

Practical-6

Aim: Implementation of “pwd” and “ls” commands. (Use of getcwd, opendir, closedir, readdir functions)

Explanation:

getcwd, getwd, get_current_dir_name:

```
#include <unistd.h>
```

```
char *getcwd(char *buf, size_t size);
```

```
char *getwd(char *buf);
```

```
char *get_current_dir_name(void);
```

This function returns the absolute pathname that is the current working directory of the calling process.

Pathname is returned as the function result and via the argument buf, if present.

Example: x=getcwd(path,sizeof(path));

Program:

Write a program to get current working directory name of the current process. (“pwd” command).

Opendir:

```
#include <sys/types.h>
#include <dirent.h>
```

```
DIR *opendir(const char *name);
```

The opendir() function opens a directory stream corresponding to the directory name, and returns a pointer to the directory stream.

The stream is positioned at the first entry in the directory.

On error, NULL is returned, and errno is set appropriately.

Readdir:

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

```
struct dirent *readdir(DIR *dirp);
```

The readdir() function returns a pointer to a dirent structure representing the next directory entry in the directory stream pointed to by dirp.

It returns NULL on reaching the end of the directory stream.

On Linux, the dirent structure is defined as follows:

```
struct dirent {
    ino_t      d_ino;           /* inode number */
    off_t      d_off;          /* offset to the next dirent */
    unsigned short d_reclen;    /* length of this record */
    unsigned char d_type;      /* type of file */
    char        d_name[256];    /* filename */
};
```

On success, readdir() returns a pointer to a dirent structure.

If the end of the directory stream is reached, NULL is returned and errno is not changed. If an error occurs, NULL is returned and errno is set appropriately.

Closedir:

```
#include <sys/types.h>
#include <dirent.h>
```

```
int closedir(DIR *dirp);
```

The closedir() function closes the directory stream associated with dirp.

A successful call to closedir() also closes the underlying file descriptor associated with dirp.

The directory stream descriptor dirp is not available after this call.

The closedir() function returns 0 on success.

On error, -1 is returned, and errno is set appropriately.

Programs:

1. Implement a program to list contents of current directory (ls).
2. Implement a program to demonstrate “ls -R” command.

Solution Logic :

- The solution program should either execute without any argument or with one argument at most.
- When program executes without argument, it should list the content of current directory.
- When program executes with one argument, it should print content of that input directory.

In either case, program should first get the handle to that directory, open that directory and then print each record of that directory one by one till end.