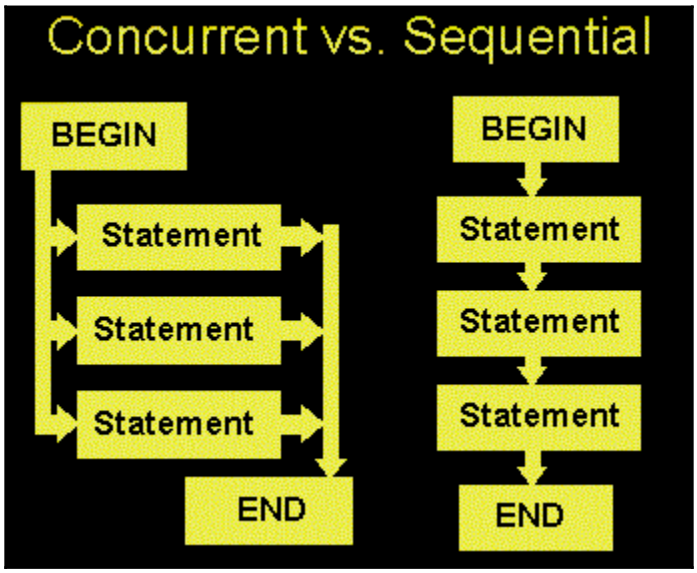
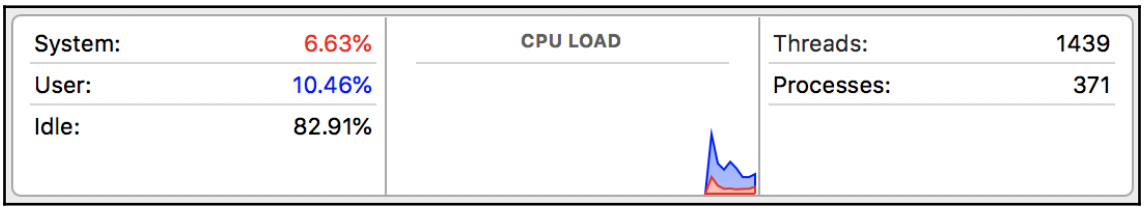
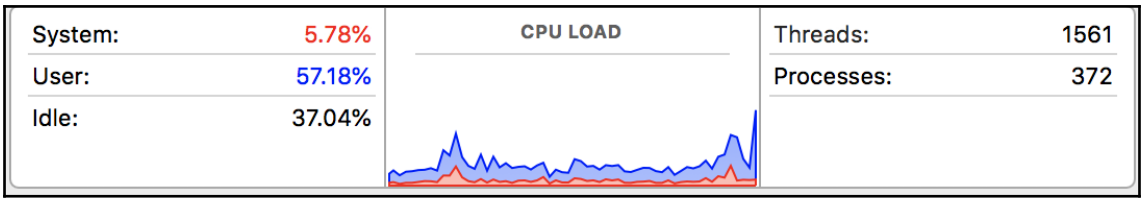
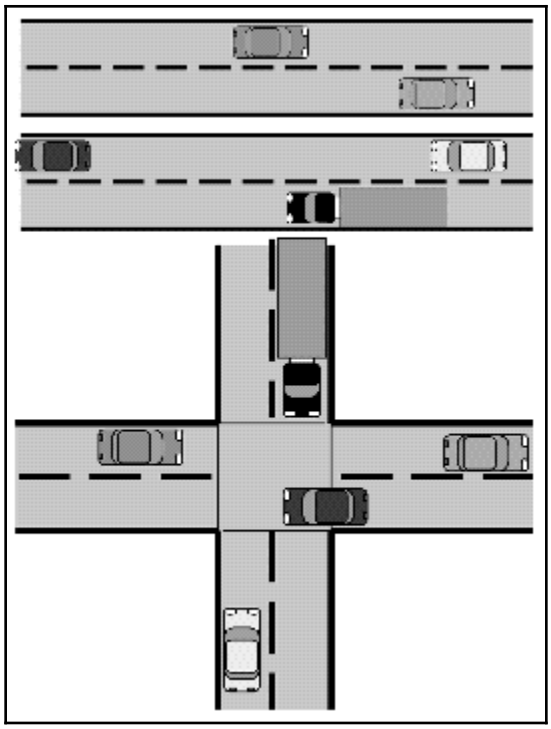
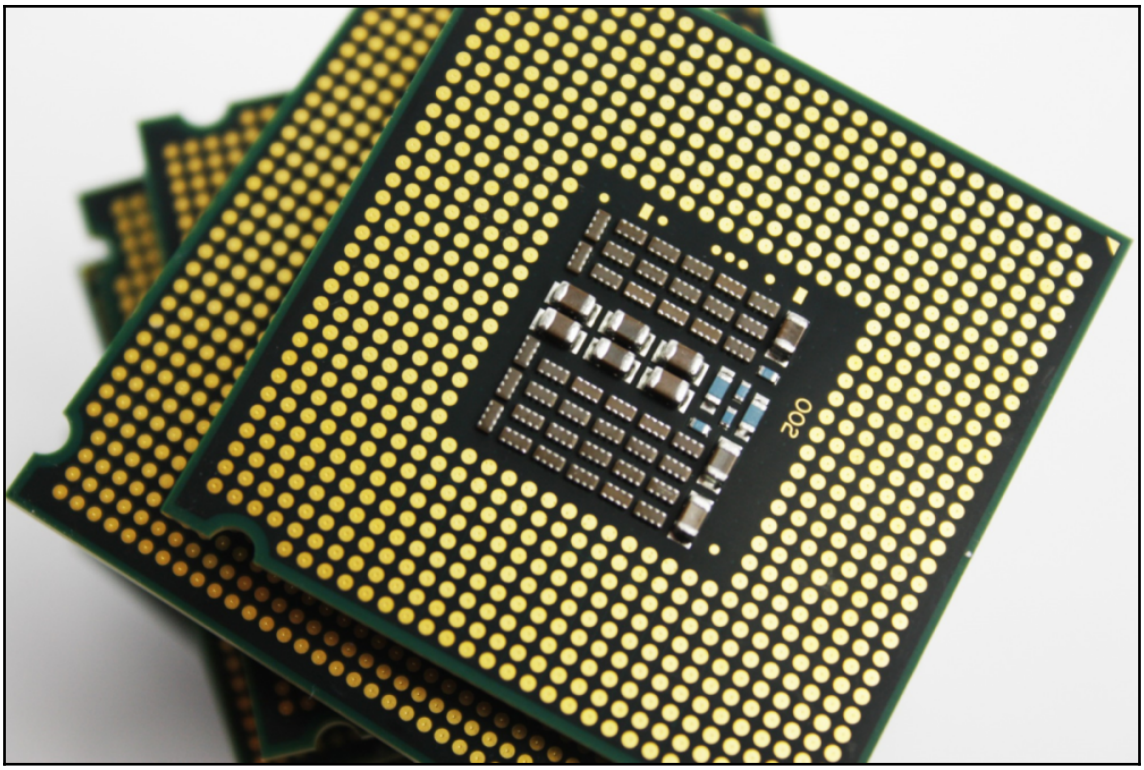
Chapter 1: Advanced Introduction to Concurrent and Parallel Programming

