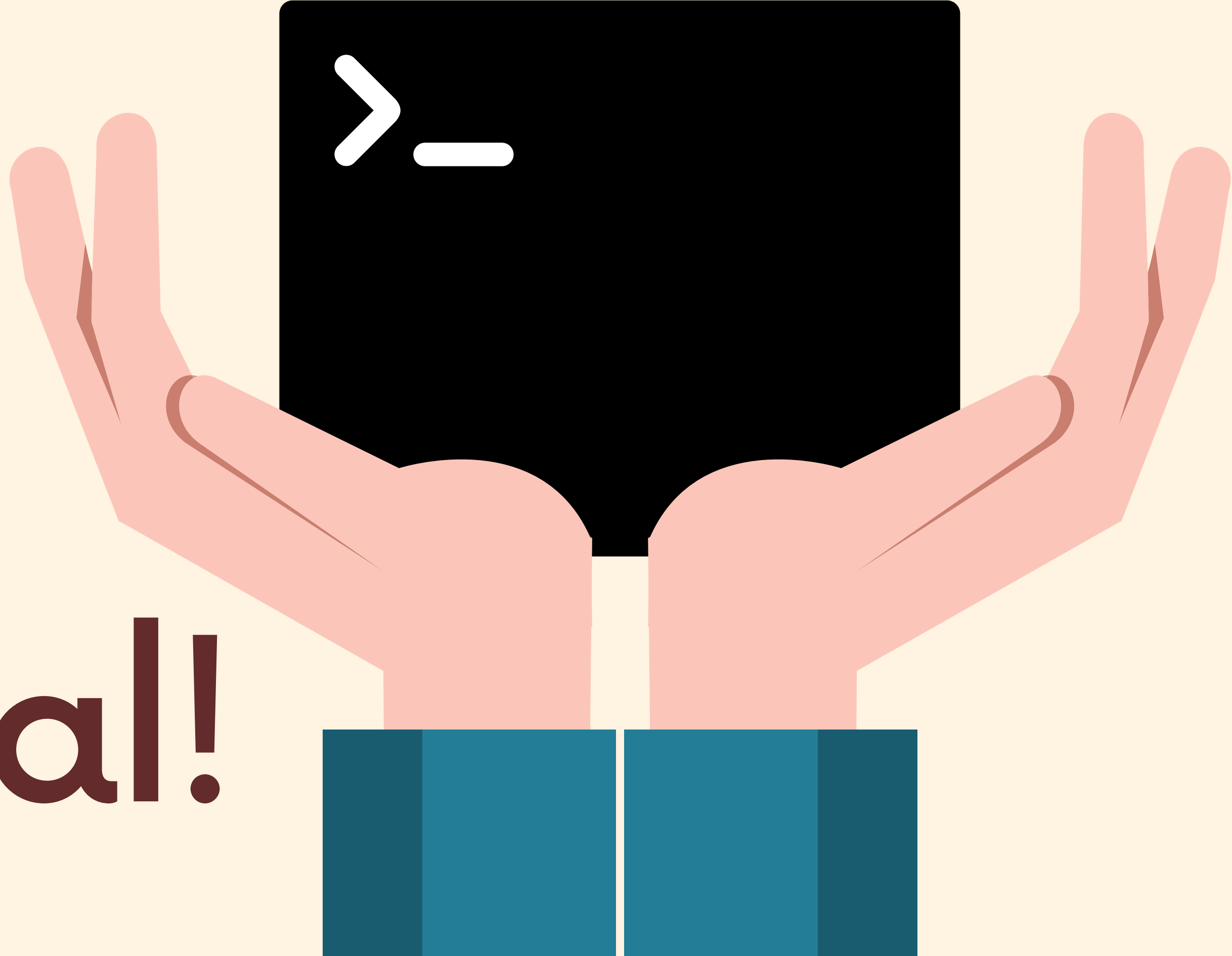# Command Basics

Step 1:

Open
Terminal!

