CS326-01 Pipes and Kernel Intro
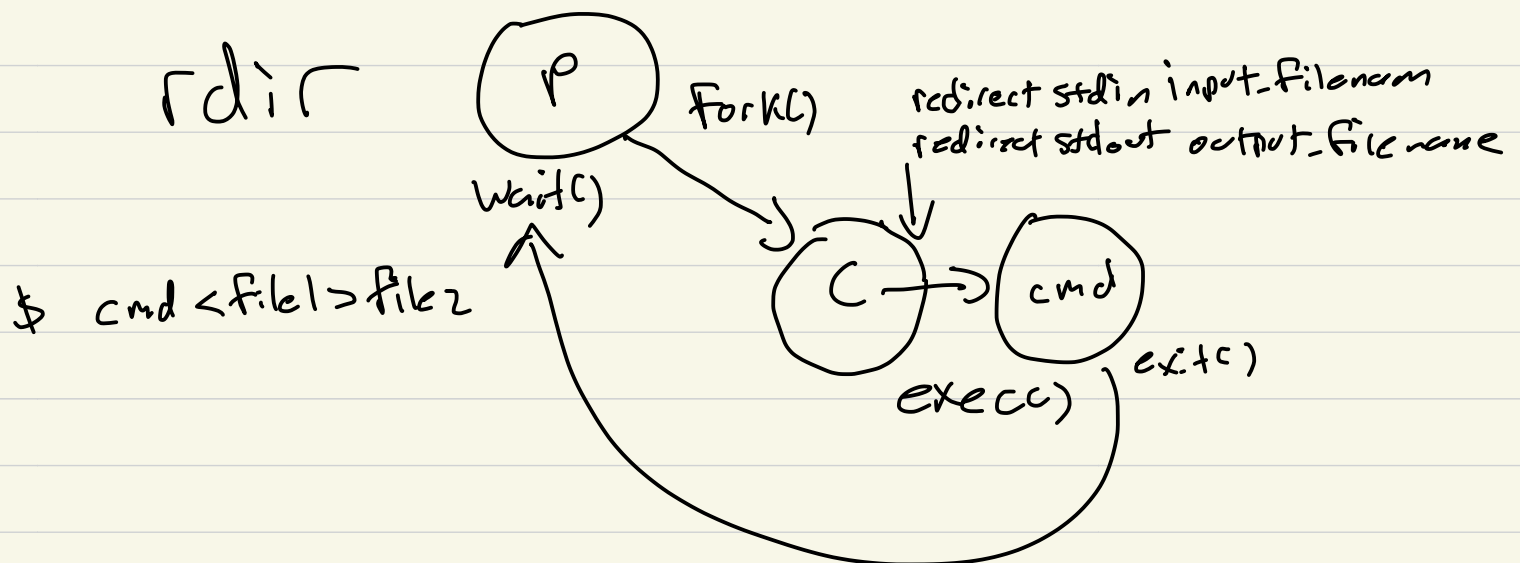