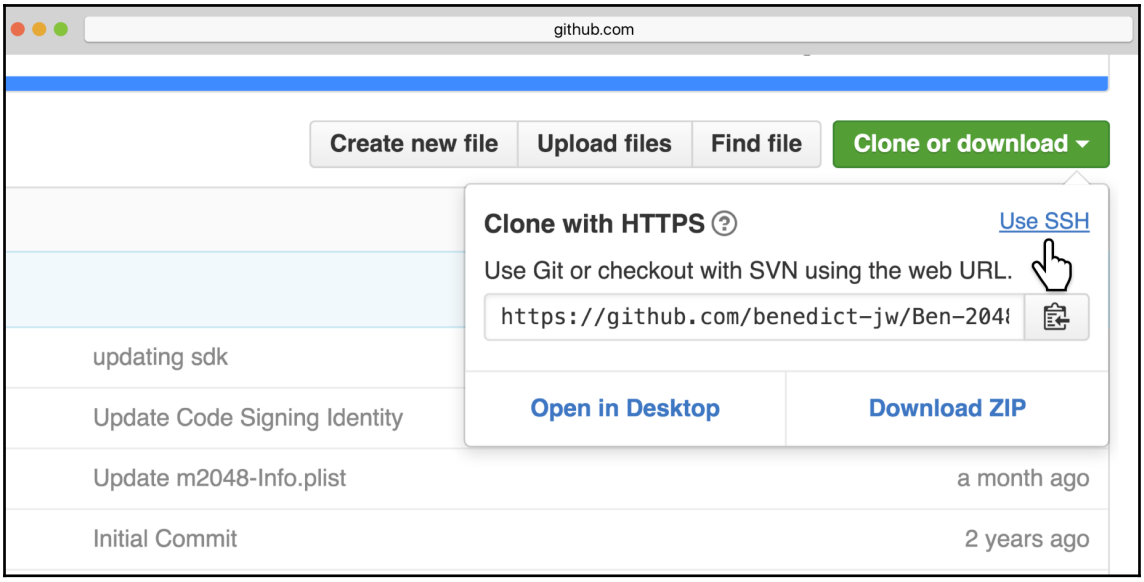




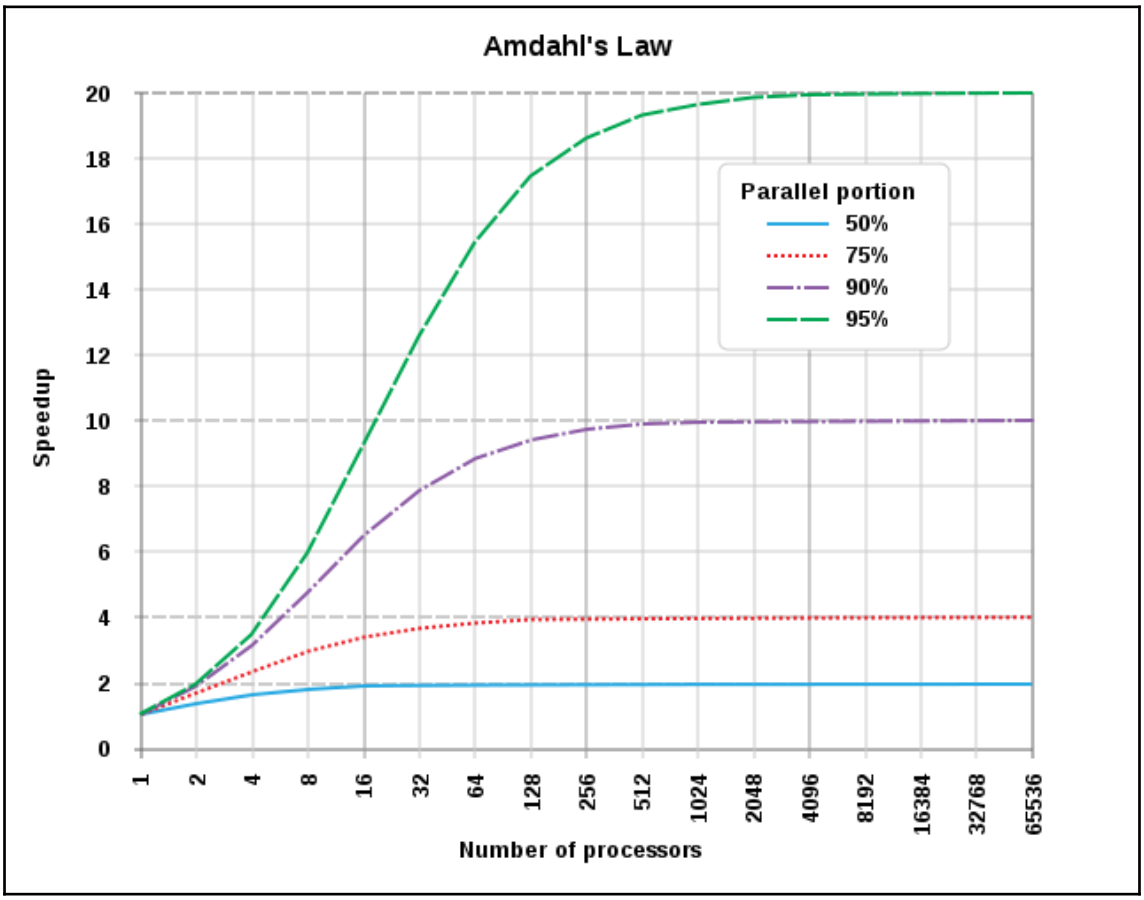




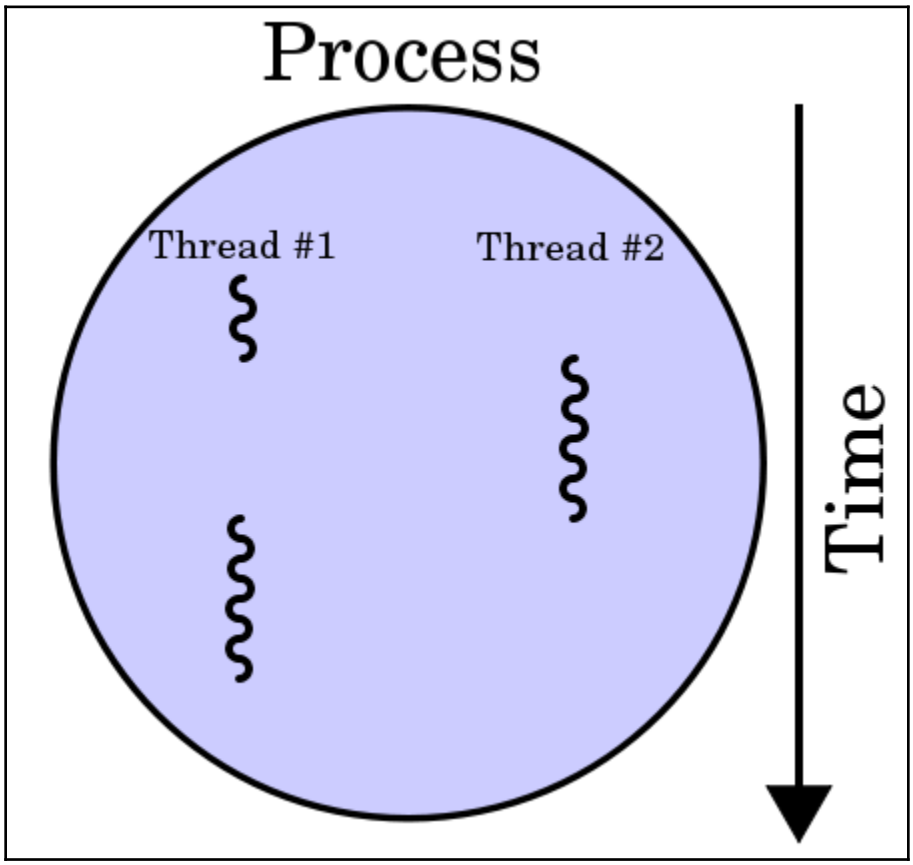


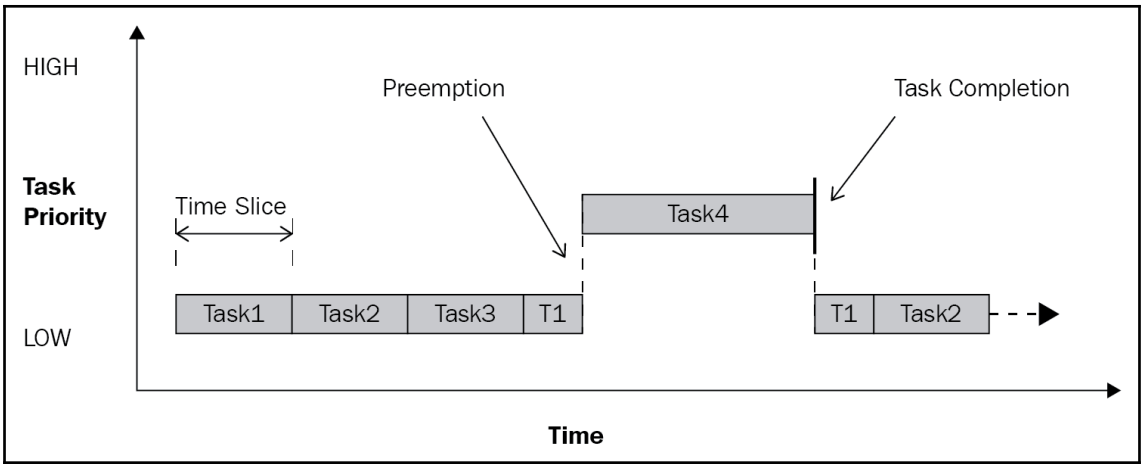

github.com
Create new file
Upload files
Find file
Clone or download
Clone with HTTPS
Use SSH
Use Git or checkout with SVN using the web URL.
https://github.com/benedict-jw/Ben-204
Open in Desktop
Download ZIP
updating sdk
Update Code Signing Identity
Update m2048-Info.plist
a month ago
Initial Commit
2 years ago

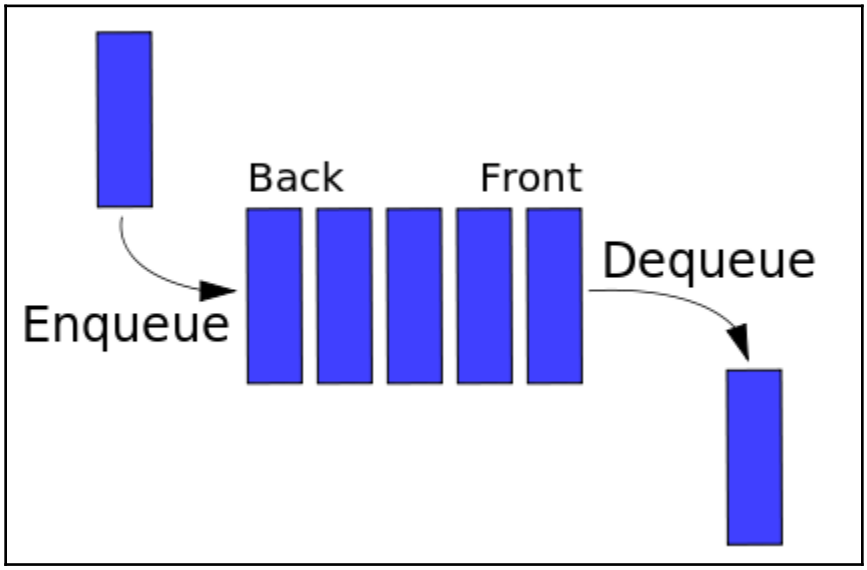
Chapter 2: Amdahl's Law

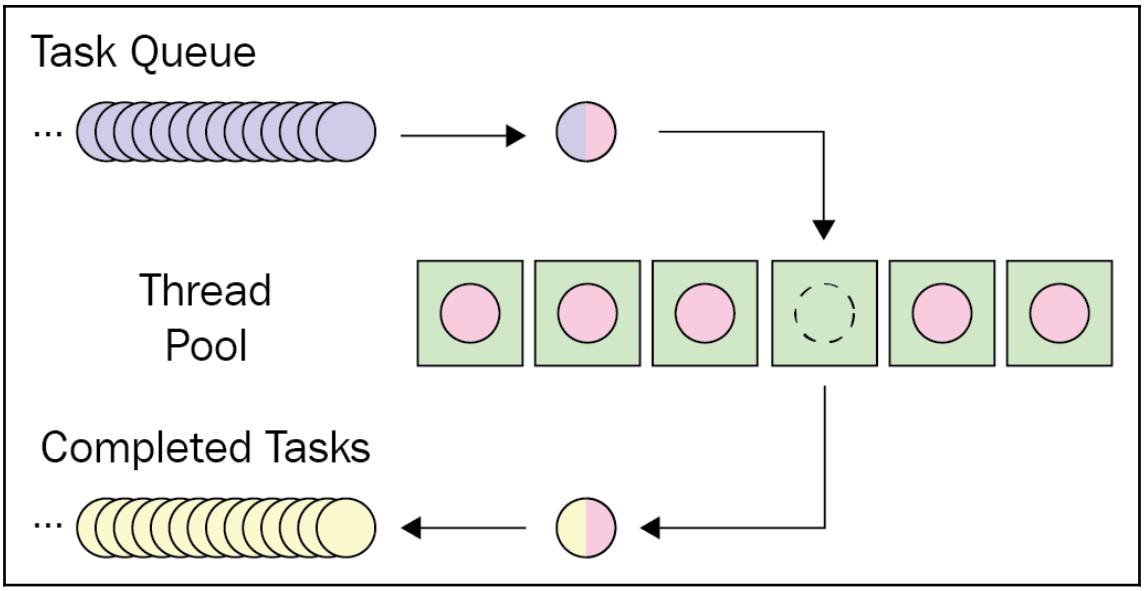


Chapter 3: Working with Threads in Python




HIGH
Task
Priority
LOW
Preemption
Task Completion
Time Slice
Task4
Task1
Task2
Task3
T1
T1
Task2
Time


Back
Front
Dequeue
Enqueue


Task Queue
...
Thread
Pool
Completed Tasks
...

Chapter 4: Using the with Statement in Threads

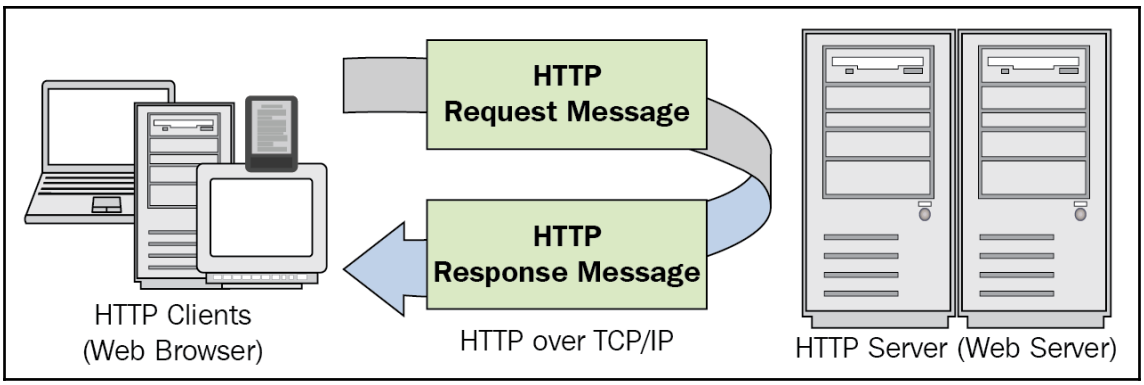
No images

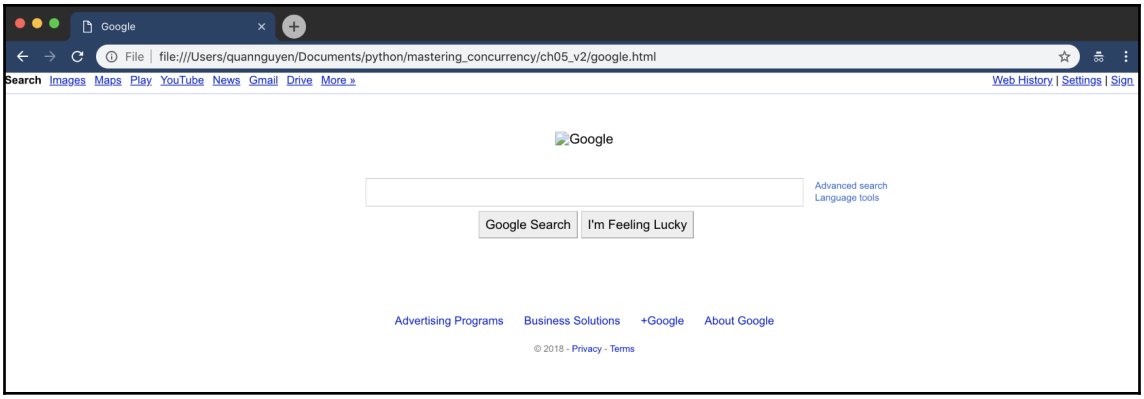
Chapter 5: Concurrent Web Requests

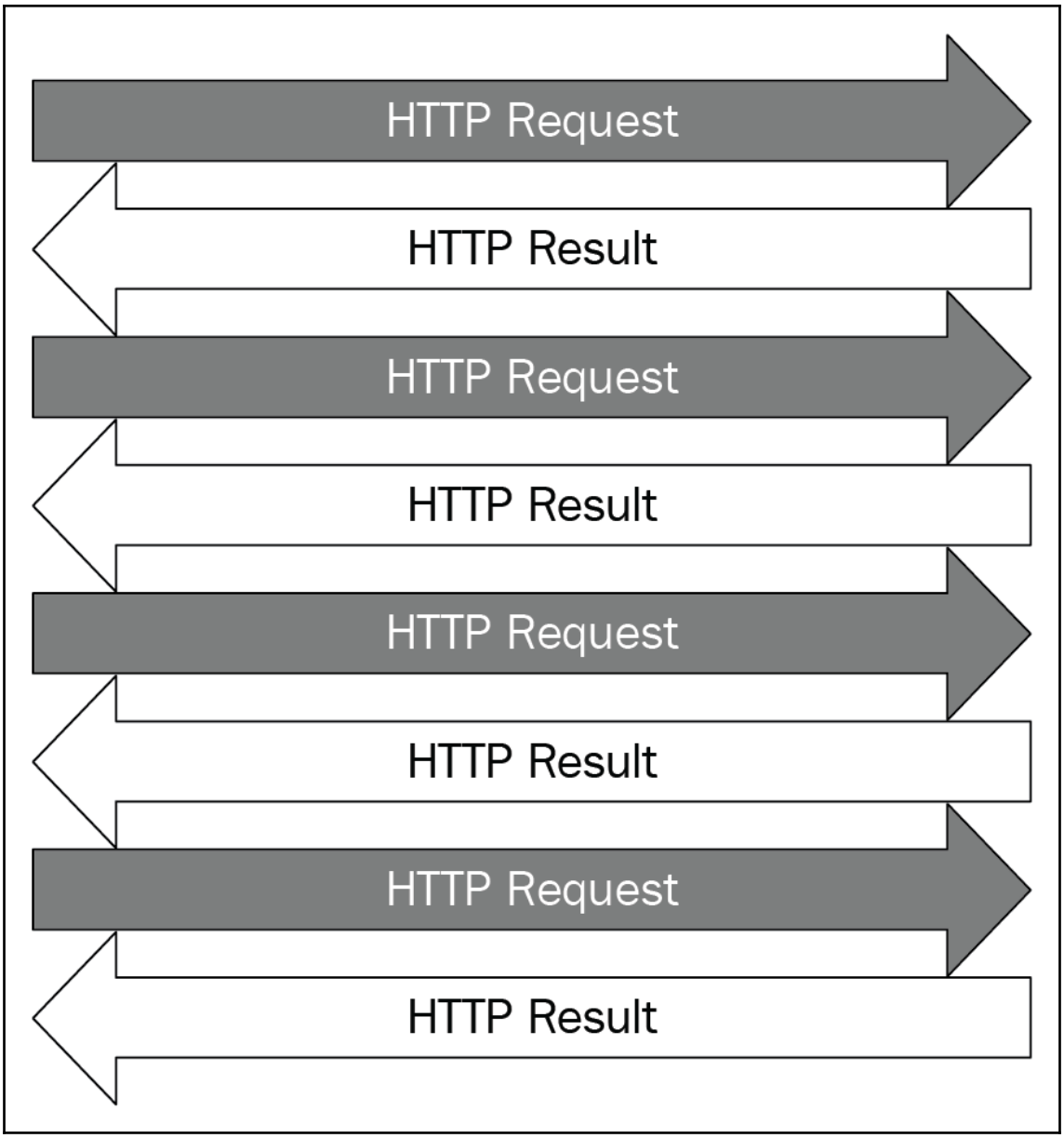
index.html | reuseheader.html | reusefooter.html | menu.html | events.html | styles.css