The Prompt

When we open up our terminal, we'll see our prompt which will likely include your **username@machinename**, followed by a ~ and then a dollar sign. We'll learn how to change the prompt later on.

This prompt is what we'll see whenever the shell is ready to accept new input. **All we need to do is type some commands and hit enter.**

If we try typing some gibberish and hit enter, the shell attempts to find a command with that name before telling us "command not found".

```
colt@linux~$
```
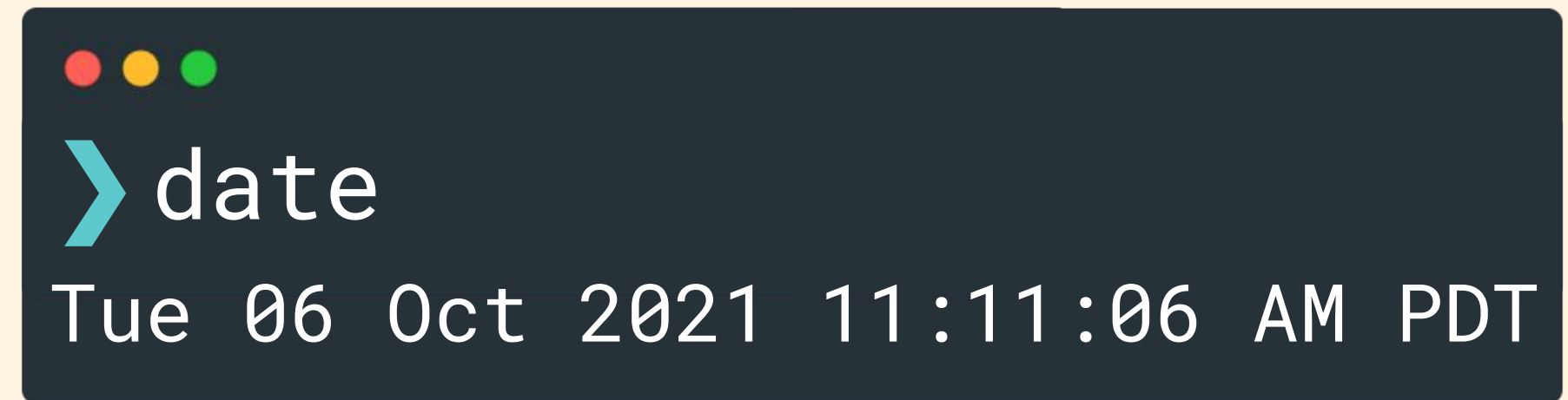
```
>jakshdbd
command not found
```

Our First Command!

The date command may not be the most useful command of all time, but it's a great place to start.

Try typing date and then hit enter. You should see the current date printed out!

```
>date
Tue 06 Oct 2021 11:11:06 AM PDT
```

Case Matters!

Commands are case sensitive, so **Date** is NOT the same thing as **date**.

* If you're using OS X, some commands are not case sensitive, but others are. It's safest to assume all commands are case sensitive.

```
>Date
command not found
```

Another Simple Command

Try typing **ncal** into your prompt. Hit enter and you should see the current month's calendar printed out.

ncal stands for "new cal". There is also a "cal" command that does the same exact thing, but ncal adds some fancier functionality.

```
> ncal
       October 2021
Su       3 10 17 24 31
Mo       4 11 18 25
Tu       5 12 19 26
We       6 13 20 27
Th       7 14 21 28
Fr    1  8 15 22 29
Sa    2  9 16 23 30
```

Use The Arrow Keys

In the terminal, we can use the left and right arrow keys to move through a line of text, one character at a time.

Use the up arrow to access previously entered commands, which can save you tons on typing!