Project01 Fixes
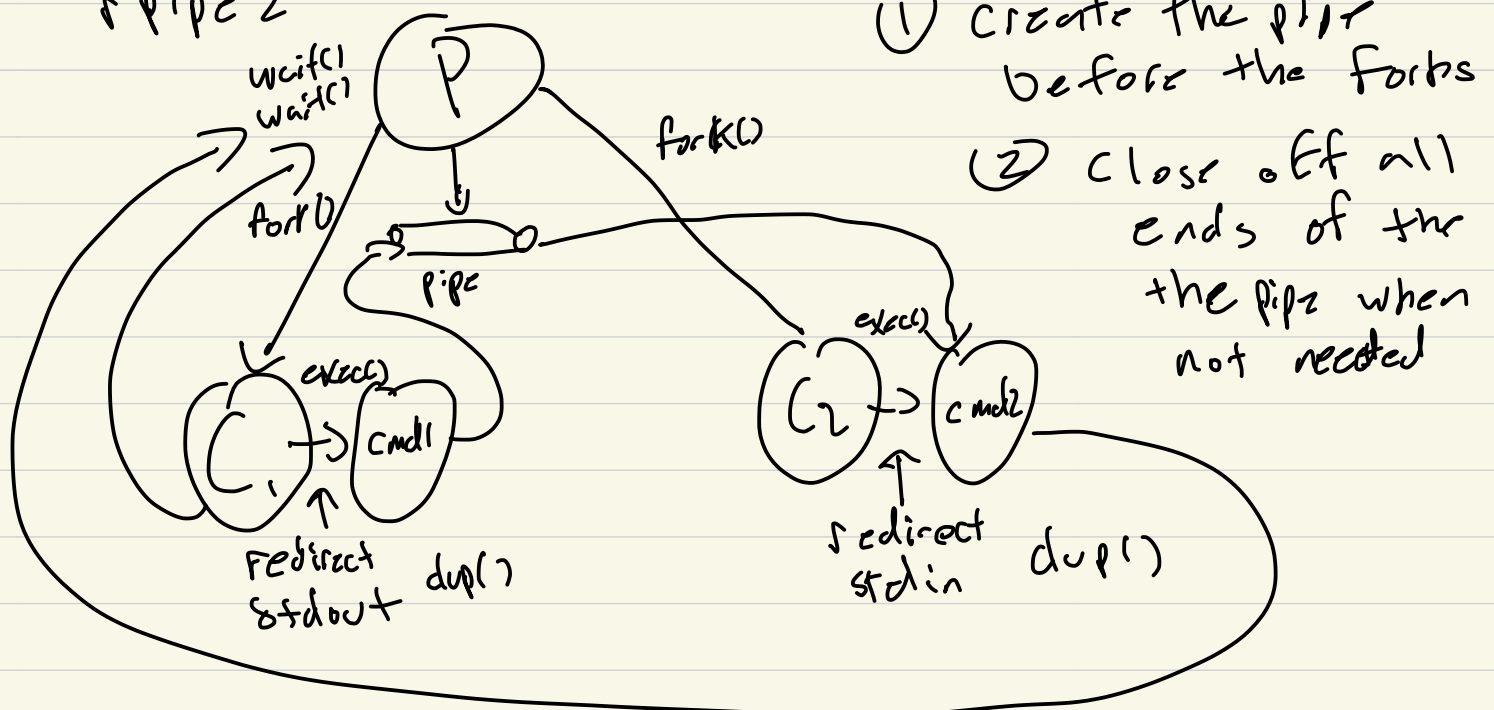
Project02 Over spring break

