

Concurrency

→ Threads

↳ ways to create threads

↳ Runnable

↳ Executor ⇐

↳ Thread pools

↳ Threads returning data

↳ future ~~to~~

↳ Callable

Python

→ Implement Merge Sort using
asynchronous

Golang /
Python /

JSX /

C++

Multi-threading

→ Adder / Subtractor Problem

(How Threads share data)

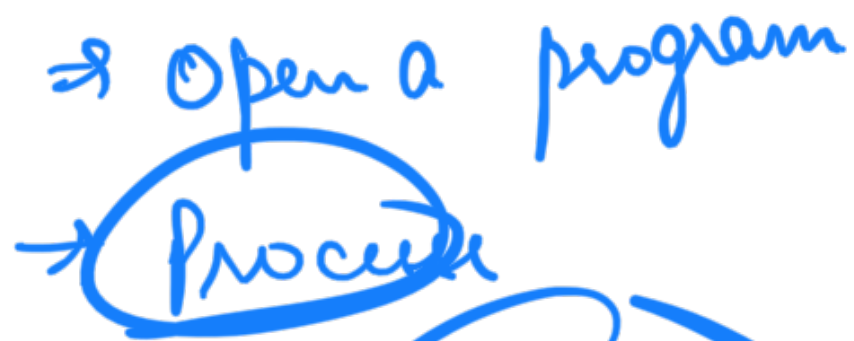
& problems due to sharing data

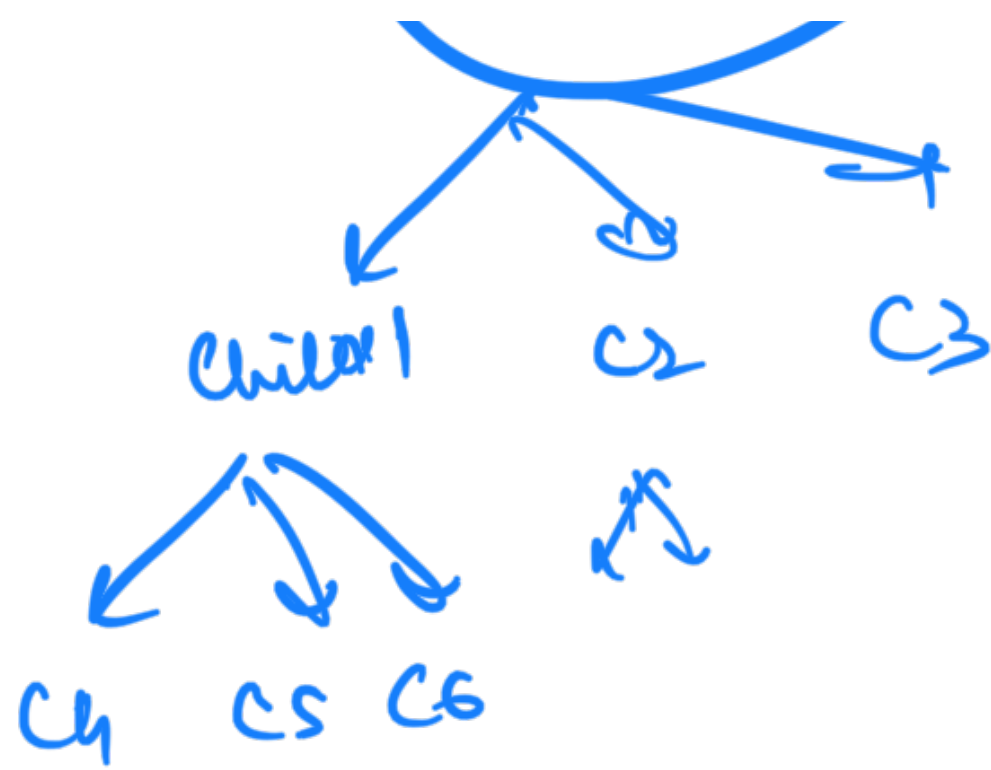
Threads

→ Basic unit of execution in a software
System



Contains atleast one thread





How to create a thread

⇒ If you want to write some code that should run in a separate thread

Step 1) Create a class.

