

```
neeraj@neeraj:~$ cd shell
neeraj@neeraj:~/shell$ ls
cat.c  date.c  executor.c  ls.c  main.c  Makefile  mkdir.c  node.c  node.h  parser.c  parser.h  readme.md  rm.c  scanner.c  scanner.h  shell  shell.code-workspace  shell.h  source.c  source.h
neeraj@neeraj:~/shell$ make
gcc -o shell cat.c date.c executor.c ls.c main.c mkdir.c node.c node.h parser.c rm.c scanner.c shell.h source.c
cat.c: In function 'cat':
cat.c:19:12: warning: implicit declaration of function 'strcmp' [-Wimplicit-function-declaration]
   19 |         if(strcmp(c[1], "-n")==0)
      |            ^
cat.c:8:1: note: include '<string.h>' or provide a declaration of 'strcmp'
    7 | #include <stdlib.h>
  +++ |+#include <string.h>
    8 |
cat.c:65:33: warning: implicit declaration of function 'strtok'; did you mean 'strtoq'? [-Wimplicit-function-declaration]
   65 |         strtok(buffer, "\\n");
      |         ^~~~~~
      |         strtoq
date.c: In function 'date':
date.c:26:17: warning: implicit declaration of function 'printf' [-Wimplicit-function-declaration]
   26 |         printf("%s\\n", buffer);
      |         ^~~~~~
date.c:2:1: note: include '<stdio.h>' or provide a declaration of 'printf'
    1 | #include <time.h>
  +++ |+#include <stdio.h>
    2 |
date.c:26:17: warning: incompatible implicit declaration of built-in function 'printf' [-Wbuiltin-declaration-mismatch]
   26 |         printf("%s\\n", buffer);
      |         ^~~~~~
date.c:26:17: note: include '<stdio.h>' or provide a declaration of 'printf'
date.c:29:12: warning: implicit declaration of function 'strcmp' [-Wimplicit-function-declaration]
   29 |         if(strcmp(c[1], "-I")==0)
      |            ^
date.c:2:1: note: include '<string.h>' or provide a declaration of 'strcmp'
    1 | #include <time.h>
  +++ |+#include <string.h>
    2 |
date.c:33:17: warning: incompatible implicit declaration of built-in function 'printf' [-Wbuiltin-declaration-mismatch]
   33 |         printf("%s\\n", buffer);
      |         ^~~~~~
date.c:33:17: note: include '<stdio.h>' or provide a declaration of 'printf'
date.c:40:17: warning: incompatible implicit declaration of built-in function 'printf' [-Wbuiltin-declaration-mismatch]
   40 |         printf("%s +0530\\n", buffer);
      |         ^~~~~~
date.c:40:17: note: include '<stdio.h>' or provide a declaration of 'printf'
main.c: In function 'parse_and_execute':
main.c:159:9: warning: implicit declaration of function 'do_simple_command'; did you mean 'parse_simple_command'? [-Wimplicit-function-declaration]
   159 |         do_simple_command(cmd);
      |         ^~~~~~
      |         parse_simple_command
main.c:160:9: warning: implicit declaration of function 'free_node_tree' [-Wimplicit-function-declaration]
   160 |         free_node_tree(cmd);
      |         ^~~~~~
mkdir.c: In function 'my_mkdir':
mkdir.c:20:12: warning: implicit declaration of function 'strcmp' [-Wimplicit-function-declaration]
   20 |         if(strcmp(c[1], "-v")==0)
      |            ^
```

```
neeraj@neeraj: ~/shell
46 |         gets(ans);
    |         ^~~~~~
rm.c:48:22: warning: implicit declaration of function 'strtok' [-Wimplicit-function-declaration]
48 |         temp=strtok(ans, " ");
    |         ^~~~~~
rm.c:48:21: warning: assignment to 'char *' from 'int' makes pointer from integer without a cast [-Wint-conversion]
48 |         temp=strtok(ans, " ");
    |         ^
/usr/bin/ld: /tmp/ccYg06yR.o: in function `rem':
rm.c:(.text+0x124): warning: the `gets' function is dangerous and should not be used.
neeraj@neeraj:~/shell$ ./shell
neeraj@neeraj:~/home/neeraj/shell$ date
Wednesday 16 November 2022 10:30:00 PM IST
neeraj@neeraj:~/home/neeraj/shell$ date -u
Wednesday 16 November 2022 05:00:03 PM UTC
neeraj@neeraj:~/home/neeraj/shell$ ls
cat.c date.c executor.c executor.h ls.c main.c Makefile mkdir.c node.c node.h parser.c parser.h readme.md rm.c scanner.c scanner.h shell shell.code-workspace shell.h source.c source.h
neeraj@neeraj:~/home/neeraj/shell$ ls -a
. cat.c executor.c .git main.c mkdir.c node.h parser.h rm.c scanner.h shell.code-workspace source.c
.. date.c executor.h ls.c Makefile node.c parser.c readme.md scanner.c shell shell.h source.h
neeraj@neeraj:~/home/neeraj/shell$ ls -l
total 108
-rwxrwxrwx 1 neeraj neeraj 1555 Nov 16 21:50 cat.c
-rwxrwxrwx 1 neeraj neeraj 987 Nov 16 21:51 date.c