lab04

rdir
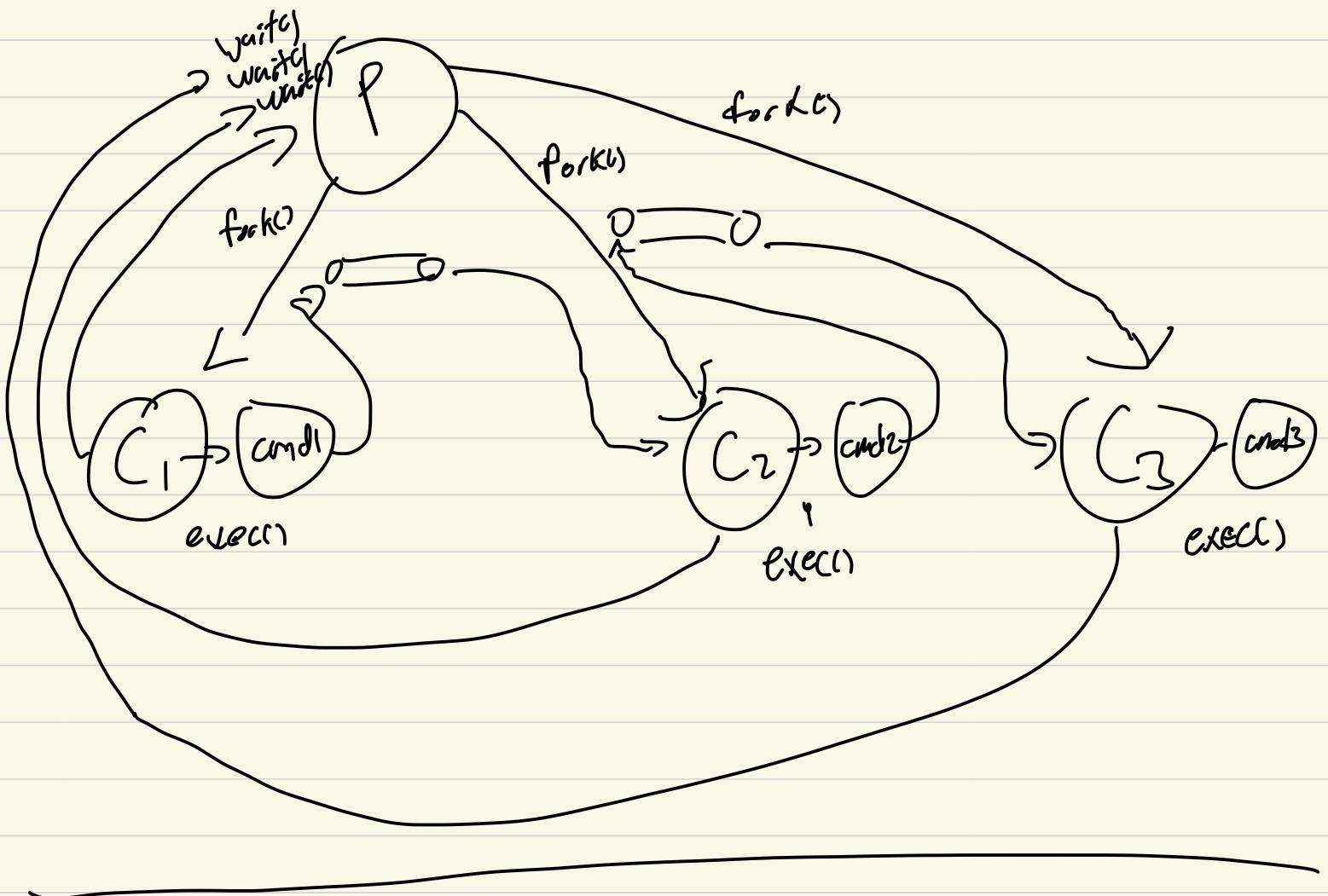
P → fork()

wait()

$ cmd < file1 > file2

redirect stdin input_filename
redirect stdout output_filename

C → cmd
exec()
exit()

r pipe2

P → fork()

wait()
wait()

fork()

pipe

exec()

C₁ → cmd1
exec()
redirect
stdout dup()

C2 → cmd2
exec()
redirect
stdin dup()

① create the pipe
   before the forks

② close off all
   ends of the
   the pipe when
   not needed

$ cmd1 | cmd2

⌐ pipe3

$ cmd1 | cmd2 | cmd3

P

wait()
wait()
wait()

fork()

fork()

fork()

C₁ → cmd1

exec()

C₂ → cmd2

exec()

C₃ → cmd3

exec()

