h>
main(int argc, char*argv[]) {
    pid_t pid;
    int i;
    if (argc != 3)
    {
        printf("\nInsufficient arguments to load program");
        printf("\nUsage: ./a.out <path> <cmd>\n"); exit(-1);
    }
    switch(pid = fork())
    {
        case -1:
            printf("Fork failed");
            exit(-1);
        case 0:
            printf("Child process\n");
            i = execl(argv[1], argv[2], 0);
            if (i < 0)
            {
                printf("%s program not loaded using exec system call\n", argv[2]);
                exit(-1);
            }
        default:
            wait(NULL);
            printf("Child Terminated\n");
            exit(0);
    }
}
```

```
Terminal - kayon-pc27@kayonpc27: ~
File Edit View Terminal Tabs Help
root@kayonpc27: /home/kay... x kayon-pc27@kayonpc27: ~ x root@kayonpc27: /home/kay... x kayon-pc27@kayonpc27: ~ x root@kayonpc27: /home/kay... x kayon-pc27@kayonpc27: ~ x
i = execl(argv[1], argv[2], 0);
exec.c:30:3: warning: implicit declaration of function 'wait'; did you mean 'main'? [-Wimplicit-function-declaration]
    wait(NULL);
    ^
    main
kayon-pc27@kayonpc27:~$ ./a.out
Insufficient arguments to load program
Usage: ./a.out <path> <cmd>
kayon-pc27@kayonpc27:~$ gcc exec.c
exec.c:5:1: warning: return type defaults to 'int' [-Wimplicit-int]
main(int argc, char*argv[]) {
^
exec.c: In function 'main':
exec.c:22:3: warning: missing sentinel in function call [-Wformat=]
    i = execl(argv[1], argv[2], 0);
    ^