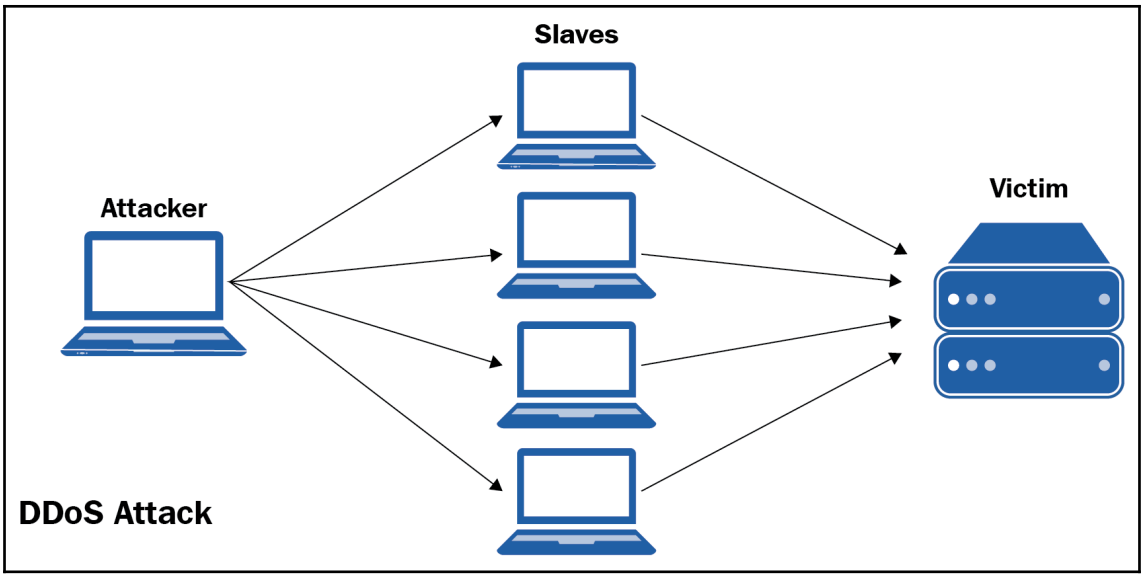
```
1
2  <div class="topNavTop">
3      <p>Welcome to Chilli restaurant</p>
4      <div class="topNavRight">
5          <img src="assets/top-nav/icon-phone.png">
6          <p>416-455-3221</p>
7          <img src="assets/top-nav/icon-email.png">
8          <p>info@company.com</p>
9          <img src="assets/top-nav/icon-magnifying-glass.png">
10     </div>
11 </div>
12 <div class="topNavBottom">
13     <img src="assets/chilli-logo.png">
14     <div class="topNavRightBottom">
15         <a href="index.html">HOME</a>
16         <a href="menu.html">MENU</a>
17         <a href="events.html">EVENTS</a>
18         <a href="#contact">CONTACT</a>
19     </div>
20 </div>
```

Line 1, Column 1 | 1 misspelled word | Tab Size: 4

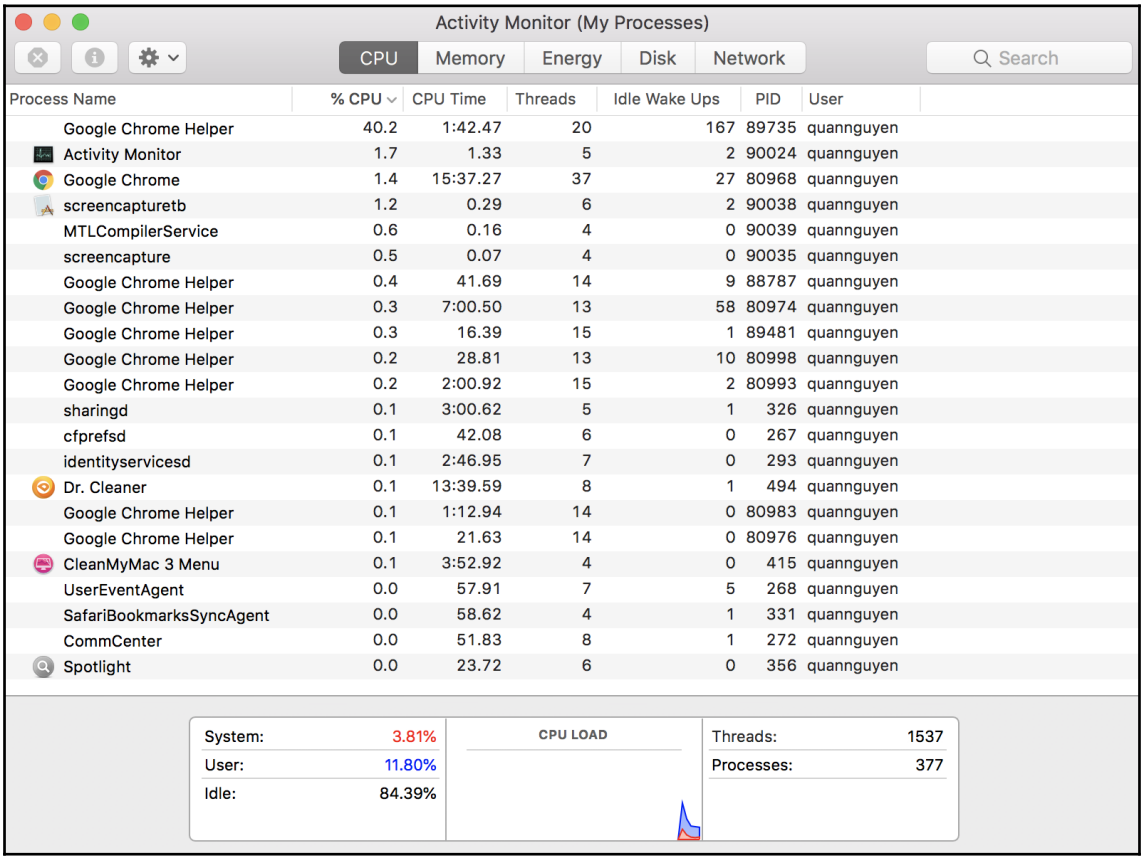


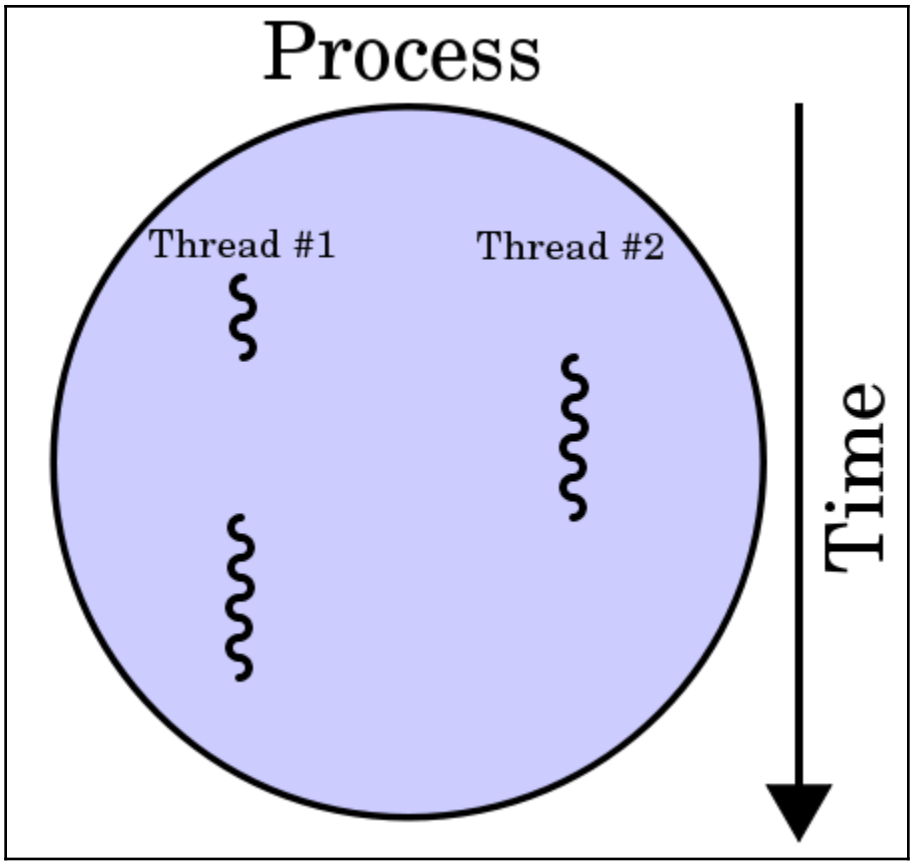

Google
File | file:///Users/quannguyen/Documents/python/mastering_concurrency/ch05_v2/google.html
Search Images Maps Play YouTube News Gmail Drive More »
Web History | Settings | Sign
Google
Advanced search
Language tools
Google Search
I'm Feeling Lucky
Advertising Programs
Business Solutions
+Google
About Google
© 2018 - Privacy - Terms

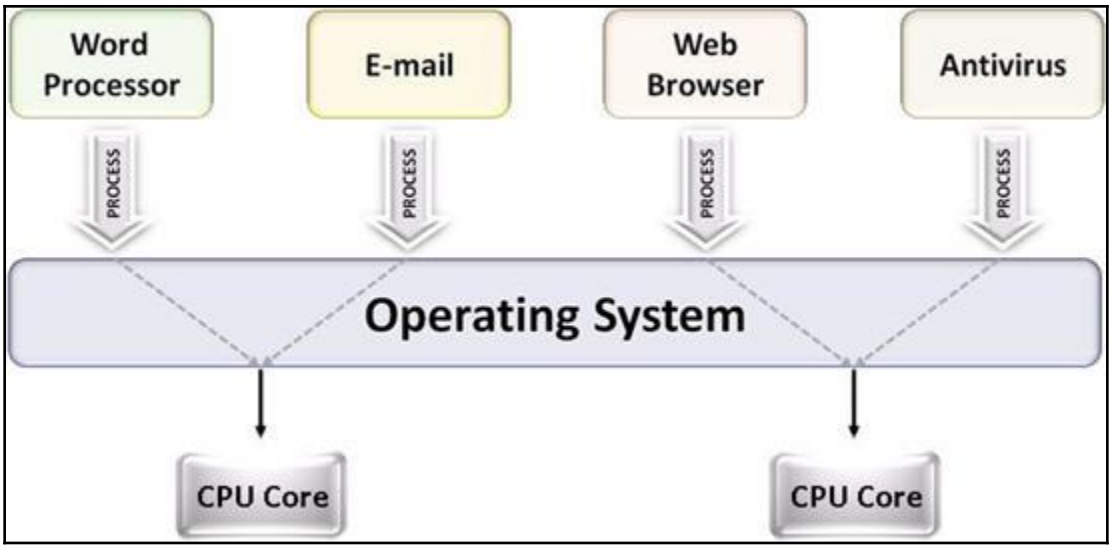

HTTP Request
HTTP Result
HTTP Request
HTTP Result
HTTP Request
HTTP Result
HTTP Request
HTTP Result


Slaves
Attacker
Victim
DDoS Attack

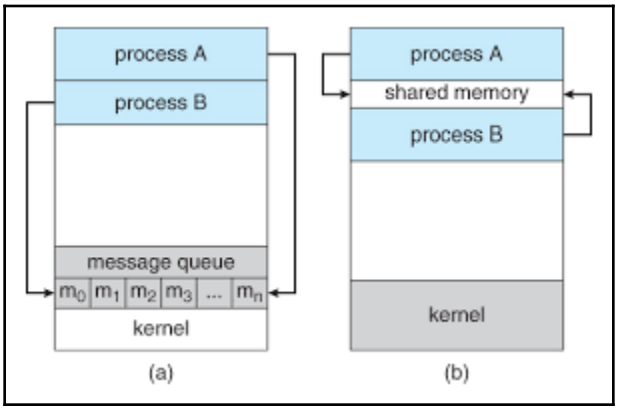
Chapter 6: Working with Processes in Python



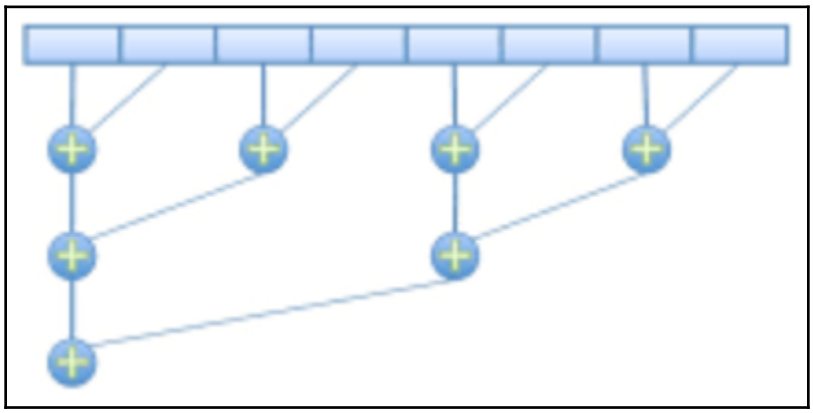

Process
Thread #1
Thread #2
Time



Process Name	% CPU	CPU Time	Threads	Idle Wake Ups	PID ^	User
Terminal	0.0	41.16	6	0	14803	quannguyen
MTLCompilerService	0.0	0.13	2	0	14804	quannguyen
bash	0.0	0.39	1	0	14806	quannguyen



Chapter 7: Reduction Operators in Processes



Iteration 1

Task queue:

1	4	8	3	2	5

Result queue:

5	11	7

Iteration 2

Task queue:

5	11	7

Result queue:

16	7

Iteration 3

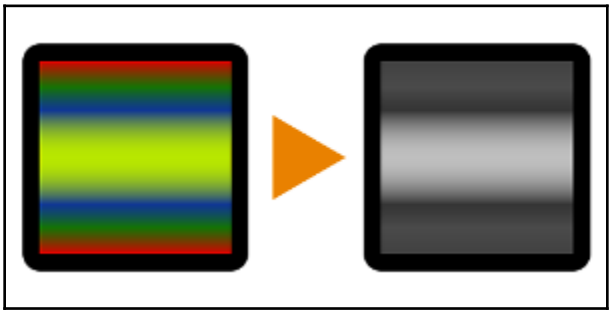
Task queue:

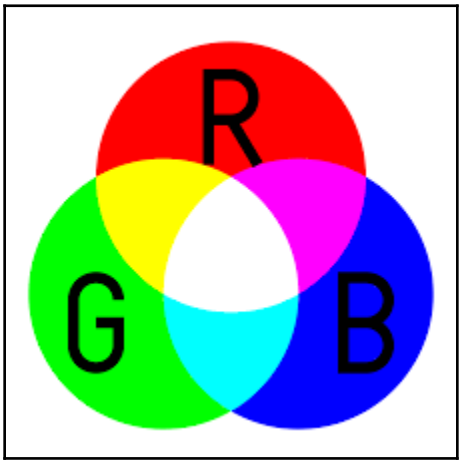
16	7

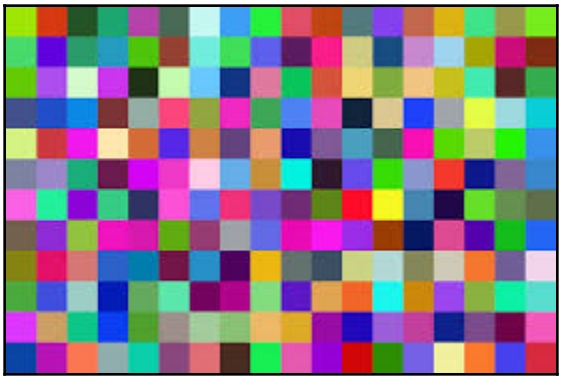
Result queue:

