CSCI 274 - Intro to Linux OS

Week 4 - I/O Manipulation, Three Data Streams, Redirection, Linux Waste Bin and Variables

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Overview

1. I/O Manipulation
2. Three Data Streams
3. Redirection
4. Linux Waste Bin
5. Variables

I/O Manipulation

echo - used to display line of text that is passed as an argument

```
$ echo  [OPTIONS]  [TEXT]
```

cat - (con**cat**enate) reads data from the file gives their content as output. Helps create, view, and concatenate files.

```
$ cat  [OPTIONS] … [FILE] …
```

Three Data Streams

Each stream is established when a Linux command is executed. A stream is something that can transfer data. Data streams have two ends; a source and and output end.

- stdin = standard input stream; accepts text as input
- stdout = standard output stream; terminal should be the device accepting output
- stderr = if a command is unsuccessful, an error message is ‘presented’ via standard error stream.

Type	Symbol
stdin	0<
stdout	1>
stderr	2>

Redirection

“ Most Unix system commands take input from your terminal and send the resulting output back to your terminal. ”

The output from a command can be easily diverted to a file instead.

- command > file = output of the command will be written to the file instead of your terminal
- command >> file = will append the output in an existing file

> or **1**> for standard output

Redirection

“ A command normally reads its input from the standard input, which happens to be your terminal by default. ”

The input of a command can be redirected from a file.

- command < file = input can be redirected from a file in this manner

< or **0<** for standard input

Redirection

“ By default, errors are treated the same as stdout. It sends them directly to your terminal screen. ”

Error messages can be filtered to their own output file.

- command **2>** fileError = can filter out the error messages from a command result and save them to a file
- command **2>>** fileError = can filter out the error messages from a command and append them to an existing file

standard error must use **2>/2>>**

Linux Waste Bin

Perhaps we're not interested in output messages (default is going to the terminal) and you wish to discard them. In this case, you can redirect into a special file on the Linux system called **/dev/null**.

/dev/null is similar to the "Recycle Bin" under Windows except it's a waste paper basket with a point of no return - the Linux black hole! Once information has gone into /dev/null, it's gone forever.

Example: find / -name "*" -print 2> /dev/null

Discards any errors that are generated by the find command. They're not going to pollute our console with all sorts of stuff that we're not interested in.

Variables

- Environment variables are those that define system properties and allow programs to function correctly.
- Local variables are only present in the current instance or session of the shell.

You can used **echo** is print the value of variables.

export - marks an environment variable to be exported with any new program/script and thus it allows a program/script to inherit all marked variables.

```
$ export [-fnp] [name[=value] ...]
```