exec.c:29:3: warning: implicit declaration of function 'wait'; did you mean 'main'? [-Wimplicit-function-declaration]
    wait(NULL);
    ^
    main
kayon-pc27@kayonpc27:~$ ./a.out
Insufficient arguments to load program
Usage: ./a.out <path> <cmd>
kayon-pc27@kayonpc27:~$ gcc exec.c
exec.c:5:1: warning: return type defaults to 'int' [-Wimplicit-int]
main(int argc, char*argv[]) {
^
exec.c: In function 'main':
exec.c:22:3: warning: missing sentinel in function call [-Wformat=]
    i = execl(argv[1], argv[2], 0);
    ^
exec.c:29:3: warning: implicit declaration of function 'wait'; did you mean 'main'? [-Wimplicit-function-declaration]
    wait(NULL);
    ^
    main
kayon-pc27@kayonpc27:~$ ./a.out /bin/ls ls
Child process
a.out Desktop Documents Downloads exec.c fork.c info infol200180148.sh Music Pictures Public Templates Videos wait.c
Child Terminated
kayon-pc27@kayonpc27:~$
```

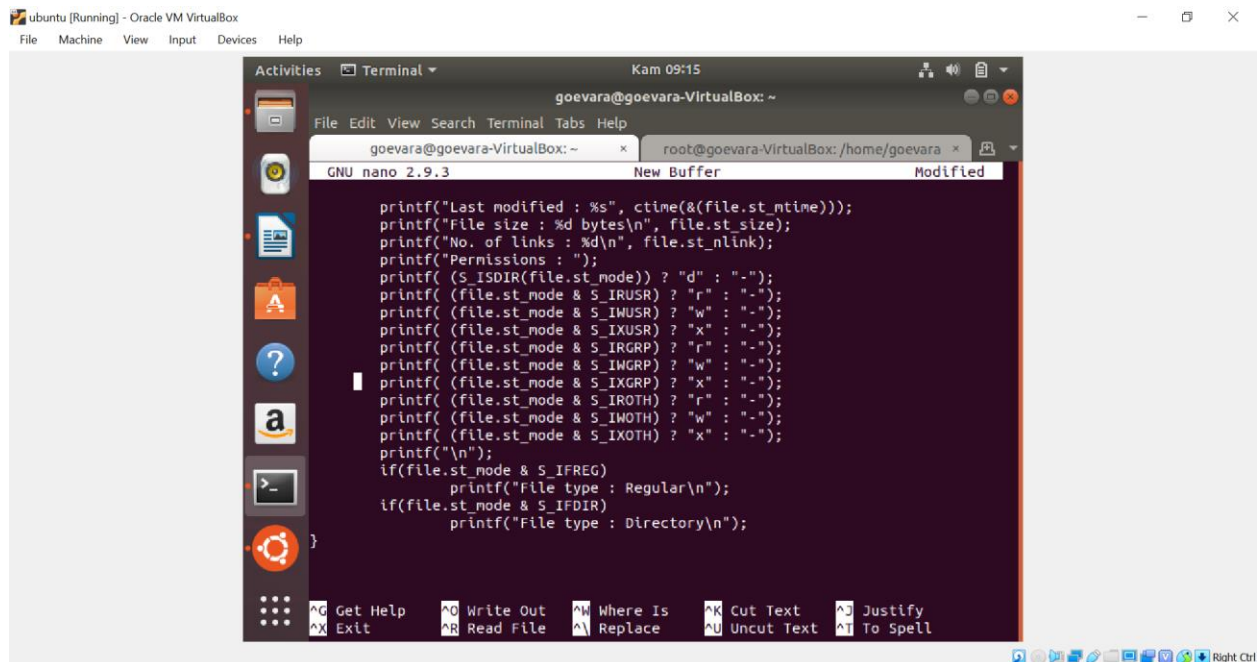
Kode program stat.c



The screenshot shows a terminal window titled "Kam 09:14" with the prompt "goevara@goevara-VirtualBox: ~". The terminal is running GNU nano 2.9.3. The code displayed is the first part of the stat.c program, including headers and the main function. The code is as follows:

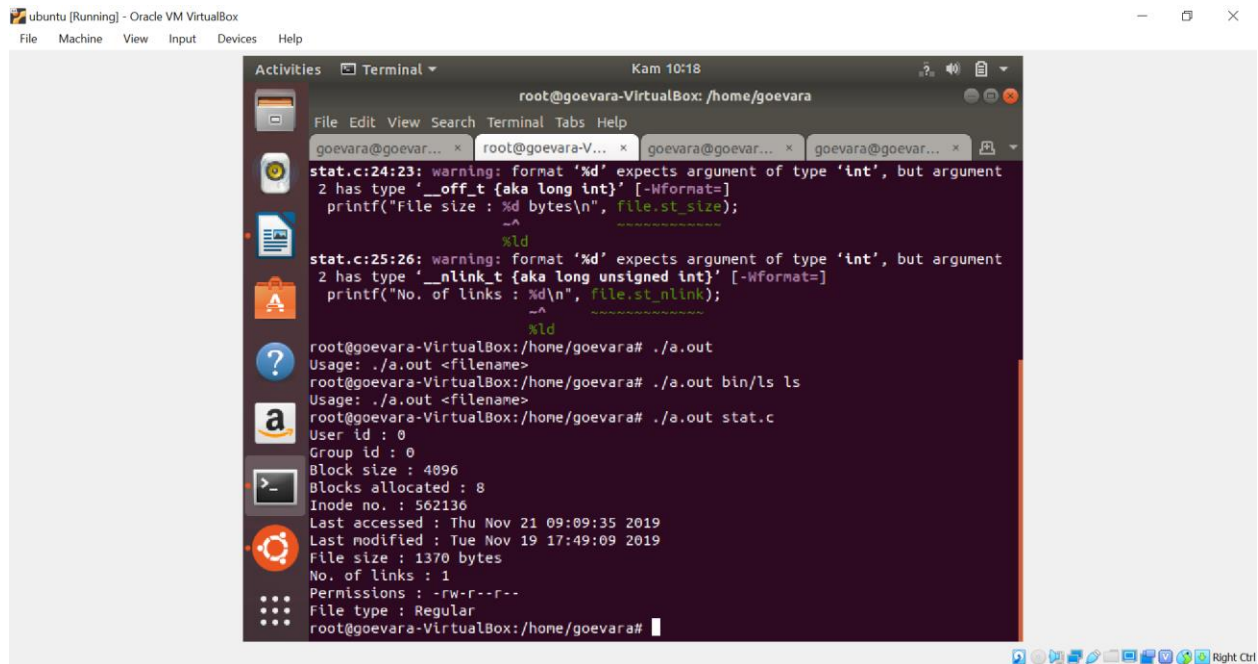
```
#include <stdio.h>
#include <sys/stat.h>
#include <stdlib.h>
#include <time.h>

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("Blocks allocated : %d\n", file.st_blocks);
    printf("Inode no. : %d\n", file.st_ino);