23

Chapter 8: Concurrent Image Processing

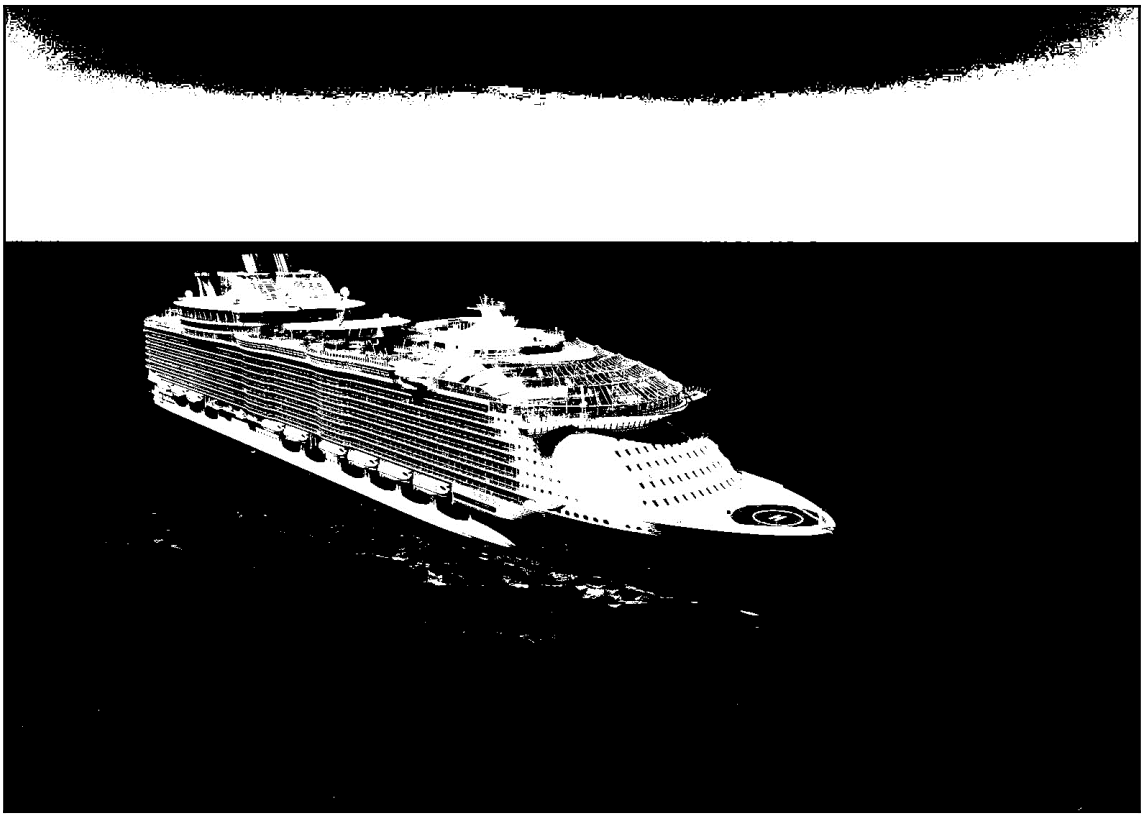


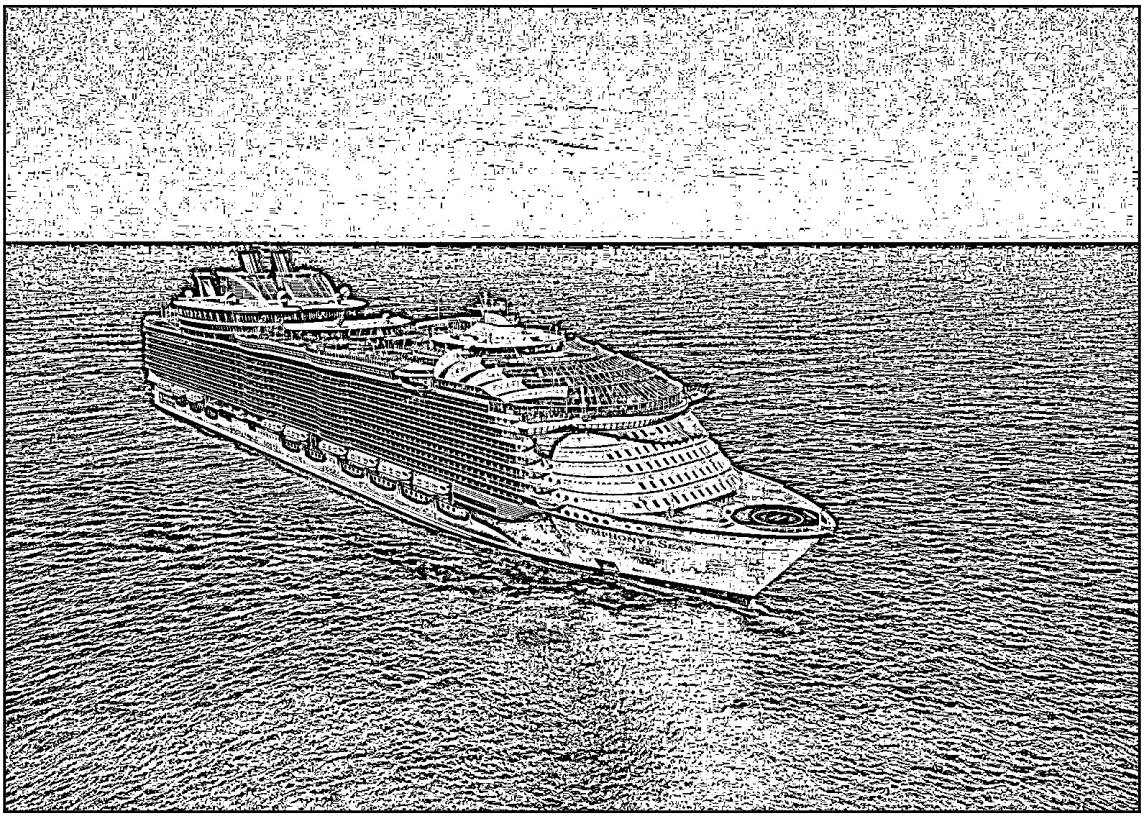


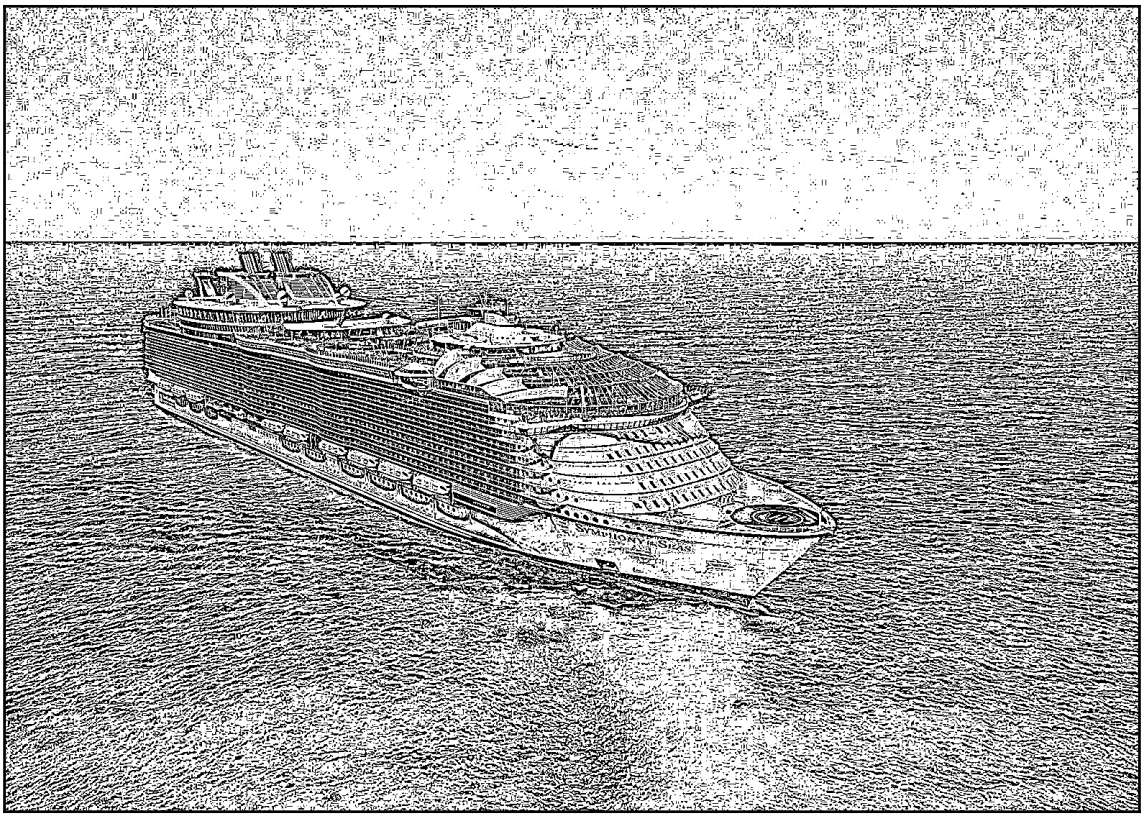


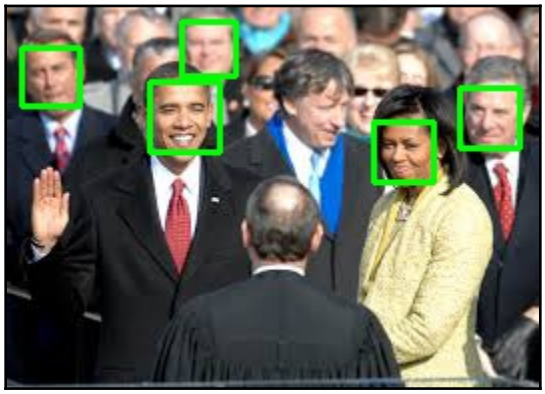

SYMPHONY of the SEAS

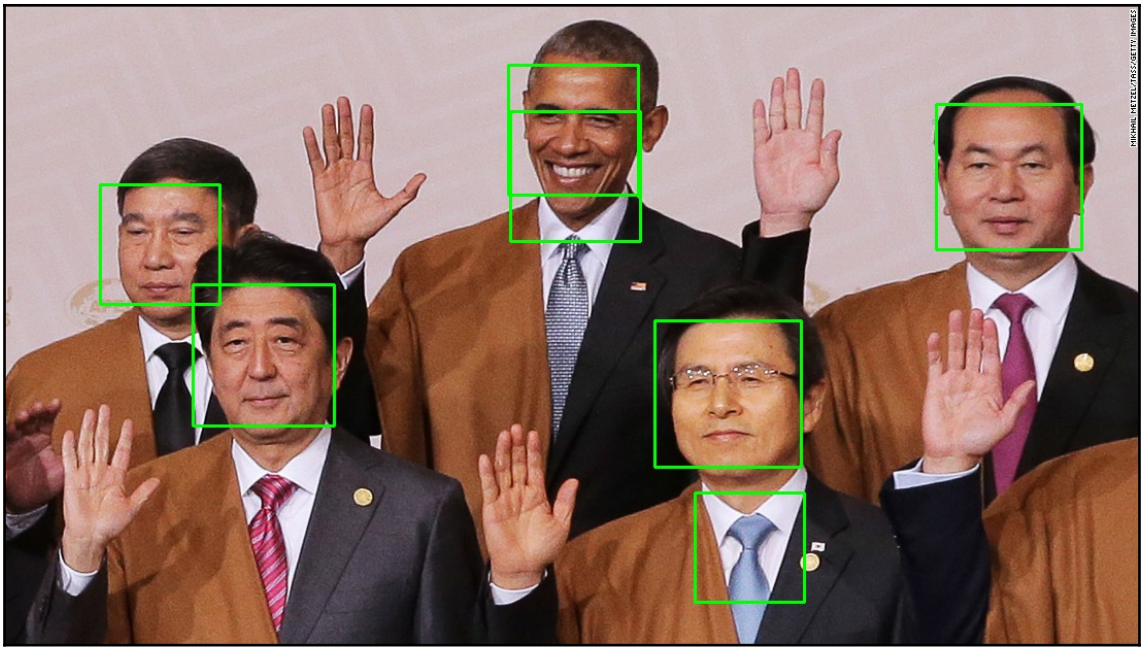

SYMPHONY of the SEAS



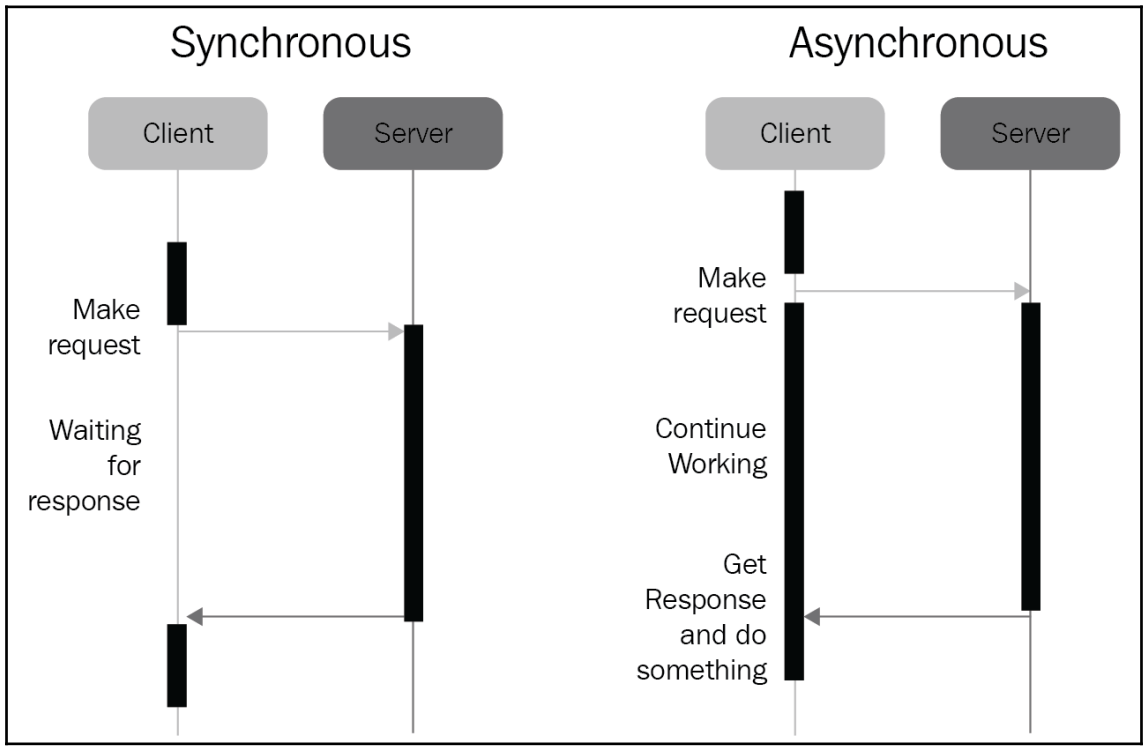




