**LAB 11 ASSIGNMENT**

**Name:** Birva Babaria

**Roll no.:** CE010

**ID:** 19CEUON064

**Aim:** Implementation of custom linux shell.

**1). Write a program to achieve functionality of shell.**

**CODE:**

#include <stdio.h>

#include <stdlib.h>

#include <unistd.h>

#include <sys/types.h>

#include <sys/stat.h>

#include <fcntl.h>

#include <string.h>

#include<wait.h>

void main()

{

char his[100][25];

int ptr = 0;

while (1)

{

char input[500];

printf("\nBirva $:");

scanf("%[^\n]%\*c", input);

if (strlen(input) == 0)

continue;

strcpy(his[ptr++], input);

pid\_t pid = fork();

if (pid == 0)

{

if (strcmp(input, "history") == 0)

{

for (int i = 0; i < ptr; i++)

{

printf("%s\n", his[i]);

}

continue;

}

else if (strcmp(input, "ls|sort") == 0)

{

int pipefd[2];

int status = pipe(pipefd);

if (status == -1)

{

printf("Error in creating pipe");

return;

}

pid\_t pid;

pid = fork();

if (pid == -1)

{

printf("ERROR IN FORK");

return;

}

if (pid != 0)

{

wait(NULL);

close(pipefd[1]);

int status = dup2(pipefd[0], 0);

int s = execl("/bin/sort", "sort", (char \*)NULL);

if (s == -1)

{

printf("ERROR");

}

}

if (pid == 0)

{

close(pipefd[0]);

int status = dup2(pipefd[1], 1);

int s = execl("/bin/ls", "ls", (char \*)NULL);

if (s == -1)

{

printf("ERROR");

}

}

}

else

{

char path[500] = "/bin/";

int count = 0;

for (int i = 0; i < strlen(input); i++)

{

char t = input[i];

if (t == ' ')

count++;

}

char \*cmd[count + 2];

cmd[0] = (char \*)malloc(20);

for (int i = 0, j = 0, k = 0; i < strlen(input); i++)

{

if (input[i] != ' ')

{

cmd[j][k] = input[i];

k++;

}

else

{

cmd[j][k] = '\0';

j++;

k = 0;

cmd[j] = (char \*)malloc(20);

}

}

cmd[count + 1] = NULL;

strcat(path, cmd[0]);

int s = execv(path, cmd);

if (s == -1)

{

printf("-shell: %s: command not found", input);

}

}

}

else if (pid != 0)

{

wait(NULL);

}

else if (pid == -1)

{

printf("ERROR");

}

}

}

**OUTPUT:**