Command Structure

```
command -options arguments
```
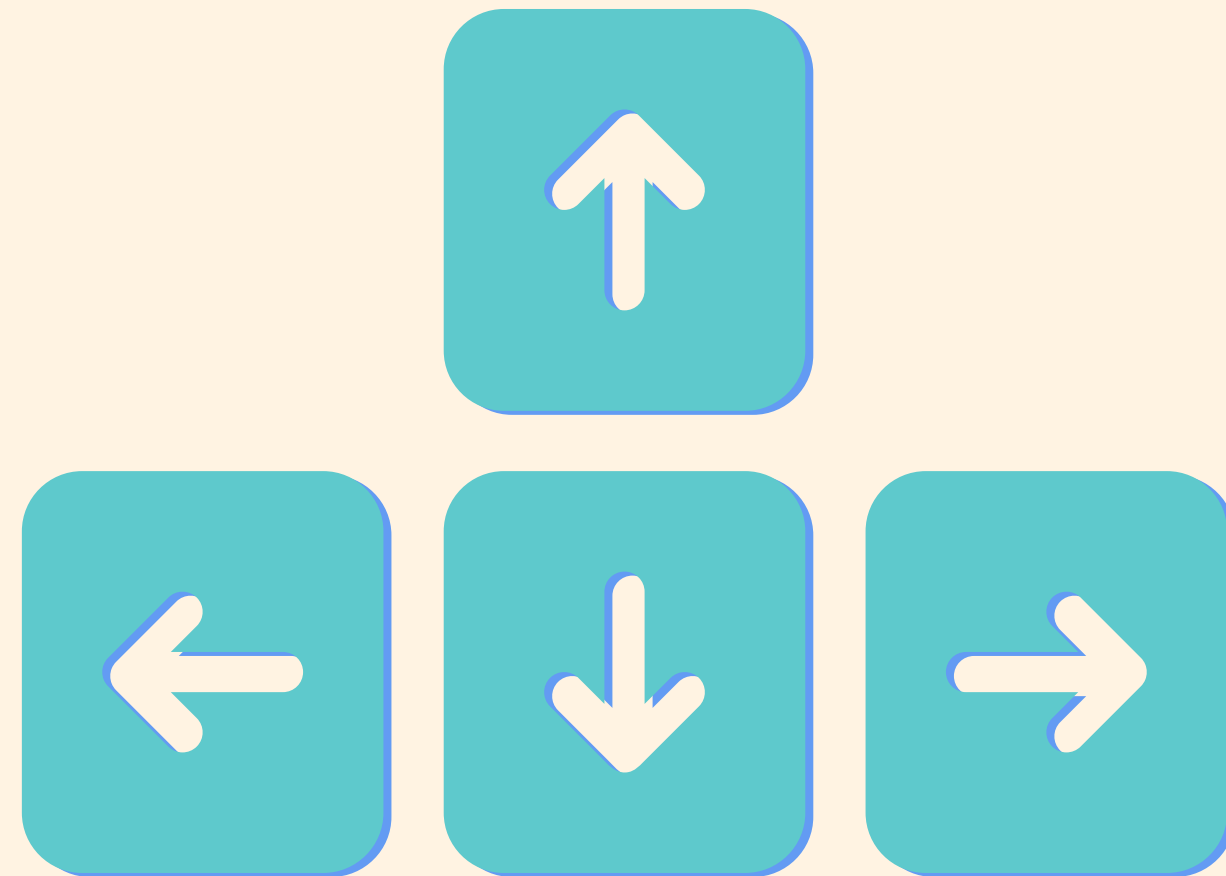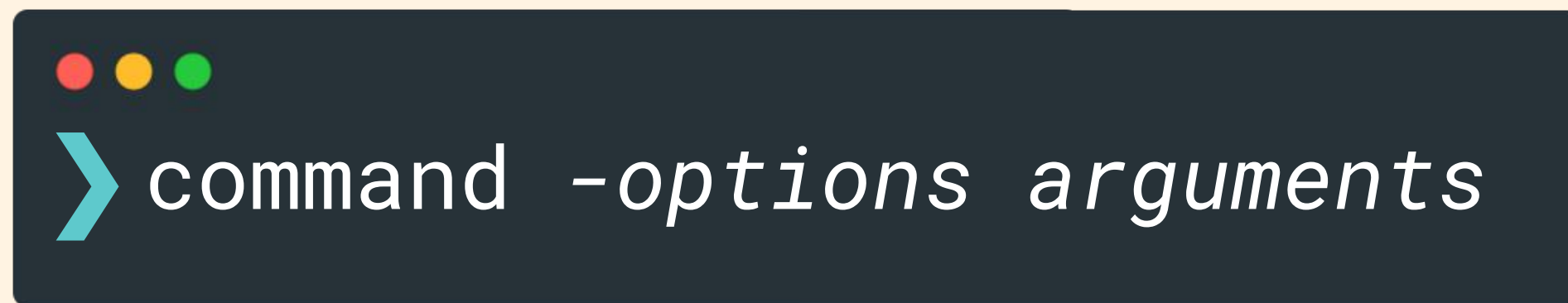
Most commands support multiple **options** that modify their behavior. We can decide which options to include, if any, when we execute a command.

