

Project 3: Unix Shell

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This project implements a simple Unix shell called 'wish' in C. The shell supports interactive and batch modes for command execution, built-in commands, external command execution, output redirection, parallel command execution, and detailed error handling.

Build

This project has Makefile

To build:

```
make
```

To clean:

```
make clean
```

Features Implemented

Command	What does
exit	Exit the shell (no arguments allowed)
cd <directory>	Change directory (exactly one argument required)
path <dir1> <dir2> ...	Change directory (exactly one argument required)

Advanced Features

Output redirection using '>'

Parallel execution using '&'

Usage

Interactive mode:

```
./wish
```

```
wish> ls
```

```
wish> echo Hello World
```

```
wish> exit
```

Batch mode:

```
./wish commands.txt
```

Usage examples

Interactive Mode & Basic Commands

```
● essey@JessePC:~/kaysys/projekti3$ ./wish
wish> ls
Makefile  README.md  unix_shell.c  wish
wish> echo hello from shell
hello from shell
wish> pwd
/home/essey/kaysys/projekti3
wish> exit
```

Built-in Commands

```
● essey@JessePC:~/kaysys/projekti3$ ./wish
wish> path /bin /usr/bin
wish> cd /tmp
wish> pwd
/tmp
wish> cd /home/essey/kaysys/projekti3
wish> pwd
/home/essey/kaysys/projekti3
wish> exit
```

Output Redirection

```
eszej@JessePC:~/kaysys/projekti3$ ./wish
wish> echo This is redirected output > test.txt
wish> cat test.txt
This is redirected output
wish> ls -la > listing.txt
wish> cat listing.txt
total 52
drwxr-xr-x 2 eszej eszej 4096 Dec 15 16:37 .
drwxr-xr-x 6 eszej eszej 4096 Dec 14 12:10 ..
-rw-r--r-- 1 eszej eszej 407 Dec 9 10:59 Makefile
-rw-r--r-- 1 eszej eszej 2078 Dec 15 16:16 README.md
-rw-r--r-- 1 eszej eszej 0 Dec 15 16:37 listing.txt
-rw-r--r-- 1 eszej eszej 26 Dec 15 16:37 test.txt
-rw-r--r-- 1 eszej eszej 8931 Dec 15 16:06 unix_shell.c
-rwxr-xr-x 1 eszej eszej 17864 Dec 15 16:32 wish
wish> exit
```

Parallel Commands

```
eszej@JessePC:~/kaysys/projekti3$ ./wish
wish> echo Task 1 & echo Task 2 & echo Task 3
Task 1
Task 2
Task 3
wish> ls & pwd & echo Done
/home/eszej/kaysys/projekti3
Done
Makefile README.md listing.txt test.txt unix_shell.c wish
wish> exit
```