② Class should implement an interface called

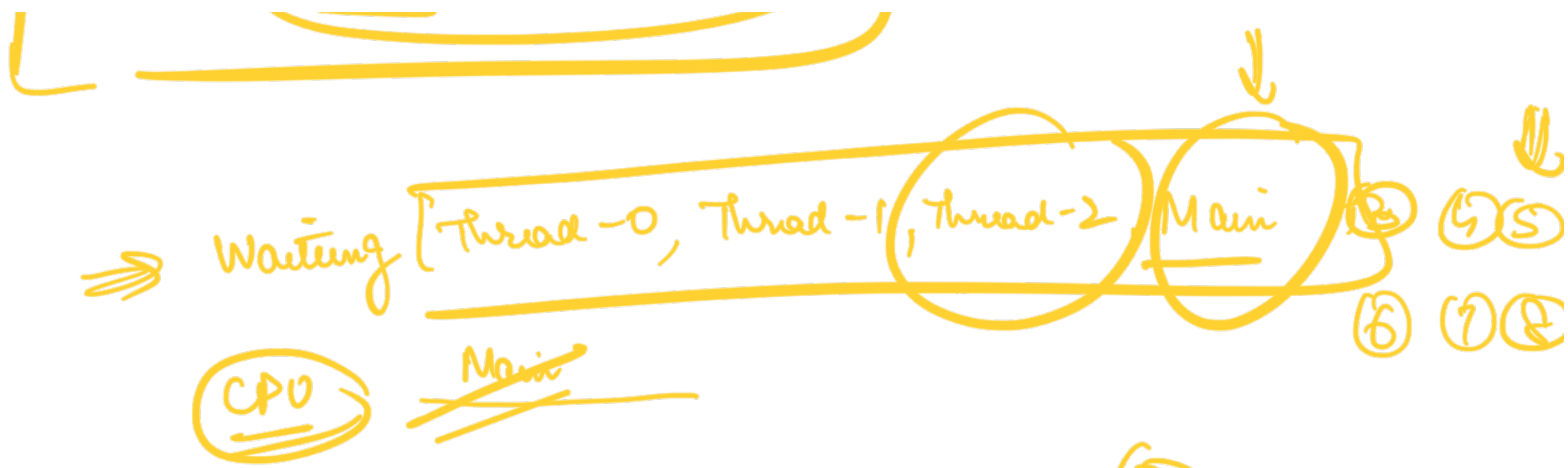
Runnable run()

③ The code that you want to run in
the new thread should be in a method
called run.

for $i=0; i < 100; ++i$

③ ① \Rightarrow Thread $t = \text{---}$

② $t.start()$



- (2)
- (5)
- (6)
- (8)
- (3)

A ?



BE



hidden method

.start() → Creating a thread

→ assigning thread to CPU

Thread (t =) new Thread(Runnable);

.start()

AF

- ① Create a new Class $\Rightarrow A$,
- ② Class should implement Runnable
 A implements Runnable
- ③ Override run() Method
 \rightarrow Code that I want to run in
a separate thread
- ④ Create an instance of Thread and call
start()

Thread t = new Thread (new AL)

t.start()

To pass any parameters, pass via constructor of the Thread.

If you directly call run() code isn't multithreaded

Assgⁿ

~~Print #~~

Given a sentence as an input

String input = "

Print every character of string via

a new Thread.

