

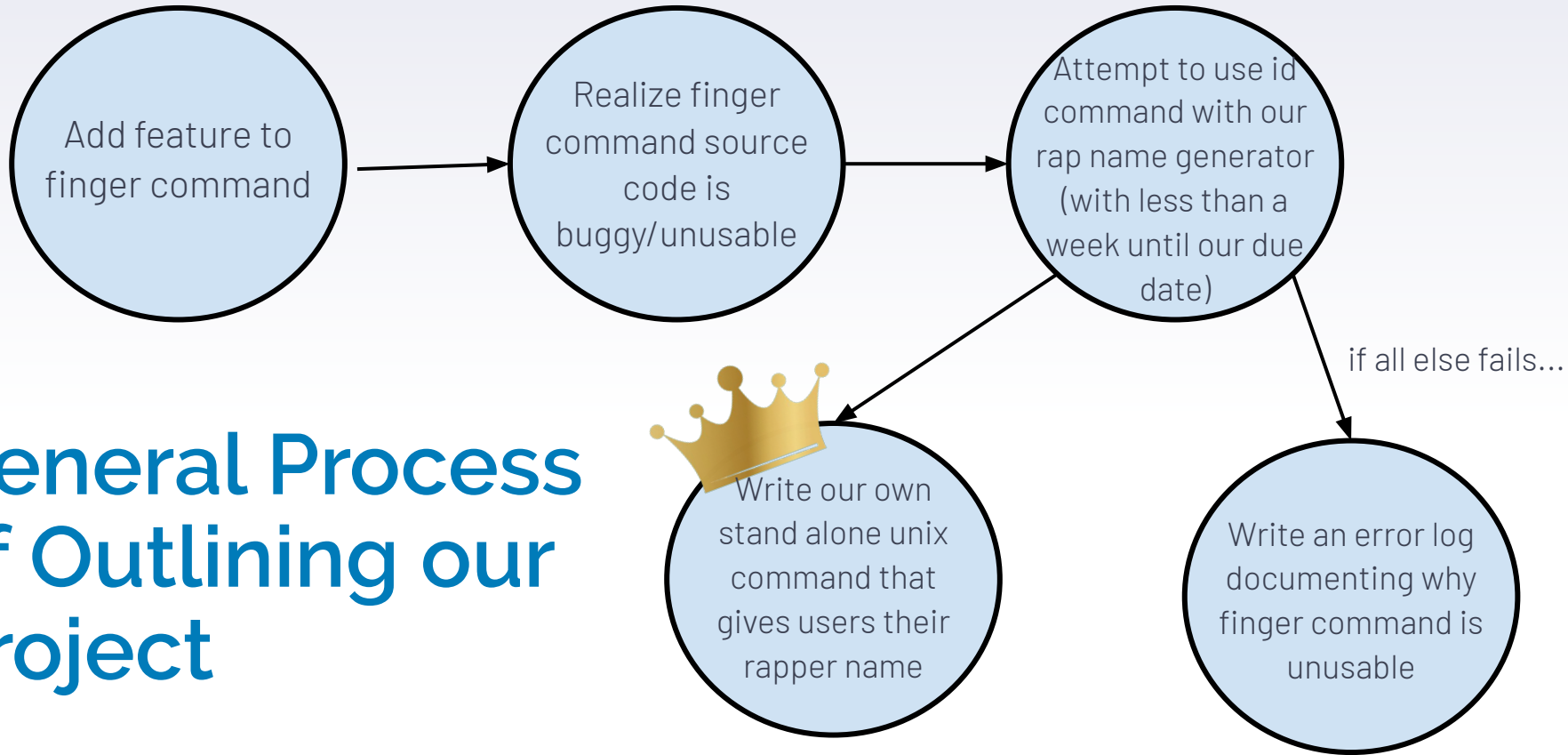
Operating Systems Final Project

Rap Name Generator

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General Process of Outlining our Project



► Modifying the Finger Kernel

We wanted to add a field that generates a Rapper Name using the Name information

```
KeAnnas-MacBook-Pro:~ keannaanglin$ finger keanna
Login: keannaanglin                Name: KeAnna A
Directory: /Users/keannaanglin     Shell: /bin/bash
On since Sun Feb  2 15:22 (PST) on console, idle 7 days 18:57 (messages off)
On since Thu Feb  6 15:21 (PST) on ttys000, idle 1 day 20:12
On since Thu Feb  6 23:01 (PST) on ttys002 (messages off)
On since Fri Feb  7 12:28 (PST) on ttys007 (messages off)
On since Mon Feb 10 10:19 (PST) on ttys001
No Mail.
No Plan.
KeAnnas-MacBook-Pro:~ keannaanglin$ |
```

► Modifying the Finger Kernel

First letter of first name:

Letter	Name	Letter	Name
A	Lil	N	Killa
B	Shawty	O	Brotha
C	Dirty	P	Drippin
D	Pusha	Q	Mo
E	Nephew	R	Grillz
F	Tasty	S	\$hmoney
G	Drizzy	T	Fresh
H	Crispy	U	MC
I	Senor	V	Smoke
J	Scumbag	W	BB
K	Thug	X	Clout
L	Baby	Y	Chilly
M	Krakka	Z	Sir

First letter of last name (or last letter of first name):

Letter	Name	Letter	Name
A	Baby	N	Dagga
B	Glock	O	Pain
C	Dollaz	P	Swaggy
D	Tha Juice	Q	Flame
E	Dawg	R	Funk
F	Computer	S	Skrt Skrt
G	\$moke	T	Dijon
H	Low Key	U	Kool
I	Double-O	V	Steez
J	Playa	W	Pastrami
K	Dutch Boy	X	Get 'Em
L	Book Nerd	Y	Lasagna
M	Juice Box	Z	Ca\$h

KeAnna A → Thug Baby

Shanaya N → \$hmoney Dagga

Lauren L → Baby Book Nerd

► Problems with the Finger Kernel

- Source code was incomplete and buggy
 - Had comments like: “doesn’t seem to be working”
- Makefile was full of configuration errors
 - Could not compile unchanged source code

▶ Adding a System Call

- Followed the Medium article about adding a system call to the linux kernel
- Outdated so:
 - Had to find the linux kernel version
- Rapname.c file had to take in command line arguments for first and last name
 - Looks up initials
 - Prints rapper name to kernel log

▶ RapName System Call

```
shanaya@shanaya-VirtualBox:~$ gcc userspace.c && ./a.out
Enter your first name:
lauren
Enter your last name:
l
System call sys_rapname returned 0
shanaya@shanaya-VirtualBox:~$
```

```
shanaya@shanaya-VirtualBox:~$ dmesg
```

```
[ 84.720959] Rap Name: Baby Book Nerd
```

Userspace.c

```
#include <stdio.h>
#include <linux/kernel.h>
#include <sys/syscall.h>
#include <unistd.h>
int main(int argc, char** argv)
{
    char first_name[25], last_name[25];
    printf("Enter your first name: \n");
    scanf("%s", first_name);
    printf("Enter your last name: \n");
    scanf("%s", last_name);
    long int amma = syscall(335, first_name, last_name);
    printf("System call sys_rapname returned %ld\n", amma);
    return 0;
}
```


▶ rapname.c

```
char* rap_name = first_name[first_index];
int i,j;
for(i=0; rap_name[i]!='\0'; ++i); // length of first_name

for(j=0; last_name[last_index][j]!='\0'; ++j, ++i)
{
    rap_name[i]=last_name[last_index][j];
}
rap_name[i]='\0';

printf("Rap Name: %s\n", rap_name);
return 0;
```