./missing-semester - Course Overview + The Shell - Exercises

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Course located at: missing.csail.mit.edu

Exercises

- For this course, you need to be using a Unix shell like Bash or ZSH. If you are on Linux or macOS, you don't have to do anything special. If you are on Windows, you need to make sure you are not running cmd.exe or PowerShell; you can use Windows Subsystem for Linux or a Linux virtual machine to use Unix-style command-line tools. To make sure you're running an appropriate shell, you can try the command echo $SHELL. If it says something like /bin/bash or /usr/bin/zsh, that means you're running the right program.

```
$ echo $SHELL
/bin/bash
```

向系统发送一个$开头的变量，即系统变量，返回变量所指代的地址。

- Create a new directory called missing under /tmp.

```
mkdir /tmp/missing
```

创建文件夹，已存在的可以跳过

- Look up the touch program. The man program is your friend.

```
man touch
```

man touch查看命令的用法

- Use touch to create a new file called semester in missing.

```
touch /tmp/missing/semester
```

- Write the following into that file, one line at a time: #!/bin/sh and curl --head --silent https://missing.csail.mit.edu. The first line might be tricky to get working. It's helpful to know that # starts a comment in Bash, and ! has a special meaning even within double-quoted (") strings. Bash treats single-quoted strings (') differently: they will do the trick in this case. See the Bash quoting manual page for more information.

将字符串写入文件

```
echo '#!/bin/sh' >> semester
echo 'curl --head --silent https://missing.csail.mit.edu' >> semester
```

- Try to execute the file, i.e. type the path to the script (./semester) into your shell and press enter. Understand why it doesn't work by consulting the output of ls (hint: look at the permission bits of the file).

无执行的权限

```
No execution bit
```

- Run the command by explicitly starting the sh interpreter, and giving it the file semester as the first argument, i.e. sh semester. Why does this work, while ./semester didn't?

  ./semester asks the kernel to run semester as a program, and the kernal (program loader) will check permissions first, and then use /bin/bash (or sh or zsh etc) to actually execute the script.

一个检查权限，一个不用

  sh semester asks the kernel (program loader) to run /bin/sh, not the program so the execute permissions of the file do not matter.

- Look up the chmod program (e.g. use man chmod). Use chmod to make it possible to run the command ./semester rather than having to type sh semester. How does your shell know that the file is supposed to be interpreted using sh? See this page on the shebang line for more information.

```
chmod +x semester
./semester
```

取决于解释器如何解释Shebang（也称为Hashbang）是一个由井号和叹号构成的字符序列#!，可能是命令参数，可能是注释

  The shebang is parsed as an interpreter directive by the program loader mechanism. The loader executes the specified

interpreter program, passing to it as an argument the path that was initially used when attempting to run the script, so that the program may use the file as input data.

- Use | and > to write the "last modified" date output by semester into a file called last-modified.txt in your home directory.

把文件信息的尾部输出到last-modified.txt

```
# expected
ls -l semester | tail -c 22 > ~/last-modified.txt
# alternate
stat -c '%y' semester > ~/last-modified.txt
```

- Write a command that reads out your laptop battery's power level or your desktop machine's CPU temperature from /sys. Note: if you're a macOS user, your OS doesn't have sysfs, so you can skip this exercise.

```
cat /sys/class/power_supply/BAT0/capacity
```

sudo apt install apci
apci
参考答案报错，找不到文件or目录

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