Recitation S: Unix II

Plan
- Why this paper? II
- Process & fork
- Shell & demo
- Discussion

Logistics
- Feedback form
  feedback. henry cg.com
- Design project form
  (Submit today)
- Hands-on assignment due tomorrow 23:59 Boston time
Robert Morris (Sr.)

/etc/passwd

username shell real home Hash(password)
Processes and Fork

process

- parent pid
- memory image
- pwd
- registers

open file

<table>
<thead>
<tr>
<th>fd</th>
<th>inode</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>stdin</td>
</tr>
<tr>
<td>1</td>
<td>stdout</td>
</tr>
<tr>
<td>2</td>
<td>stderr</td>
</tr>
</tbody>
</table>

Open a file

```c
int fd = open("file.txt", "w");
write(fd, "Hello world", 11);
```

Special file descriptors

0 = stdin ✈️ terminal input
1 = stdout ✈️ terminal output
2 = stderr ✈️ terminal output
Forking a process

```c
myprog
parent_id = 7
register memory

child code

print("Hello")
pid = fork()
if pid == 0 {
    // child code
}
```
8 = fork()
wait()

childprog 8

exec

exec("new prog")

newprog 8