-rwxrwxrwx 1 neeraj neeraj 5541 Nov 16 21:29 executor.c
-rwxrwxrwx 1 neeraj neeraj 399 Nov 16 21:30 executor.h
-rwxrwxrwx 1 neeraj neeraj 1617 Nov 16 21:54 ls.c
-rw-rw-r-- 1 neeraj neeraj 3931 Nov 16 21:41 main.c
-rw-rw-r-- 1 neeraj neeraj 119 Nov 16 22:28 Makefile
-rwxrwxrwx 1 neeraj neeraj 1193 Nov 16 21:56 mkdir.c
-rw-rw-r-- 1 neeraj neeraj 1861 Nov 16 21:32 node.c
-rw-rw-r-- 1 neeraj neeraj 1410 Nov 16 21:36 node.h
-rw-rw-r-- 1 neeraj neeraj 1113 Nov 15 19:50 parser.c
-rw-rw-r-- 1 neeraj neeraj 393 Nov 15 19:49 parser.h
-rw-rw-r-- 1 neeraj neeraj 0 Nov 16 22:22 readme.md
-rwxrwxrwx 1 neeraj neeraj 1766 Nov 16 22:19 rm.c
-rw-rw-r-- 1 neeraj neeraj 3012 Nov 16 21:33 scanner.c
-rw-rw-r-- 1 neeraj neeraj 362 Nov 15 19:46 scanner.h
-rwxrwxr-x 1 neeraj neeraj 27432 Nov 16 22:29 shell
-rw-rw-r-- 1 neeraj neeraj 71 Nov 15 18:09 shell.code-workspace
-rw-rw-r-- 1 neeraj neeraj 401 Nov 15 20:04 shell.h
-rw-rw-r-- 1 neeraj neeraj 1365 Nov 15 19:43 source.c
-rw-rw-r-- 1 neeraj neeraj 638 Nov 15 19:57 source.h
neeraj@neeraj:~/home/neeraj/shell$ mkdir ok
neeraj@neeraj:~/home/neeraj/shell$ ls
cat.c date.c executor.c executor.h ls.c main.c Makefile mkdir.c node.c node.h ok parser.c parser.h readme.md rm.c scanner.c scanner.h shell shell.code-workspace shell.h source.c source.h
neeraj@neeraj:~/home/neeraj/shell$ cd ok
/home/neeraj/shell/ok
(null)@neeraj:~/home/neeraj/shell/ok$ touch ok.txt
(null)@neeraj:~/home/neeraj/shell/ok$ cat > ok.txt
cat: '>': No such file or directory
(null)@neeraj:~/home/neeraj/shell/ok$ ls
ok.txt
(null)@neeraj:~/home/neeraj/shell/ok$ cat > ok.txt
cat: '>': No such file or directory
```

```
neeraj@neeraj: ~/shell
-rw-rw-r-- 1 neeraj neeraj 3931 Nov 16 21:41 main.c
-rw-rw-r-- 1 neeraj neeraj 119 Nov 16 22:28 Makefile
-rwxrwxrwx 1 neeraj neeraj 1193 Nov 16 21:56 mkdir.c
-rw-rw-r-- 1 neeraj neeraj 1861 Nov 16 21:32 node.c
-rw-rw-r-- 1 neeraj neeraj 1410 Nov 16 21:36 node.h
-rw-rw-r-- 1 neeraj neeraj 1113 Nov 15 19:50 parser.c
-rw-rw-r-- 1 neeraj neeraj 393 Nov 15 19:49 parser.h
-rw-rw-r-- 1 neeraj neeraj 0 Nov 16 22:22 readme.md
-rwxrwxrwx 1 neeraj neeraj 1766 Nov 16 22:19 rm.c
-rw-rw-r-- 1 neeraj neeraj 3012 Nov 16 21:33 scanner.c
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-rwxrwxr-x 1 neeraj neeraj 27432 Nov 16 22:29 shell
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-rw-rw-r-- 1 neeraj neeraj 401 Nov 15 20:04 shell.h
-rw-rw-r-- 1 neeraj neeraj 1365 Nov 15 19:43 source.c
-rw-rw-r-- 1 neeraj neeraj 638 Nov 15 19:57 source.h
neeraj@neeraj:~/home/neeraj/shell$ mkdir ok
neeraj@neeraj:~/home/neeraj/shell$ ls
cat.c date.c executor.c executor.h ls.c main.c Makefile mkdir.c node.c node.h ok parser.c parser.h readme.md rm.c scanner.c scanner.h shell shell.code-workspace shell.h source.c source.h
neeraj@neeraj:~/home/neeraj/shell$ cd ok
/home/neeraj/shell/ok
(null)@neeraj:~/home/neeraj/shell/ok$ touch ok.txt
(null)@neeraj:~/home/neeraj/shell/ok$ cat > ok.txt
cat: '>': No such file or directory
(null)@neeraj:~/home/neeraj/shell/ok$ ls
ok.txt
(null)@neeraj:~/home/neeraj/shell/ok$ cat > ok.txt
cat: '>': No such file or directory
(null)@neeraj:~/home/neeraj/shell/ok$ vi ok.txt
(null)@neeraj:~/home/neeraj/shell/ok$ cat ok.txt
thsi is the text file made through the new shell
saving the file and exiting
(null)@neeraj:~/home/neeraj/shell/ok$ cd ../../../../
/home/neeraj/shell
/home/neeraj
/home
(null)@neeraj:~/home$ ls
bin boot cdrom dev etc home lib lib32 lib64 libx32 lost+found media mnt opt proc root run sbin snap srv sys tmp usr var
(null)@neeraj:~/home$ cd home/neeraj/shell
/home/home/neeraj/shell
(null)@neeraj:~/home/home/neeraj/shell$ lsd
error: failed to execute command: No such file or directory
(null)@neeraj:~/home/home/neeraj/shell$ ls
cat.c date.c executor.c executor.h ls.c main.c Makefile mkdir.c node.c node.h ok parser.c parser.h readme.md rm.c scanner.c scanner.h shell shell.code-workspace shell.h source.c source.h
(null)@neeraj:~/home/home/neeraj/shell$ cd ok
/home/home/neeraj/shell/ok
(null)@neeraj:~/home/home/neeraj/shell/ok$ touch hi.txt
(null)@neeraj:~/home/home/neeraj/shell/ok$ ls
hi.txt ok.txt
(null)@neeraj:~/home/home/neeraj/shell/ok$ rm hi.txt
(null)@neeraj:~/home/home/neeraj/shell/ok$ ls
ok.txt
(null)@neeraj:~/home/home/neeraj/shell/ok$ pwd
/home/home/neeraj/shell/ok
(null)@neeraj:~/home/home/neeraj/shell/ok$ exit
neeraj@neeraj:~/shell$
```