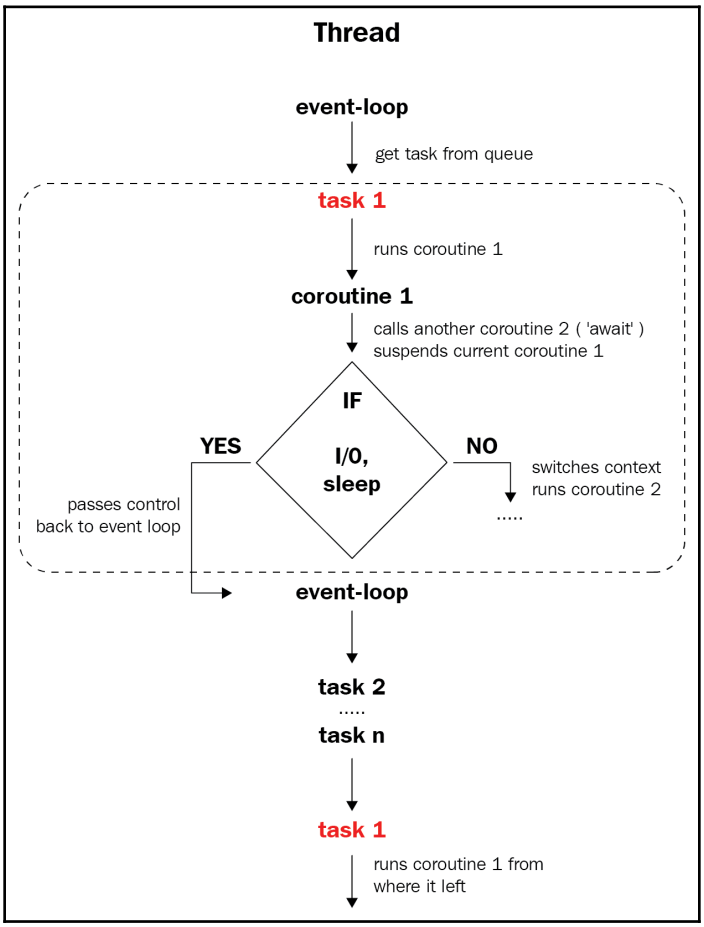


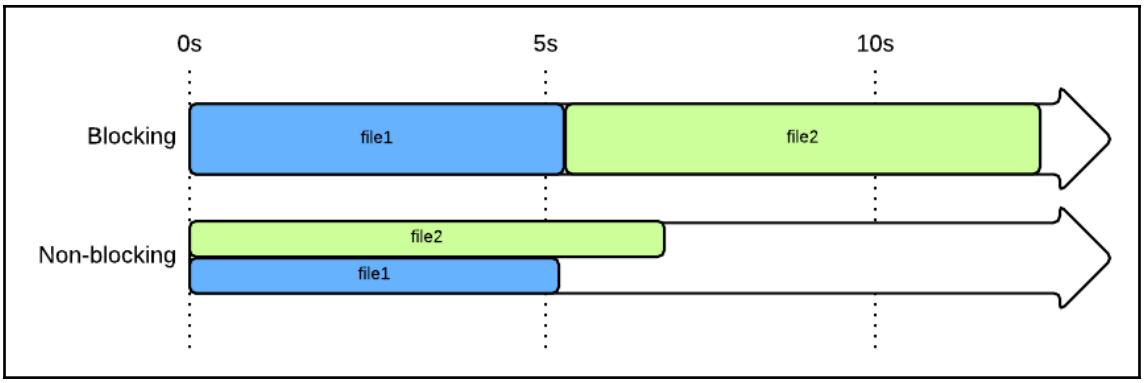

MICHAEL HEITZEL/AFP/GETTY IMAGES

Chapter 9: Introduction to Asynchronous Programming

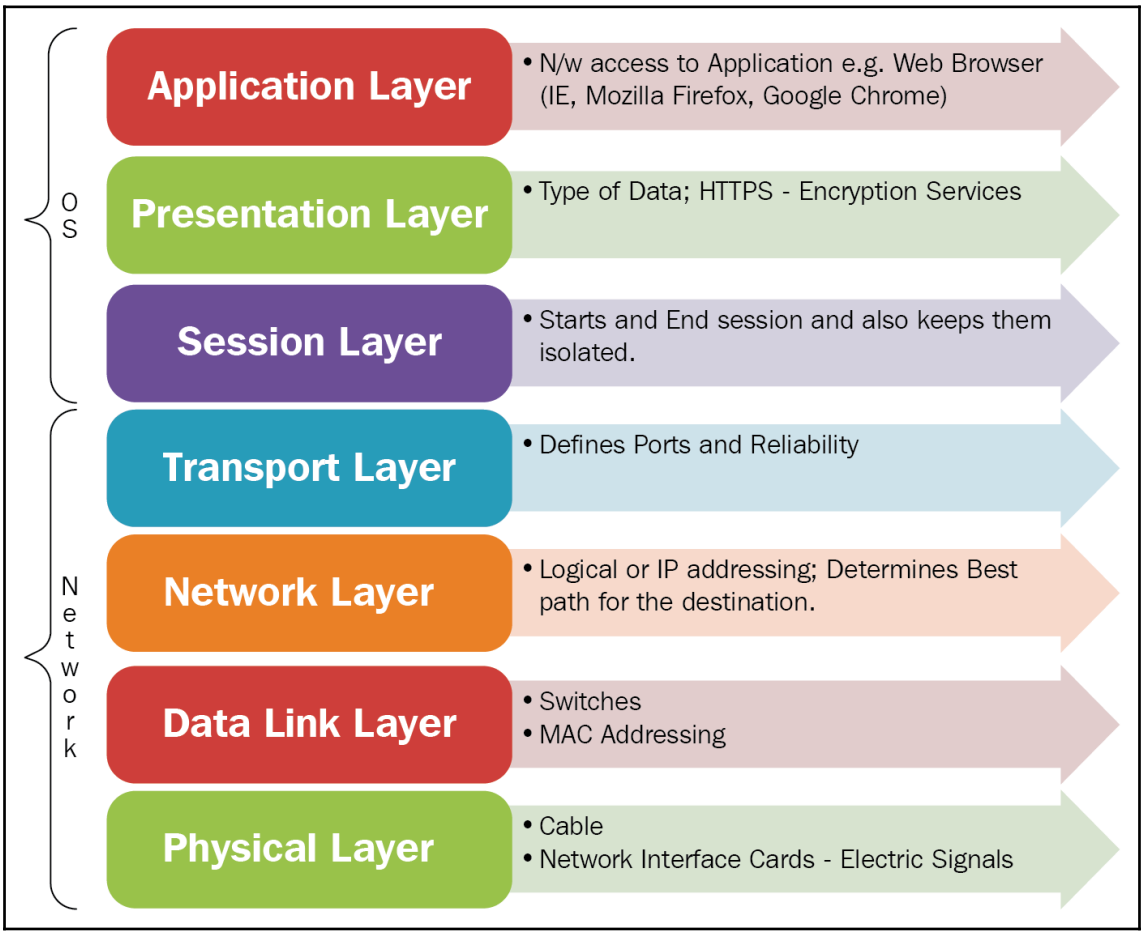


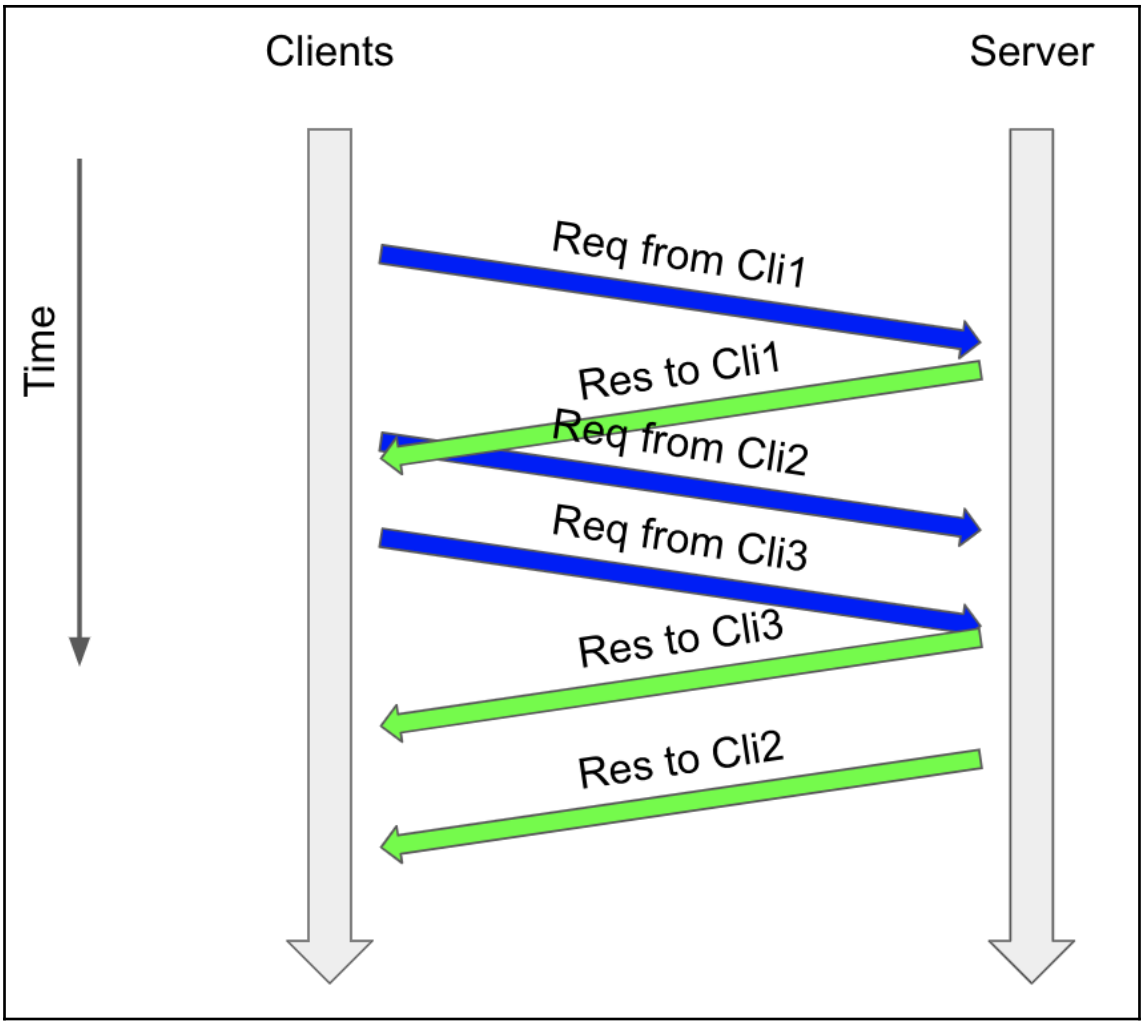
Chapter 10: Implementing Asynchronous Programming in Python