Thread \Rightarrow Runnable

`.run()` \Rightarrow `- run()`



assign to CPU



creates Mem



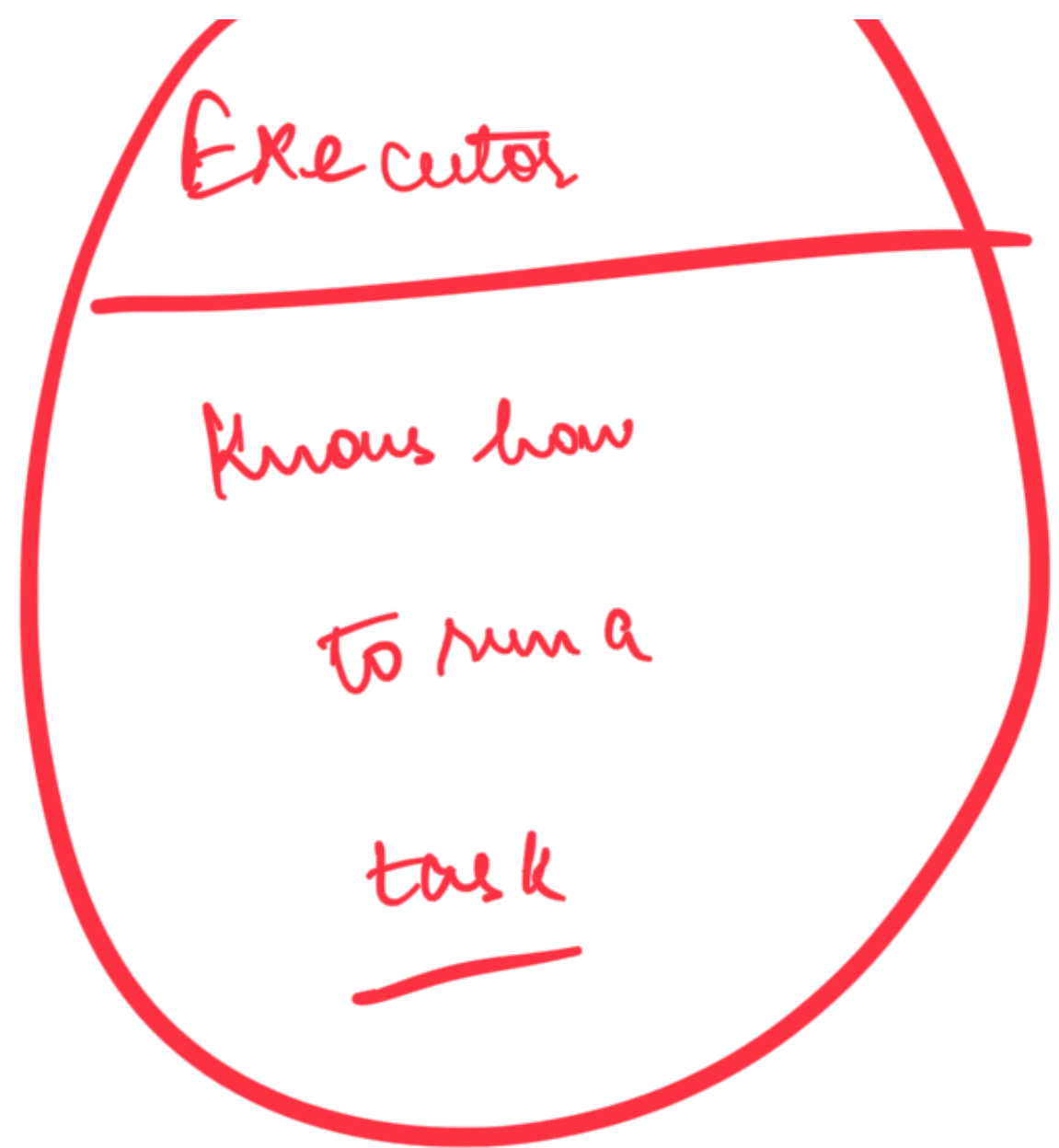
`.start()`

My main code is responsible for:

- ① Deciding what code should run in a separate thread
- ② Running the thread

Every thread can be considered as an independent task

Your code should just create the tasks.



Older Approach

⇒ ① Create a Runnable // Task

① Create a Thread

② Start the thread

Executor
framework

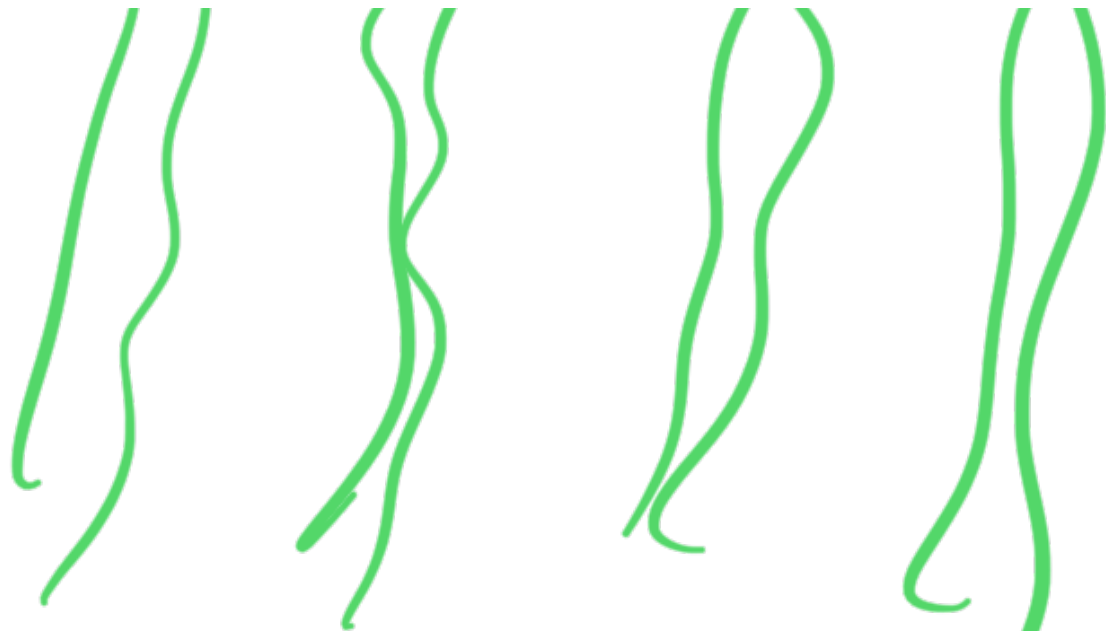
Creating a process is much more expensive
than creating a thread

But threads also do take time

Executors: They don't create a new Thread

for every task.
Instead they create a new Thread for every worker.





Nginx

max Thread Count =

20

Fast

h