pipes are not bidirectional, use two pipes

pipe1

P₁ → ○ n|e|1|1|0 ○ → P₂

pipe2
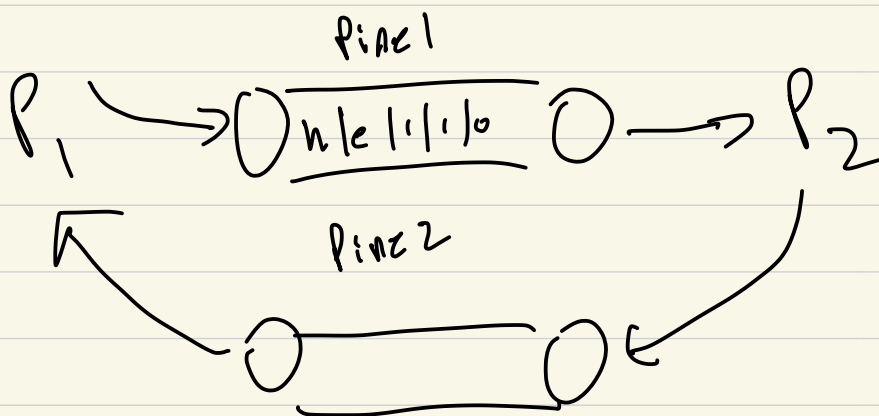
Pipe Flow control

pipesend str count

P

C₁

C₂

str
count

Print

The Kernel
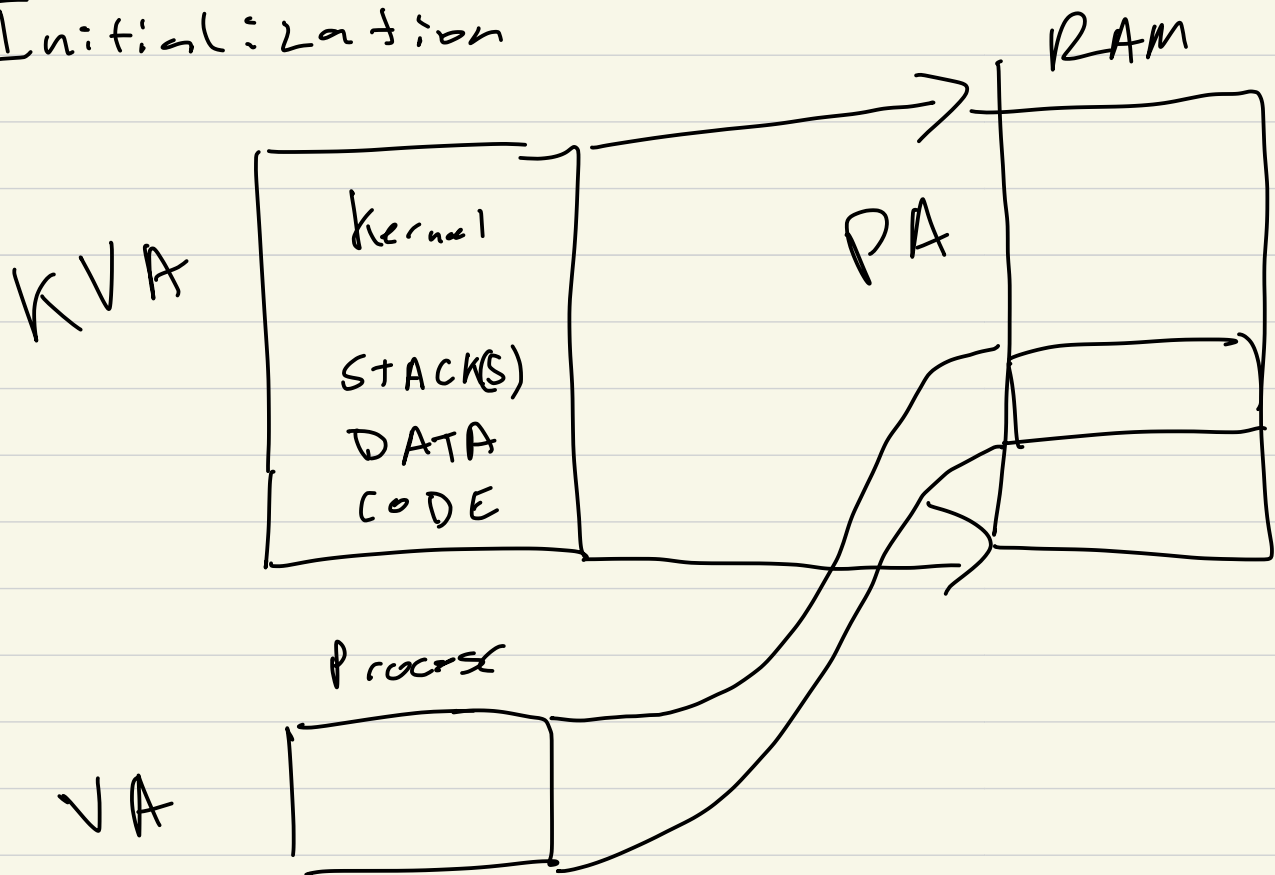
RAM