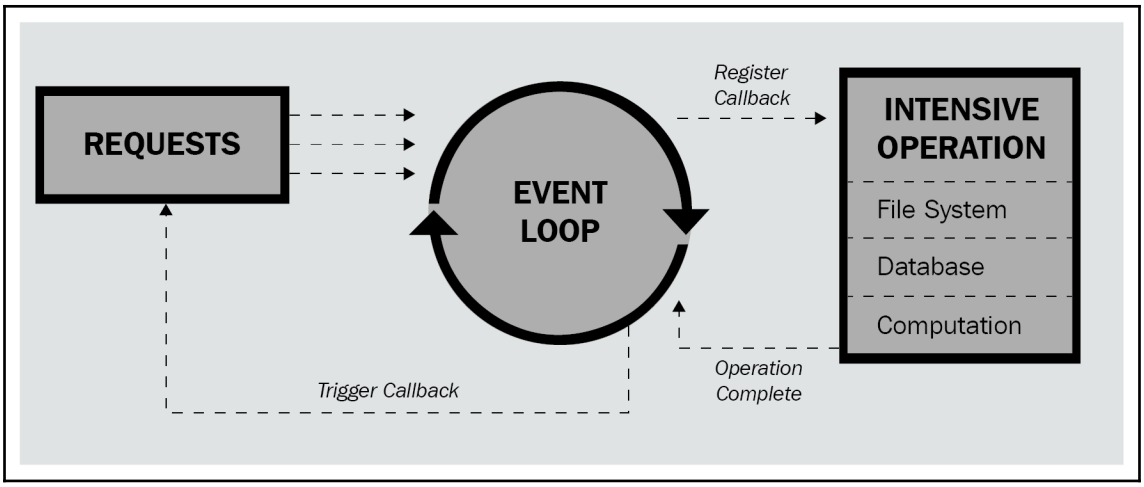



0s
5s
10s
Blocking
file1
file2
Non-blocking
file2
file1

Chapter 11: Building Communication Channels with asyncio

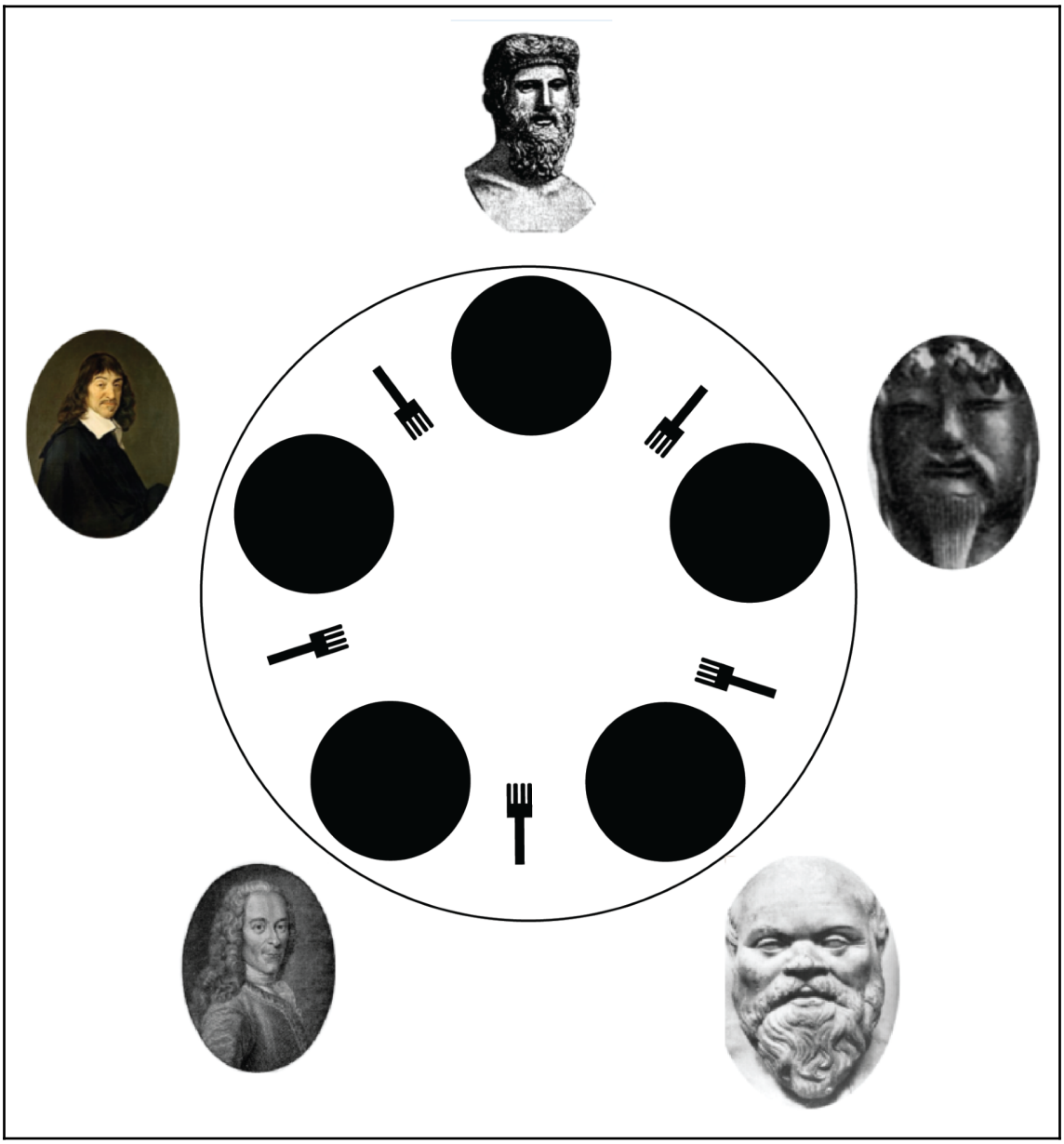


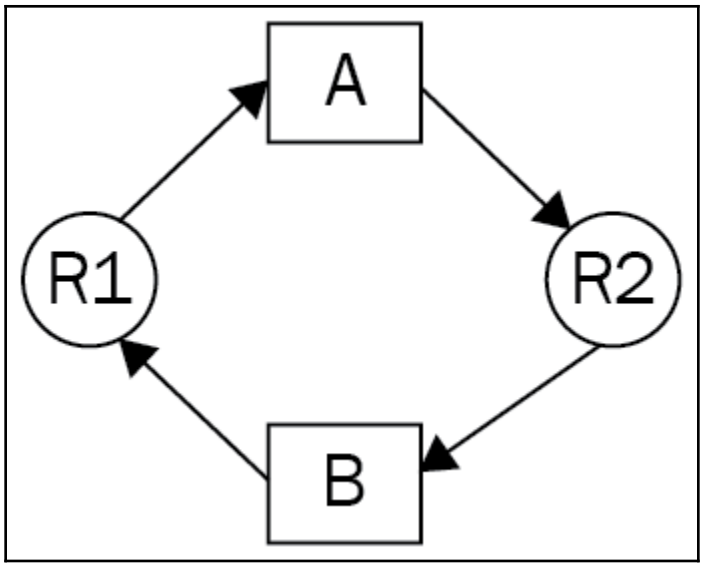

Clients
Server
Time
Req from Cli1
Res to Cli1
Req from Cli2
Req from Cli3
Res to Cli3
Res to Cli2

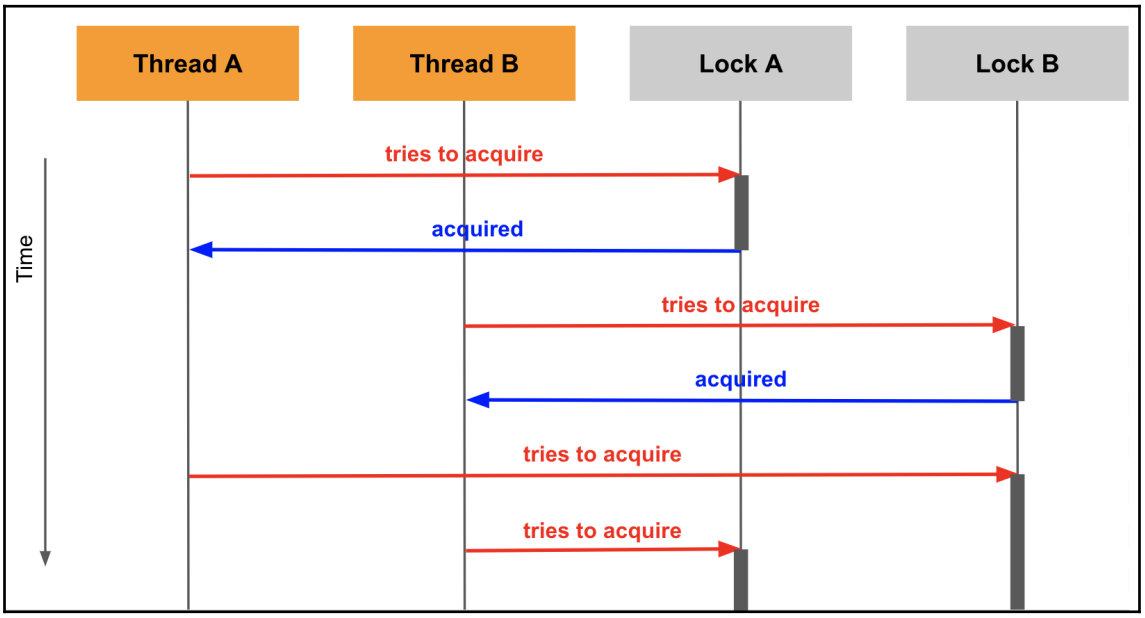



```
ch11 — Quan's Terminal — -bash — 150×40
> python3 example4.py
<!DOCTYPE html>
    <html xmlns="http://www.w3.org/1999/xhtml" lang="en" xml:lang="en">
    <head>
        <title>Packt Publishing | Technology Books, eBooks & Videos</title>
        <script>
            dataLayer = [];
        </script>
        <script type="text/javascript" src="https://d1ldz4te4covpm.cloudfront.net/sites/all/themes/packt_v4/js/util/advertisement.js"></script>
                <script type="text/javascript">
            var data_layer_page_type = 'home';
        </script>
        <meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
<link rel="shortcut icon" href="https://d1ldz4te4covpm.cloudfront.net/misc/favicon.ico" type="image/x-icon" />
<meta name="description" content="Packt Publishing is the leading UK provider of Technology eBooks, Coding eBooks, Videos and Blogs; helping IT profes
sionals to put software to work." />
<meta name="revisit-after" content="1 day" />
        <link rel="canonical" href="https://www.packtpub.com"/>

        <meta name="twitter:card" content="summary_large_image">
        <meta name="twitter:site" content="@PacktPub">
        <meta name="twitter:creator" content="@PacktPub">
        <meta name="twitter:title" content="Packt Publishing | Technology Books, eBooks & Videos"/>
        <meta name="twitter:description" content="Packt Publishing is the leading UK provider of Technology eBooks, Coding eBooks, Videos and Blogs; h
elping IT professionals to put software to work."/>
                <meta http-equiv="X-UA-Compatible" content="IE=edge" />
        <meta id="viewport" name="viewport" content="width=320, initial-scale=1.0, maximum-scale=1.0, user-scalable=0">
        <!-- <link href="//fonts.googleapis.com/css?family=Ubuntu:300,400,500,700,300italic,400italic,500italic,700italic" rel="stylesheet" type="text
/css">-->
         <link href="/sites/all/themes/packt_v4/fonts/ubuntu.css?v=1" rel="stylesheet" type="text/css">
        <!--[if lt IE 10]>
        <link href="/sites/all/themes/packt_v4/css/core/packtpub_ie.css" rel="stylesheet" type="text/css">
        <![endif]-->
        <link type="text/css" rel="stylesheet" media="all" href="https://dz13w8afd47il.cloudfront.net/sites/default/files/css/1535640391157763d5/88193
022b61633465ae9b864eeae61e3.css" />
<link type="text/css" rel="stylesheet" media="print" href="https://dz13w8afd47il.cloudfront.net/sites/default/files/css/1535640391157763d5/6e295a6eb8f
64cef4e07d9b1f02d46e8.css" />

        <script type="text/javascript" src="https://d255esdrn735hr.cloudfront.net/sites/default/files/js/15356403913941a68a/952c3ff98a6acdc36497d839e3
1aa57c.js"></script>
```