    printf("Last accessed : %s", ctime(&file.st_atime));
```

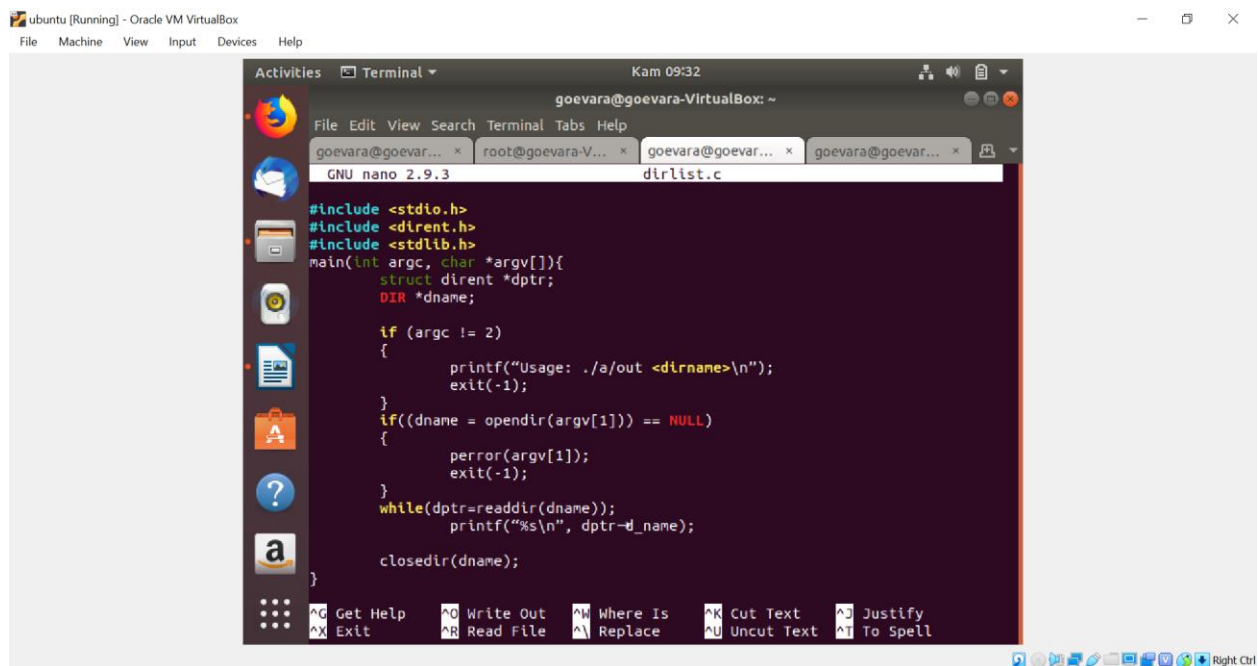


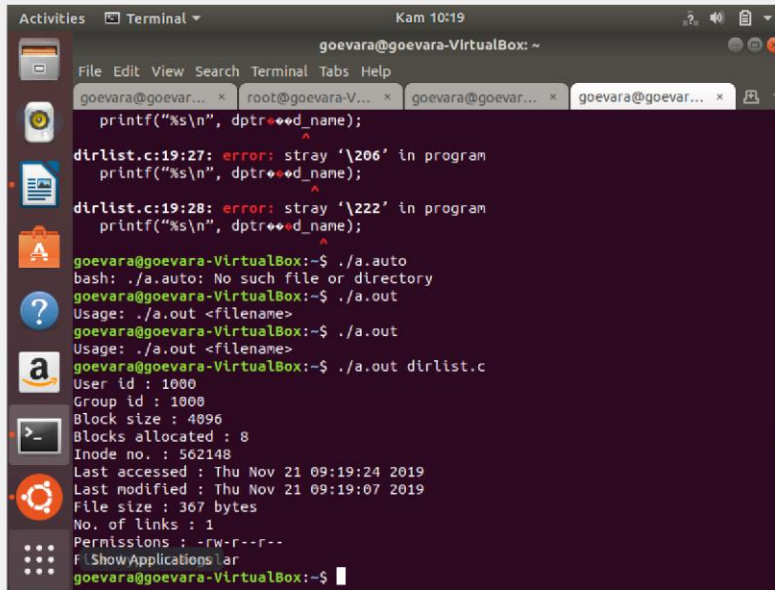
The screenshot shows a terminal window titled "Kam 09:15" with the prompt "goevara@goevara-VirtualBox: ~". The terminal is running GNU nano 2.9.3. The code displayed is the second part of the stat.c program, continuing from the previous screenshot. The code is as follows:

```
printf("Last modified : %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( (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");
}
```



Kode program dirlist.c





```
govevara@govevara-VirtualBox: ~
File Edit View Search Terminal Tabs Help
govevara@govevar... x root@govevara-V... x goevara@govevar... x goevara@govevar... x
printf("%s\n", dptr++d_name);
^
dirlist.c:19:27: error: stray '\206' in program
printf("%s\n", dptr++d_name);
^
dirlist.c:19:28: error: stray '\222' in program
printf("%s\n", dptr++d_name);
^
govevara@govevara-VirtualBox:~$ ./a.auto
bash: ./a.auto: No such file or directory
govevara@govevara-VirtualBox:~$ ./a.out
Usage: ./a.out <filename>
govevara@govevara-VirtualBox:~$ ./a.out
Usage: ./a.out <filename>
govevara@govevara-VirtualBox:~$ ./a.out dirlist.c
User id : 1000
Group id : 1000
Block size : 4096
Blocks allocated : 8
Inode no. : 562148
Last accessed : Thu Nov 21 09:19:24 2019
Last modified : Thu Nov 21 09:19:07 2019
File size : 367 bytes
No. of links : 1
Permissions : -rw-r--r--
FileShowApplicationslar
govevara@govevara-VirtualBox:~$
```