main.c - shell - Visual Studio Code

File Edit Selection View Go Run Terminal Help

EXPLORER

SHELL

ok

cat.c

date.c

executor.c

executor.h

ls.c

main.c

Makefile

mkdir.c

node.c

node.h

parser.c

parser.h

readme.md

rm.c

scanner.c

scanner.h

shell

shell.code-workspace

shell.h

source.c

source.h

OUTLINE

TIMELINE

main.c

node.c

node.h

cat.c

readme.md

Makefile

date.c

ls.c

mkdir.c

rm.c

scanner.c

main.c

main.c > parse_and_execute(source_s*)

You, 54 minutes ago | 1 author (You)

// This code is written by Neeraj Nikhil Roy 20/11/EC/53 and submitted to Dr. Mukesh Kumar Giluka

// OS Assignment designing a shell

// main.c file, it contains repl command for shell

// github repo link <https://github.com/blacklistperformer/shell.git>

#include <stdio.h>

#include <stdlib.h>

#include <errno.h>

#include <string.h>

#include "shell.h"

#include "source.h"

#include "parser.h"

//the first function prints the first prompt string, this string is before entering a command

void print_prompt1(void)

{

char *path = getenv("PWD"), *log = getenv("LOGNAME"), *user = getenv("USER");

fprintf(stderr, "\033[1;31m%s@\s\033[0m:\033[1;34m~%s\033[0m\$ ", log, user, path);

}

// the second function prints the second prompt string, this string is for multiu line command

void print_prompt2(void)

{

fprintf(stderr, "> ");

}

int main(int argc, char **argv)

{

char *cmd;

// this command repl or read evaluate print loop is the command shell uses to to

// read given command execute it adn then prit or basic io stuff and repeat untill

// exited or terinating command like shutdown

do

{

// printing shell's prompt

print_prompt1();

// reading a command

cmd = read_cmd();