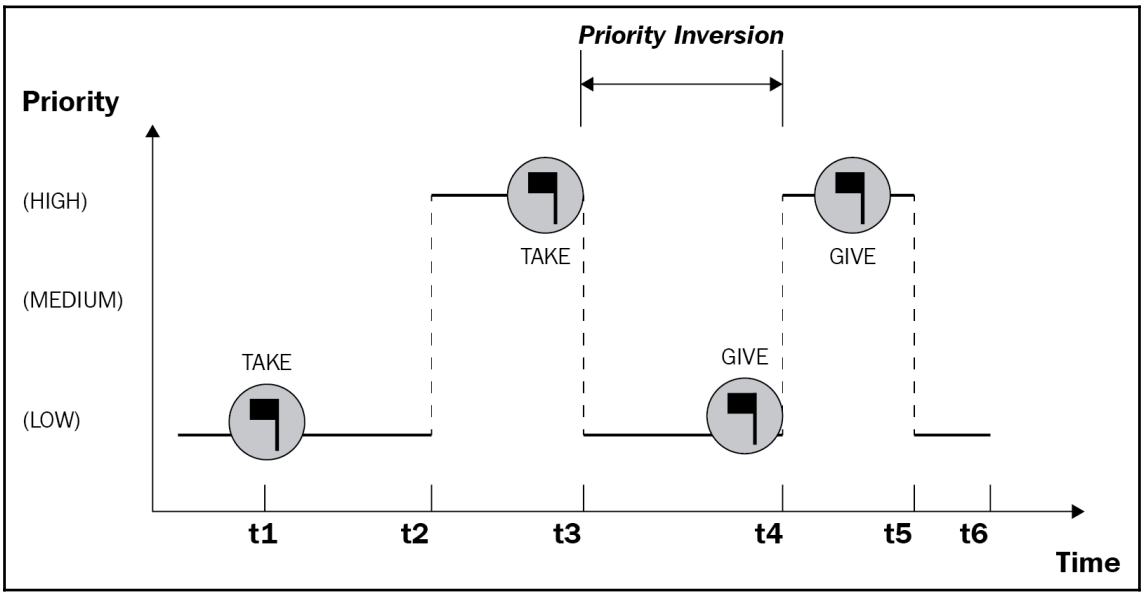
Chapter 12: Deadlocks

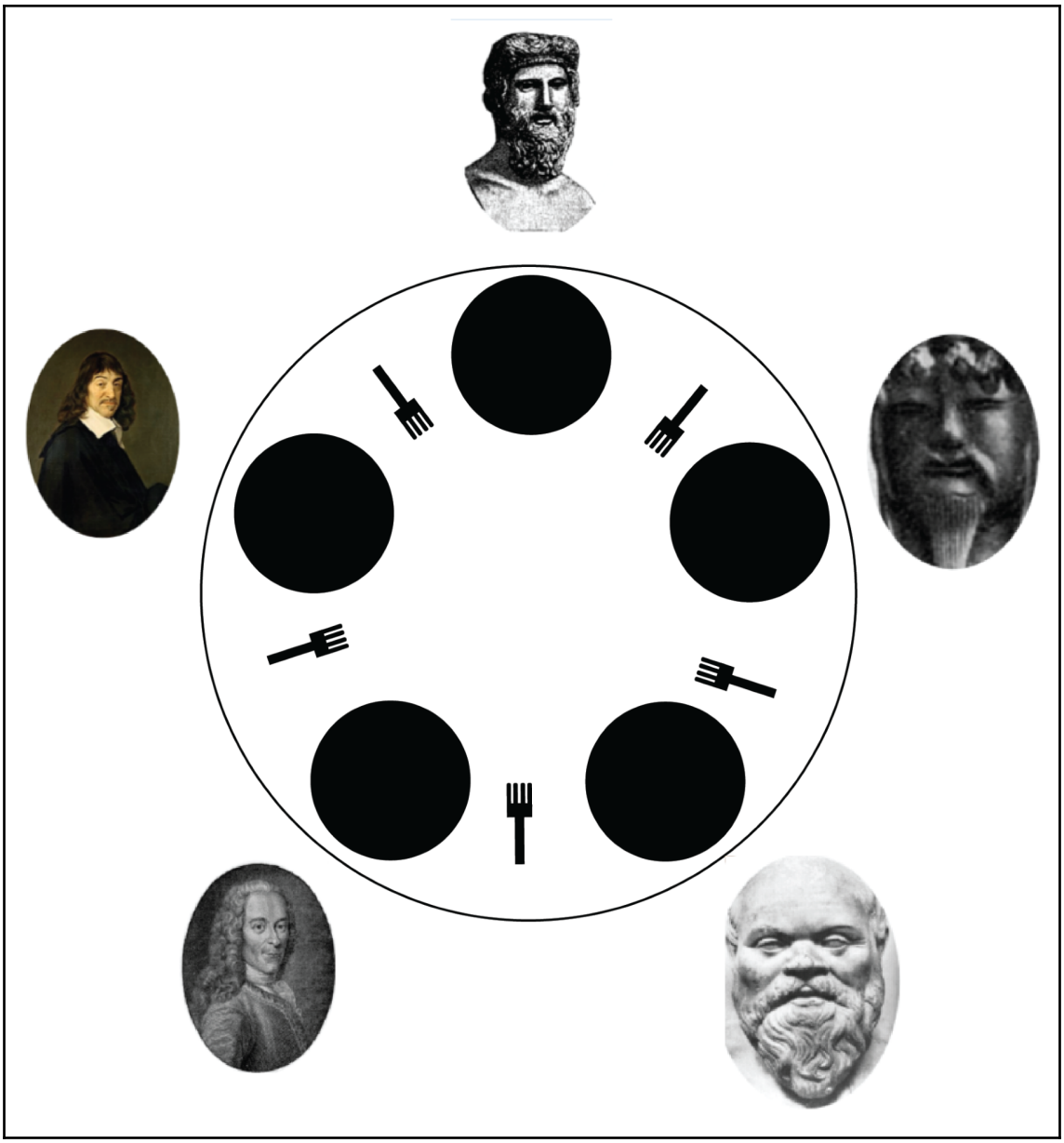



A
R1
R2
B

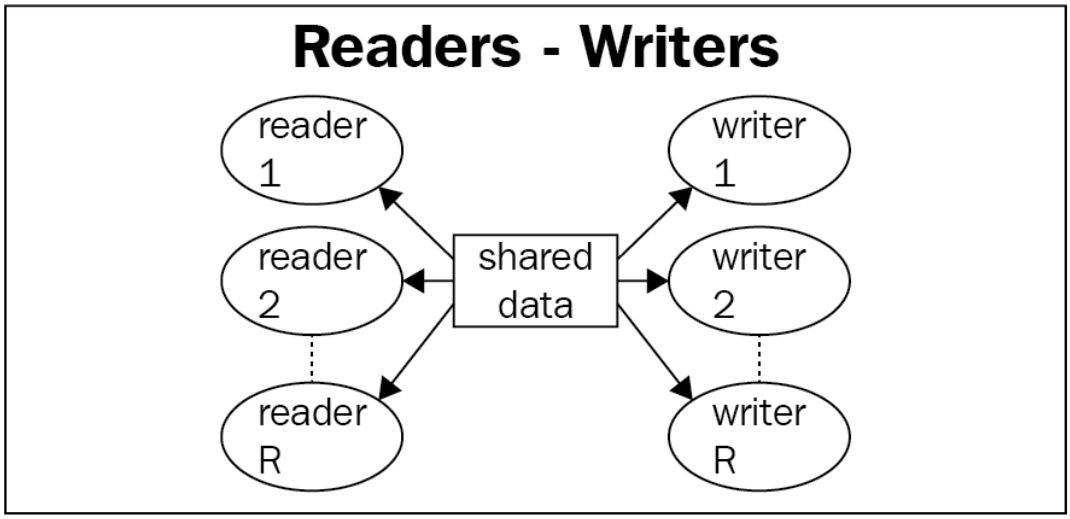

Thread A
Thread B
Lock A
Lock B
tries to acquire
acquired
tries to acquire
acquired
tries to acquire
tries to acquire
Time

Chapter 13: Starvation



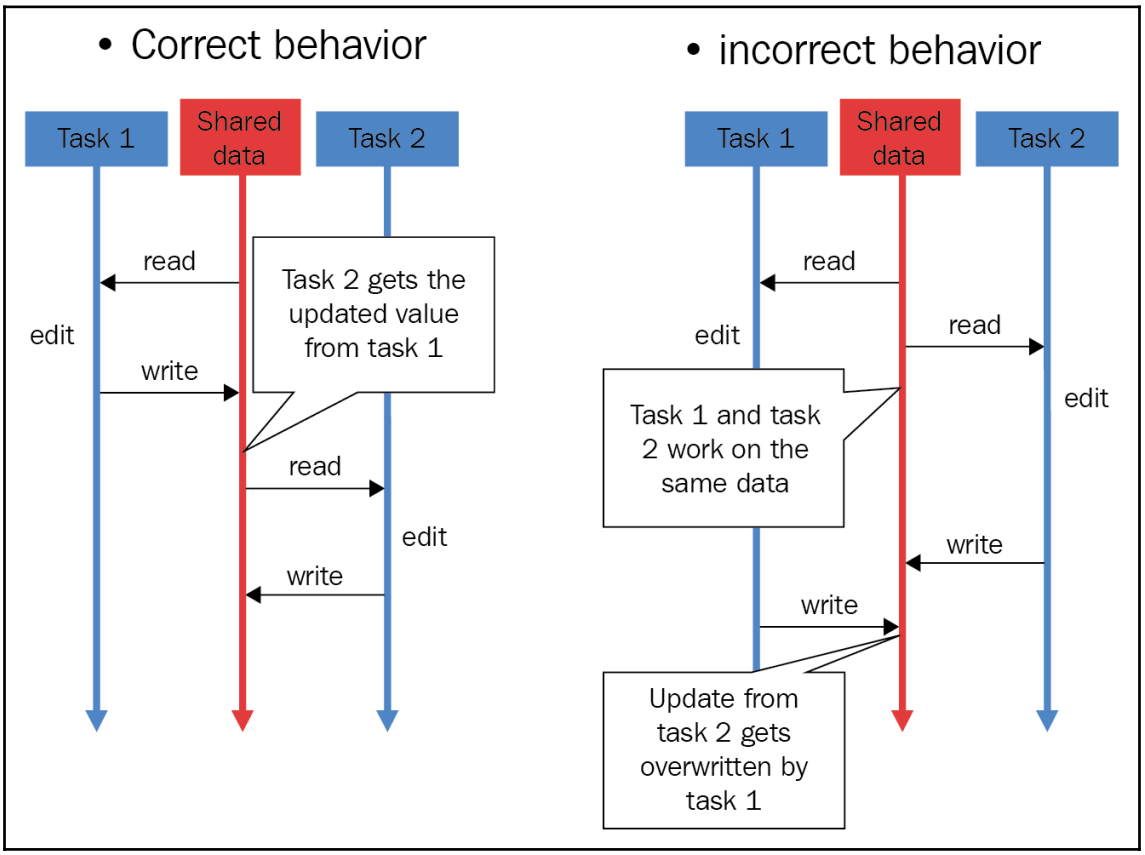


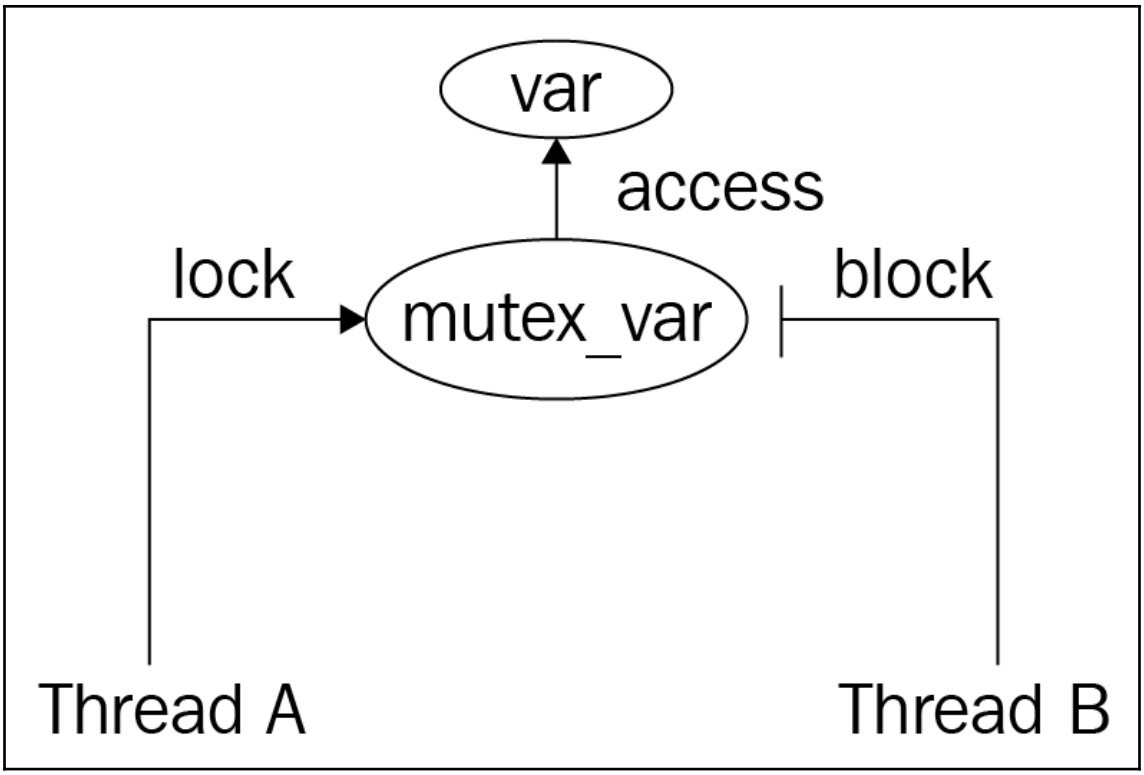
Activity of readers and writers on shared data:

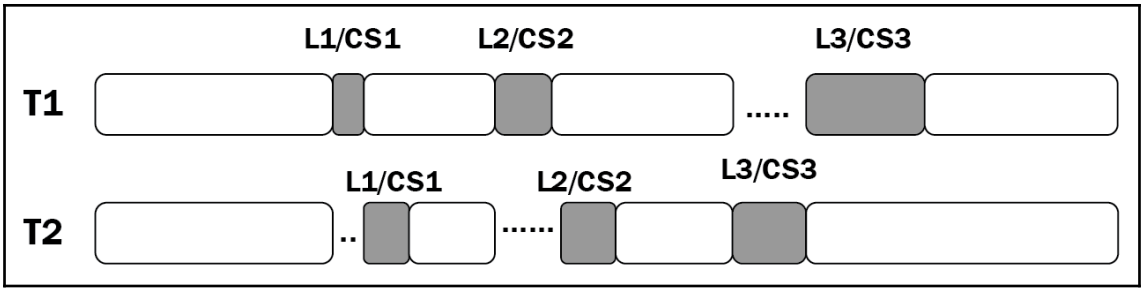


- **Readers - only read the data set do *not* perform any updates**
- **Writers - can both read and write**

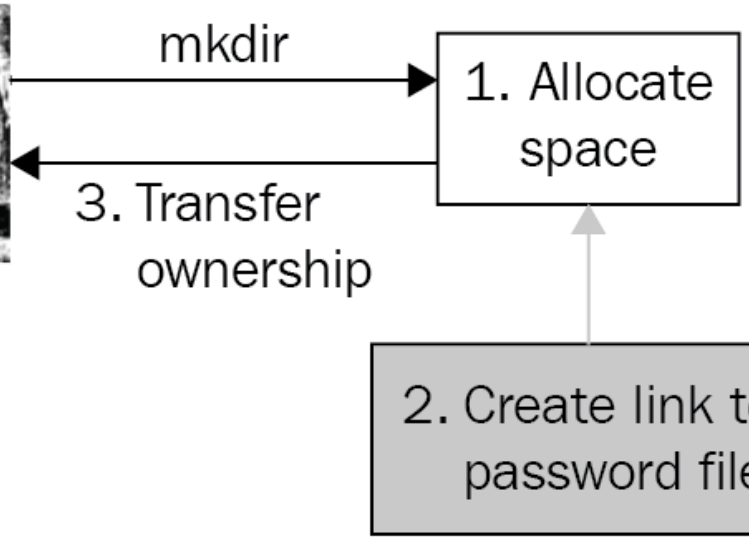
Chapter 14: Race Conditions



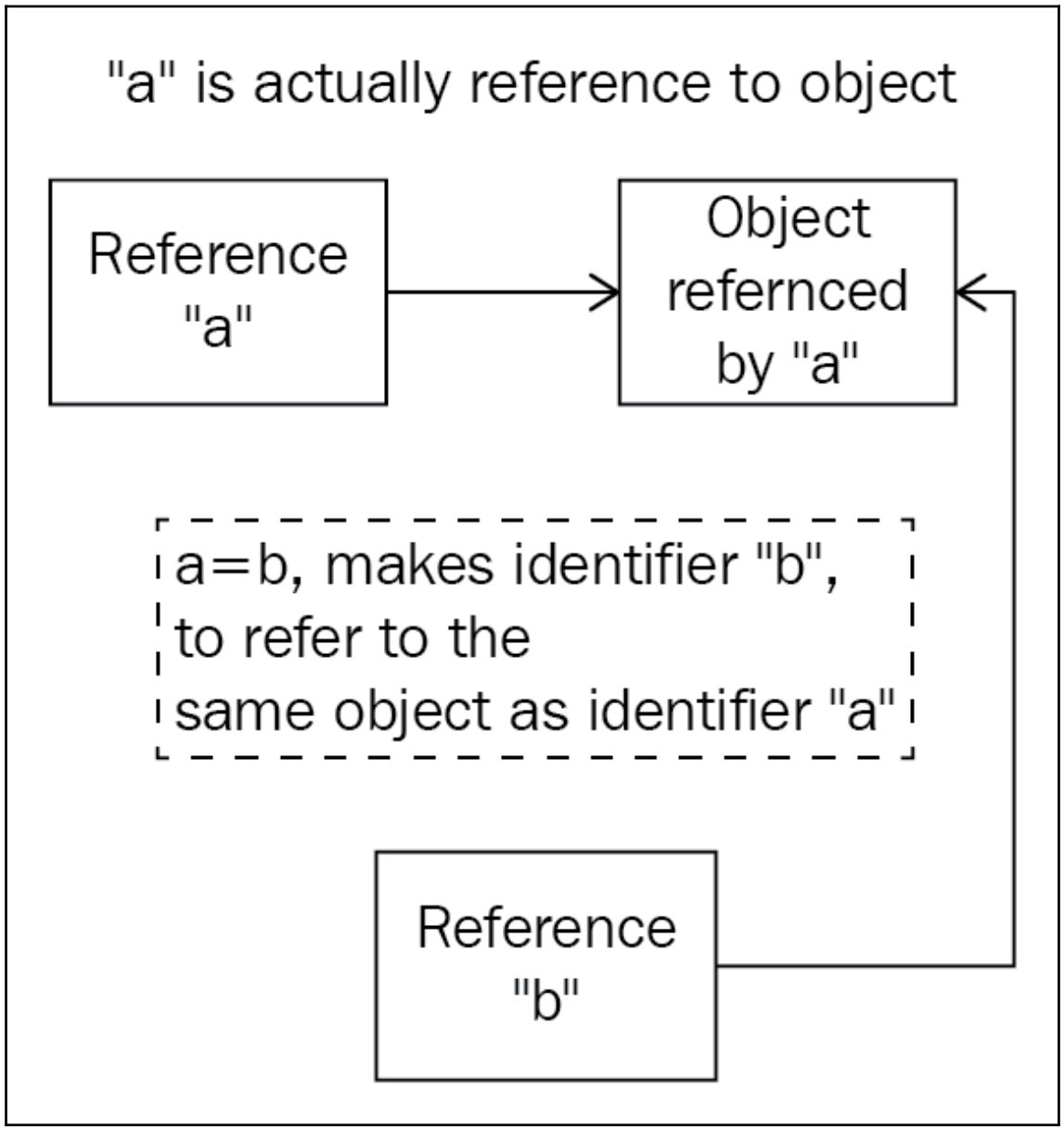

var
access
lock
mutex_var
block
Thread A
Thread B


L1/CS1
L2/CS2
L3/CS3
T1
.....
L1/CS1
L2/CS2
L3/CS3
T2
..
.....

