

# 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

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

Built-in Commands

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

## Output Redirection

```
● essej@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 essej essej 4096 Dec 15 16:37 .
drwxr-xr-x 6 essej essej 4096 Dec 14 12:10 ..
-rw-r--r-- 1 essej essej 407 Dec  9 10:59 Makefile
-rw-r--r-- 1 essej essej 2078 Dec 15 16:16 README.md
-rw-r--r-- 1 essej essej     0 Dec 15 16:37 listing.txt
-rw-r--r-- 1 essej essej    26 Dec 15 16:37 test.txt
-rw-r--r-- 1 essej essej 8931 Dec 15 16:06 unix_shell.c
-rwxr-xr-x 1 essej essej 17864 Dec 15 16:32 wish
wish> exit
```

## Parallel Commands

```
esseej@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/esseej/kaysys/projekti3
Done
Makefile README.md listing.txt test.txt unix_shell.c wish
wish> exit
```