Similarly, many commands accept arguments (the things that the command acts upon or uses)
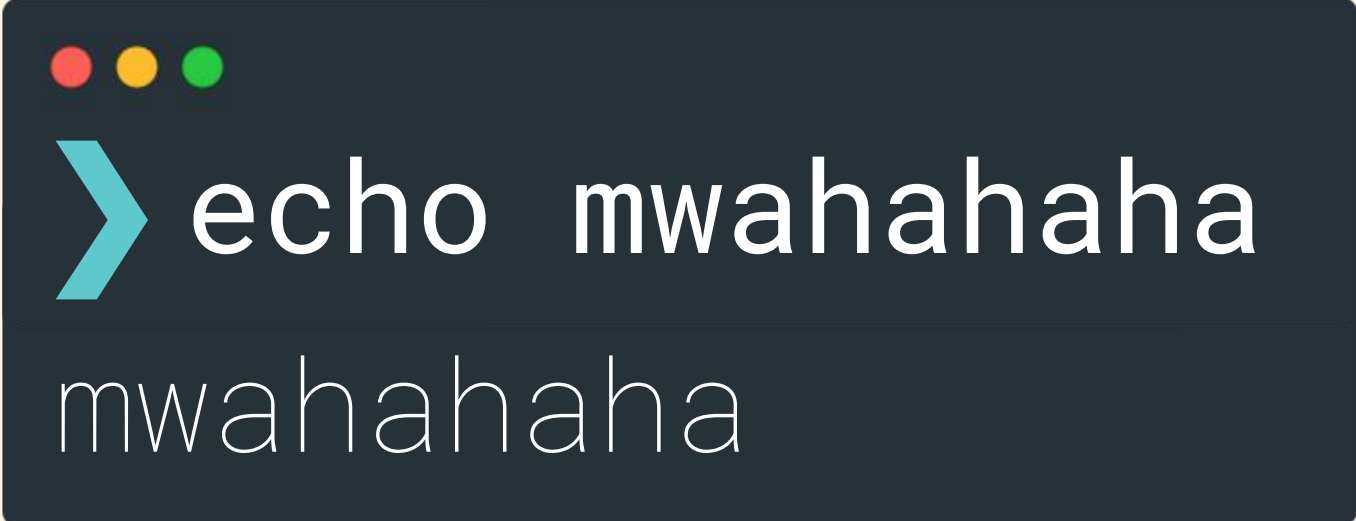
Arguments

The terms "argument" and "parameter" are often used interchangeably to refer to values that we provide to commands.

The **echo** command is extremely simple.   It takes the arguments we provide to it and prints them out. It echoes them back at us.

```
> echo mwahahaha
mwahahaha
```

Arguments

The ncal command accepts values to control the specific month(s) and year it displays.

If we specify only a year, ncal will print out the calendar for that entire year.

If we specify a month and a year, ncal will print only that month's calendar.

```
ncal 2021
```

```
ncal 1999
```

```
ncal july 1969
```

Arguments

The **sort** command, which we will cover in depth later, accepts a filename. It prints out the sorted contents of that file.