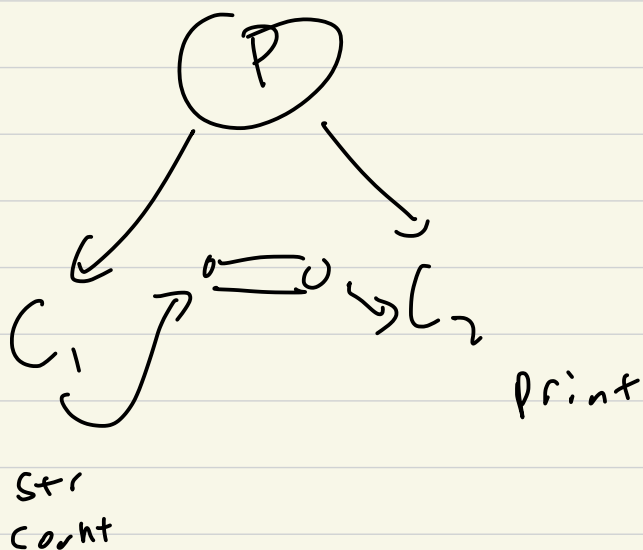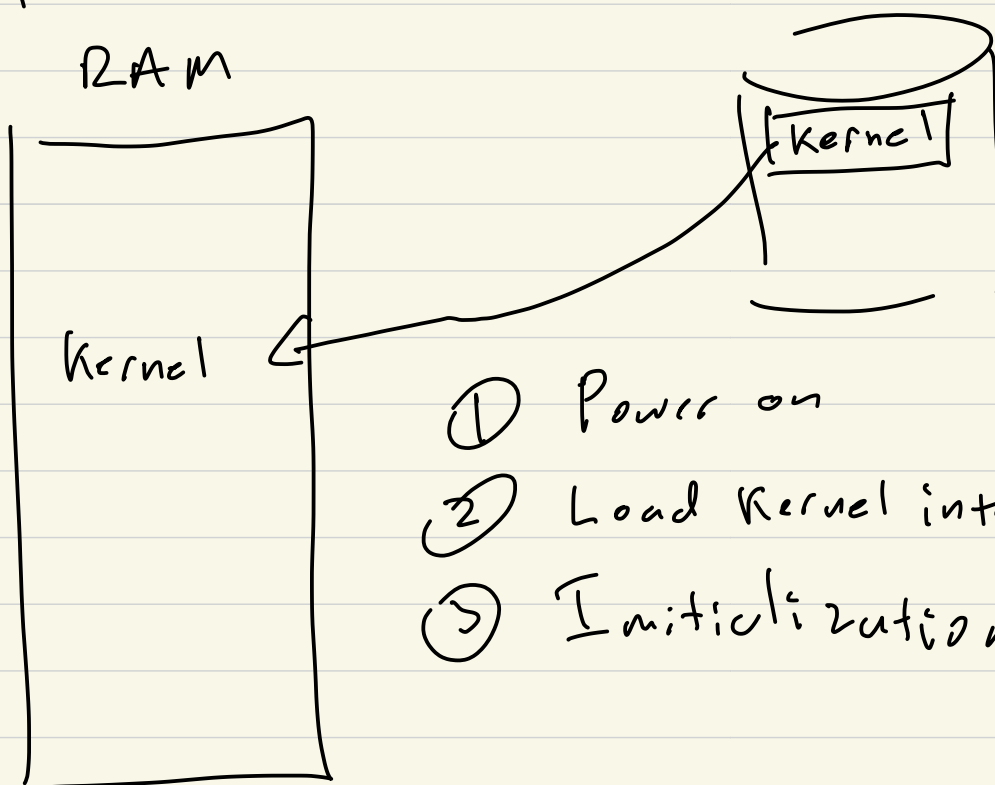
Kernel

Kernel

① Power on
② Load Kernel into RAM
③ Initialization

Initialization

RAM

KVA

Kernel

STACK(S)
DATA
CODE

PA

Process

VA

Single CPU

A

B

time

quantum

A

B

time

A

B

K

Kernel

time

A

B

K

time