// implementing shell's repl loop

// if theres an error reading a command, exiting the shell

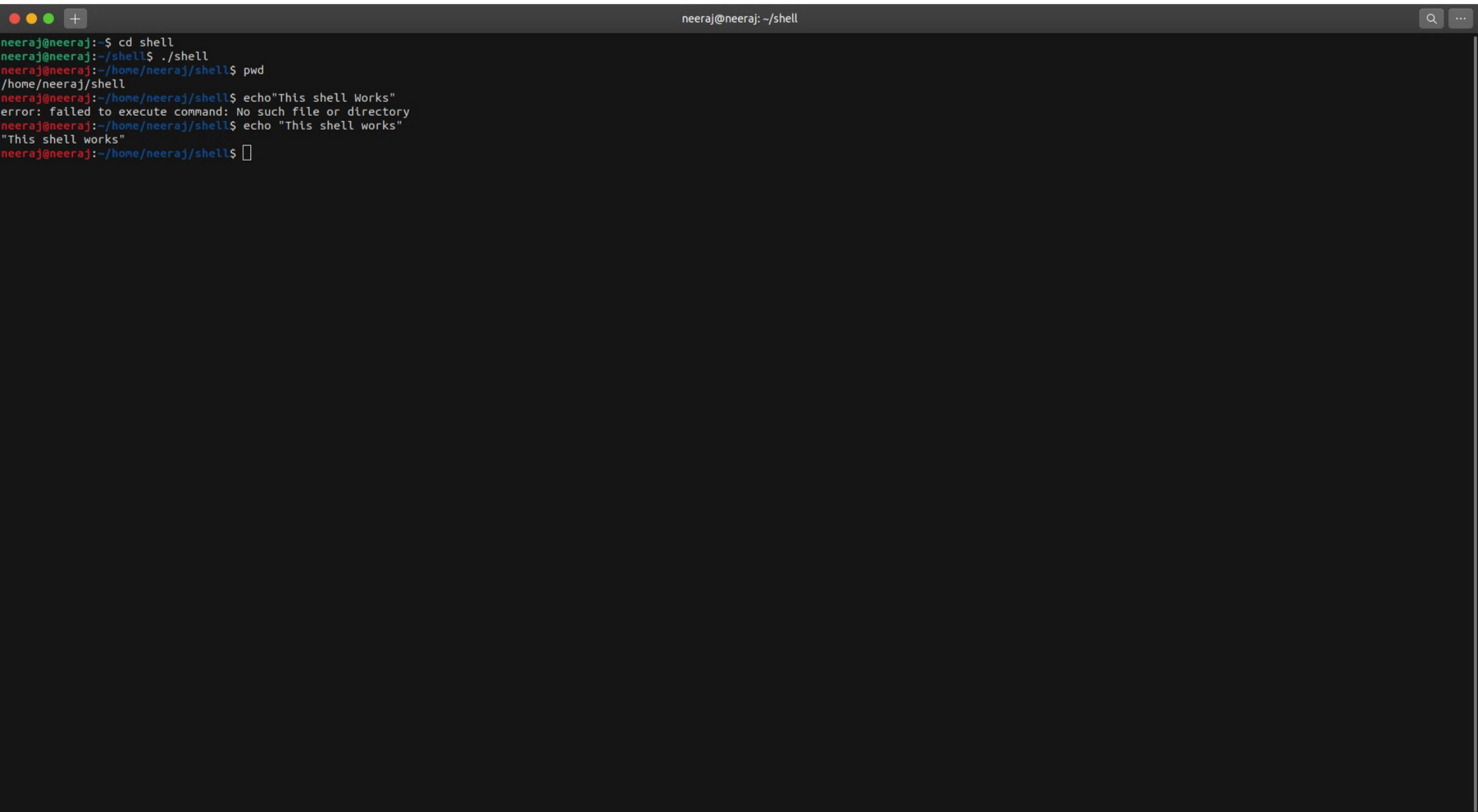
if (!cmd)

{

exit(EXIT_SUCCESS);

}

//if the command is empty we skip th input and continue with the loop



A terminal window with a dark background and light-colored text. The window title bar shows 'neeraj@neeraj: ~/shell'. The terminal content shows a sequence of commands and their outputs: 'cd shell' changes the directory; './shell' runs a script; 'pwd' shows the current path as '/home/neeraj/shell'; 'echo "This shell Works"' prints the message; an error message 'error: failed to execute command: No such file or directory' is shown; another 'echo "This shell works"' prints the message; and the prompt returns to the shell.

```
neeraj@neeraj:~$ cd shell
neeraj@neeraj:~/shell$ ./shell
neeraj@neeraj:~/home/neeraj/shell$ pwd
/home/neeraj/shell
neeraj@neeraj:~/home/neeraj/shell$ echo "This shell Works"
error: failed to execute command: No such file or directory
neeraj@neeraj:~/home/neeraj/shell$ echo "This shell works"
"This shell works"
neeraj@neeraj:~/home/neeraj/shell$
```