For example, sort colors.txt prints out each line of the colors.txt file, sorted in alphabetical order.

```
> sort colors.txt
blue
green
indigo
orange
red
violet
yellow
```

```
> command argument
```

The specifics don't matter.
Focus on the PATTERN.

Options

Each command typically supports a host of options that we can choose to use when executing the command.   These options modify the behavior of the command in predefined ways.

Options are prefixed by a dash, as in **-h** or **-3**.

```
command -option
```

```
ncal -j
```

```
sort -r colors.txt
```

Please do not worry about remembering any of these options I'm about to show you.

☰ Options

By default, the **ncal** command highlights today's date in the output.

```
>ncal
      October 2021
Su       3 10 17 24 31
Mo       4 11 18 25
Tu       5 12 19 26
We      [6]13 20 27
Th       7 14 21 28
Fr    1  8 15 22 29
Sa    2  9 16 23 30
```

We can provide the **-h option** to turn off the highlighting of today's date.

```
>ncal -h
      October 2021
Su       3 10 17 24 31
Mo       4 11 18 25
Tu       5 12 19 26
We       6 13 20 27
Th       7 14 21 28
Fr    1  8 15 22 29
Sa    2  9 16 23 30
```

↓

Case Matters


```
> ncal -b
```

≠

```
> ncal -B
```

More Options

The **-j option** tells ncal to display a calendar using Julian days (days are numbered starting from jan 1st)

We can provide the **-M option** to tell ncal to use Monday as the first day of the week instead of Sunday.

```
ncal -j
       October 2021
Su      276 283 290 297 304
Mo      277 284 291 298
Tu      278 285 292 299
We      279 286 293 300
Th      280 287 294 301
Fr  274 281 288 295 302
Sa  275 282 289 296 303
```

```
ncal -M
       October 2021
Mo        4 11 18 25
Tu        5 12 19 26
We        6 13 20 27
Th        7 14 21 28
Fr    1   8 15 22 29
Sa    2   9 16 23 30
Su    3  10 17 24 31
```

More Options

The **-3 option** tells ncal to display the previous, current, and next month

```
> ncal -3
       September 2021          October 2021          November 2021
Su        5 12 19 26         3 10 17 24 31          7 14 21 28
Mo        6 13 20 27         4 11 18 25          1  8 15 22 29
Tu        7 14 21 28         5 12 19 26          2  9 16 23 30
We     1  8 15 22 29         6 13 20 27          3 10 17 24
Th     2  9 16 23 30         7 14 21 28          4 11 18 25
Fr     3 10 17 24         1  8 15 22 29          5 12 19 26
Sa     4 11 18 25         2  9 16 23 30          6 13 20 27
```

Combining Options

We can provide multiple options at once. This example uses the **-3** option to display the previous, current, and next month AND the **-h** option to turn off the highlighting of the current date.

```
❯ncal -3 -h
       September 2021        October 2021         November 2021
Su        5 12 19 26         3 10 17 24 31          7 14 21 28
Mo        6 13 20 27         4 11 18 25         1   8 15 22 29
Tu        7 14 21 28         5 12 19 26         2   9 16 23 30
We     1  8 15 22 29         6 13 20 27         3 10 17 24
Th     2  9 16 23 30         7 14 21 28         4 11 18 25
Fr     3 10 17 24         1  8 15 22 29         5 12 19 26
Sa     4 11 18 25         2  9 16 23 30         6 13 20 27
```

Another Syntax

When we provide multiple options to a single command, we can use a shorter syntax where we only need a single dash (-) character

```
ncal -3h
           September 2021      October 2021       November 2021
Su          5 12 19 26         3 10 17 24 31       7 14 21 28
Mo          6 13 20 27         4 11 18 25        1  8 15 22 29
Tu          7 14 21 28         5 12 19 26        2  9 16 23 30
We       1  8 15 22 29         6 13 20 27        3 10 17 24
Th       2  9 16 23 30         7 14 21 28        4 11 18 25
Fr       3 10 17 24          1  8 15 22 29       5 12 19 26
Sa       4 11 18 25          2  9 16 23 30       6 13 20 27
```

Long Form Options

All these short one-character options can get confusing! Some options also support equivalent long format options that are usually full words and are prefixed with two dashes instead of just one.

For example, the date -u option is used to print the date in Coordinated Universal Time (UTC). We can instead use date --universal to accomplish the same end result.

```
> date -u
```

```
> date --universal
```

Long Form Options

Here's another example using the sort command (which we have not really covered yet)

The sort -r option will sort a files contents in reverse. If we prefer, we can use the longer form sort --reverse to accomplish the same thing.

```
sort -r colors.txt
```

```
sort --reverse colors.txt
```

Multiple Long Form Options

To use multiple long-form options in a single command, we must write them out separately with their own dashes (--). We cannot combine long-form options in the same way we can with single character options.

```
sort --reverse --unique colors.txt
```

```
sort -ru colors.txt
```

Options With Parameters

Some options require us to pass in an additional value. For example, ncal's **-A option** is used to display a certain number of months AFTER a specific date. We need to tell it how many months to display.

In this example, **ncal -A 1** prints out the current month (october) with one month afterwards (november)

Note: this can also be written as **ncal -A1** (no space between A and 1)

```
> ncal -A 1
        October 2021        November 2021
Su         3 10 17 24 31       7 14 21 28
Mo         4 11 18 25       1  8 15 22 29
Tu         5 12 19 26       2  9 16 23 30
We         6 13 20 27       3 10 17 24
Th         7 14 21 28       4 11 18 25
Fr      1  8 15 22 29       5 12 19 26
Sa      2  9 16 23 30       6 13 20 27
```

Options With Parameters

There is also a -B option to print a number of months BEFORE the specific date. We need to pass it a number of months.

In this example, **ncal -B2** prints out the current month (october) with the two previous months (august and september)

```
> ncal -B2
         August 2021          September 2021         October 2021
Su    1   8  15  22  29         5  12  19  26         3  10  17  24  3
Mo    2   9  16  23  30         6  13  20  27         4  11  18  25
Tu    3  10  17  24  31         7  14  21  28         5  12  19  26
We    4  11  18  25        1   8  15  22  29         6  13  20  27
Th    5  12  19  26        2   9  16  23  30         7  14  21  28
Fr    6  13  20  27        3  10  17  24        1   8  15  22  29
Sa    7  14  21  28        4  11  18  25        2   9  16  23  30
```

Options With Parameters

This example uses both the -A and -B options to print out 1 month before the current month AND one month after.

```
❯ncal -A1 -B1
        September 2021       October 2021       November 2021
Su        5 12 19 26        3 10 17 24 31        7 14 21 28
Mo        6 13 20 27        4 11 18 25      1   8 15 22 29
Tu        7 14 21 28        5 12 19 26      2   9 16 23 30
We    1   8 15 22 29        6 13 20 27      3 10 17 24
Th    2   9 16 23 30        7 14 21 28      4 11 18 25
Fr    3 10 17 24        1   8 15 22 29      5 12 19 26
Sa    4 11 18 25        2   9 16 23 30      6 13 20 27
```

All Together Now

This example prints out the calendar for July 1969, with one month before (june) and two months after (august and september)

```
> ncal -B1 -A2 july 1969

       June 1969           July 1969          August 1969        September 1969
Su   1   8 15 22 29        6 13 20 27        3 10 17 24 31          7 14 21 28
Mo   2   9 16 23 30        7 14 21 28        4 11 18 25        1   8 15 22 29
Tu   3 10 17 24        1   8 15 22 29        5 12 19 26        2   9 16 23 30
We   4 11 18 25        2   9 16 23 30        6 13 20 27        3 10 17 24
Th   5 12 19 26        3 10 17 24 31        7 14 21 28        4 11 18 25
Fr   6 13 20 27        4 11 18 25        1   8 15 22 29        5 12 19 26
Sa   7 14 21 28        5 12 19 26        2   9 16 23 30        6 13 20 27
```

Don't worry about remembering the specific options!