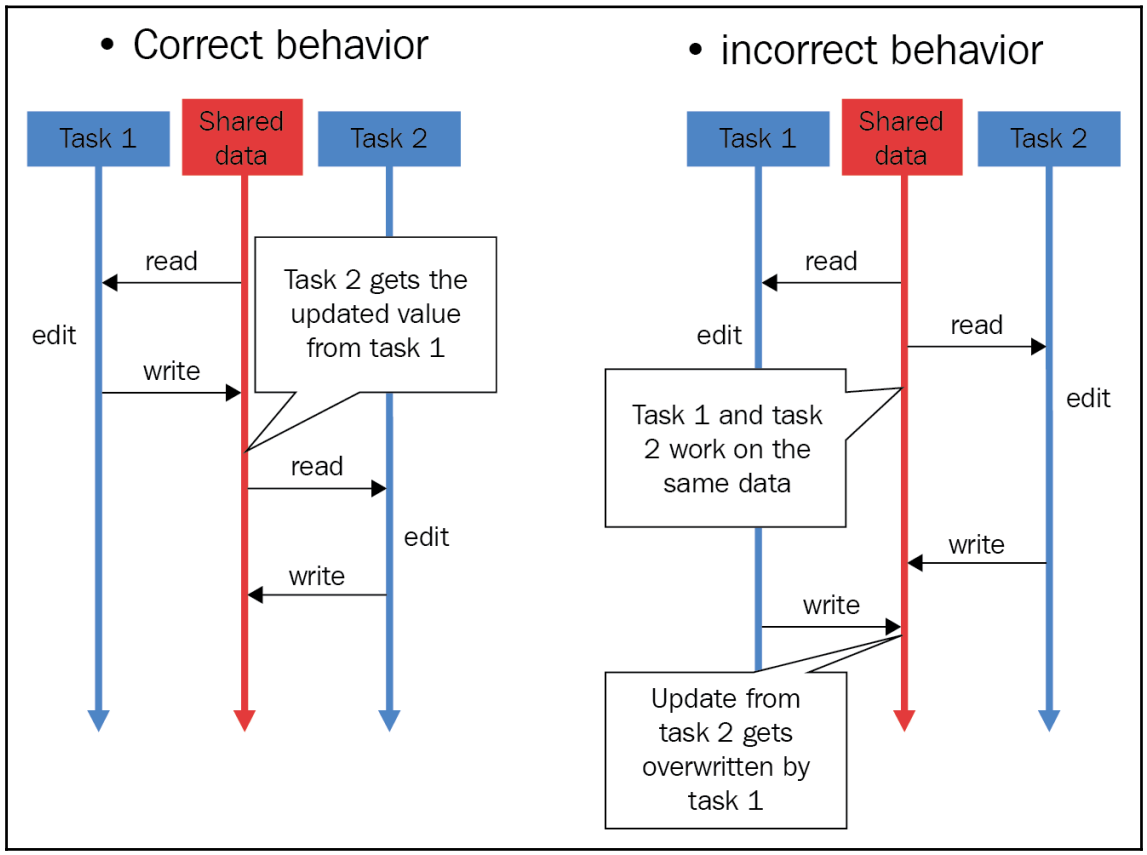
- The mkdir **race condition**

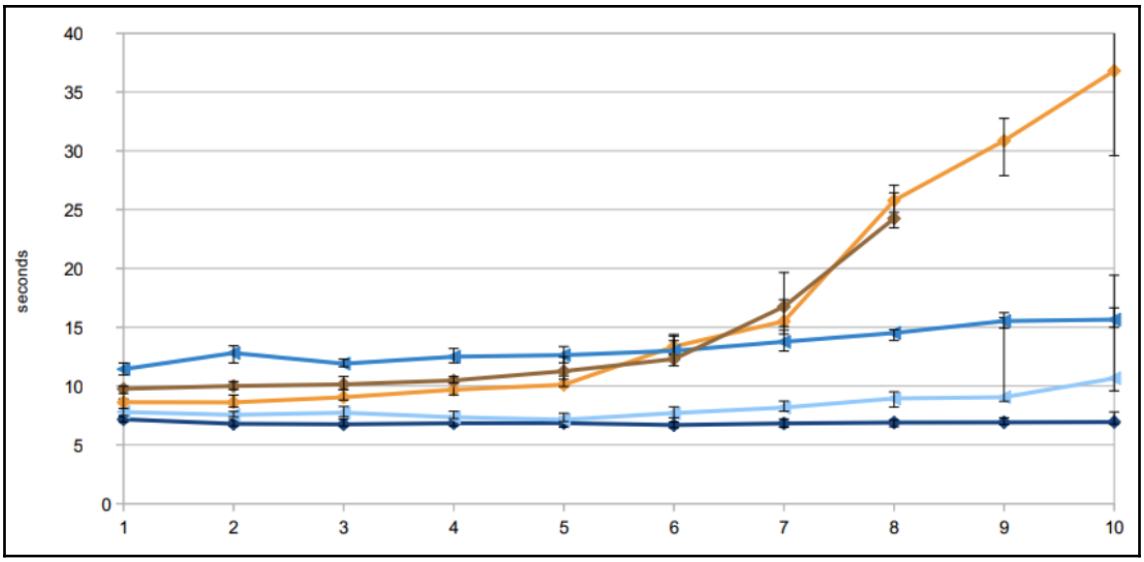


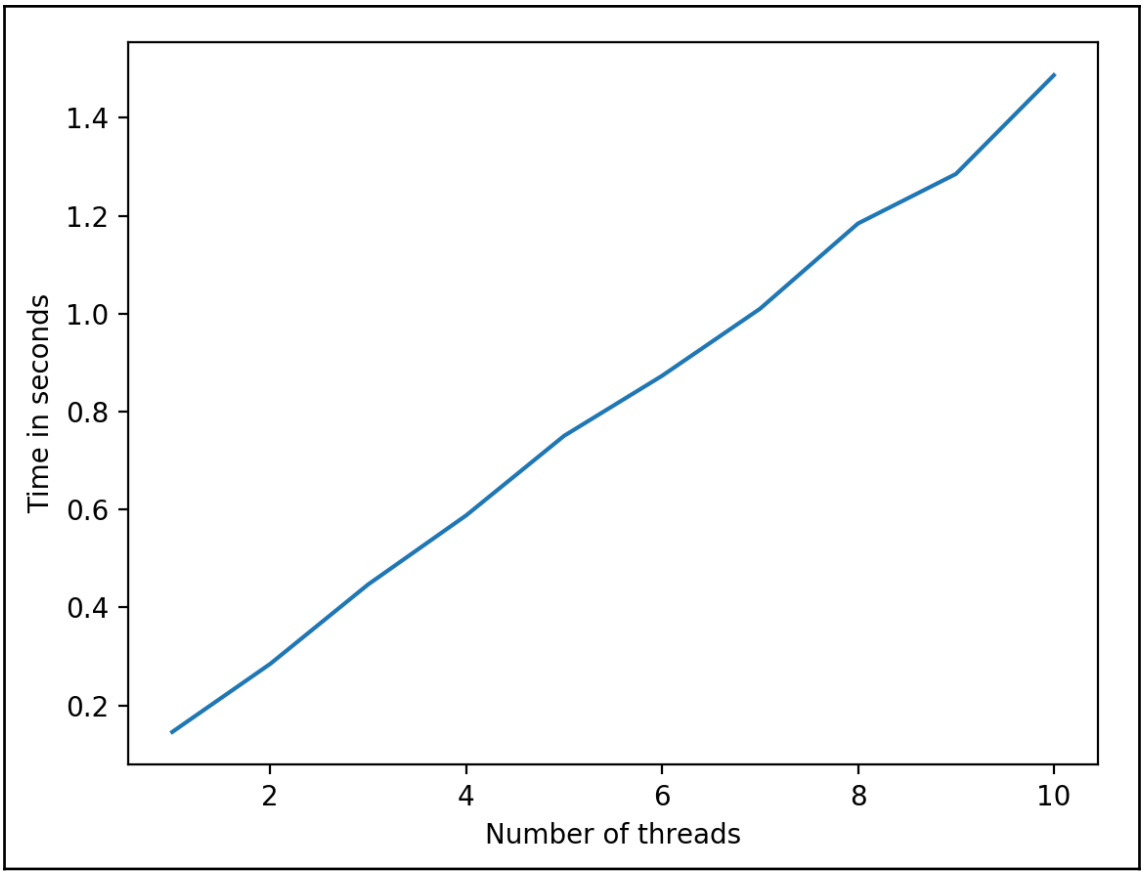
Chapter 15: The Global Interpreter Lock

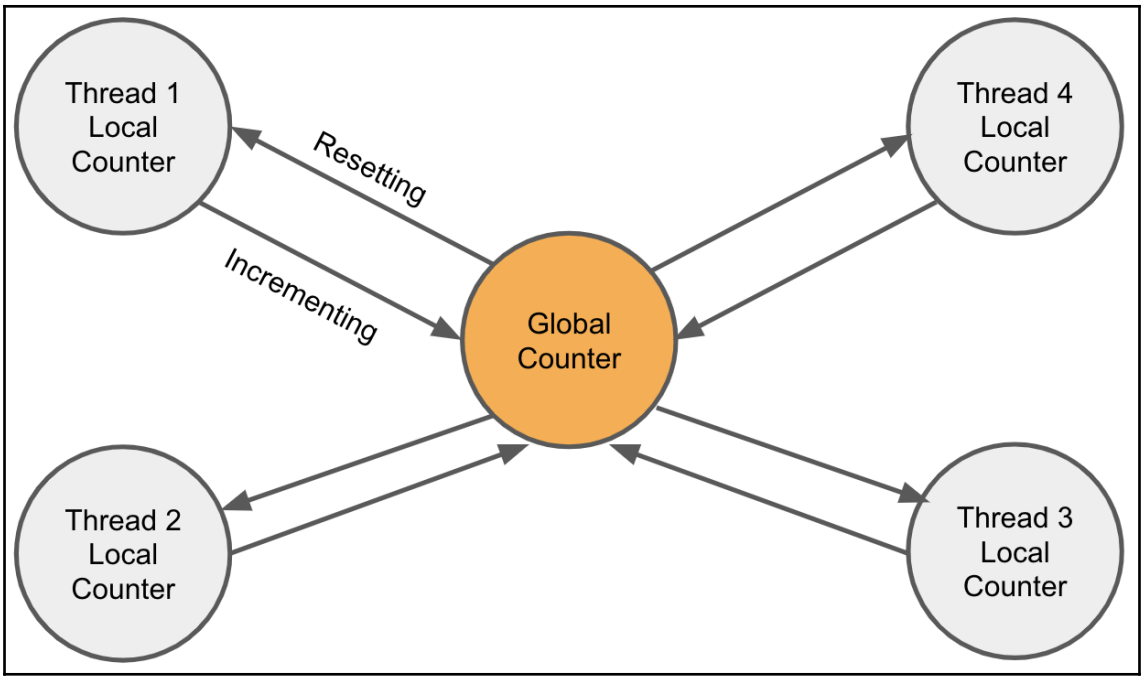


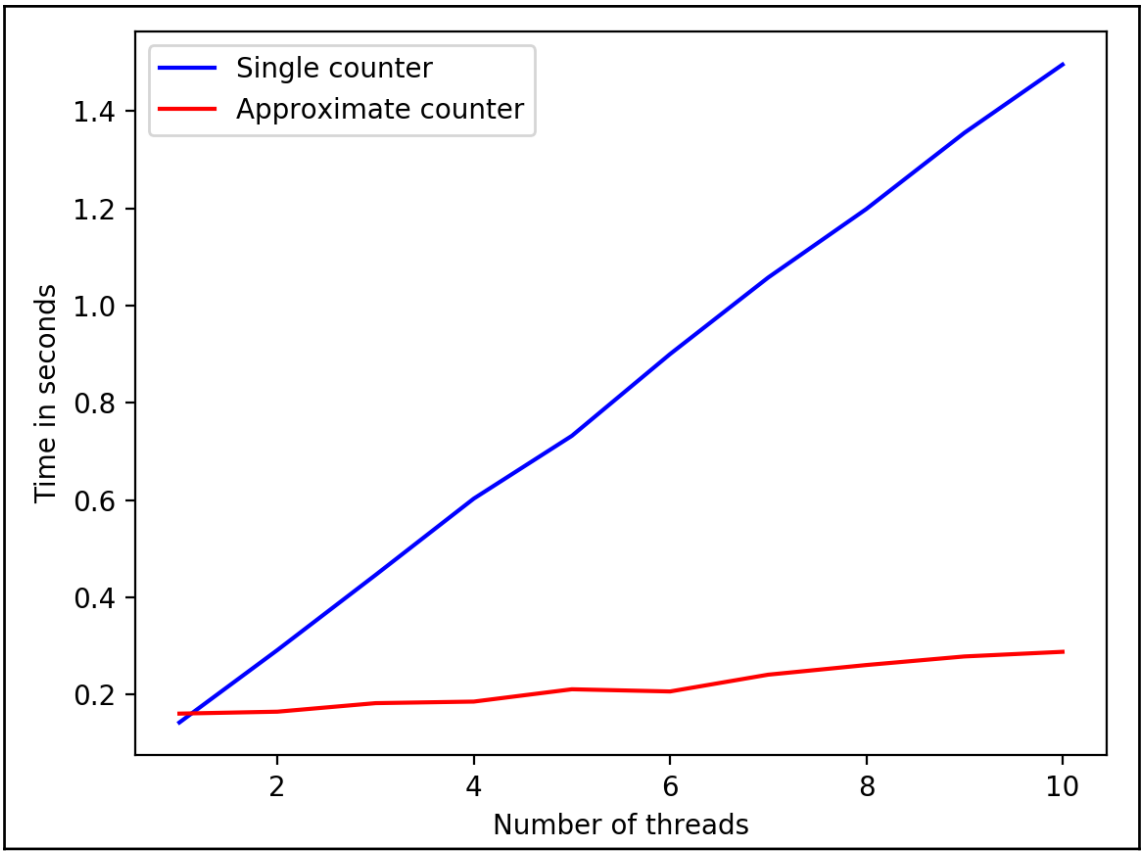
Chapter 16: Designing Lock-Based and Mutex-Free Concurrent Data Structures

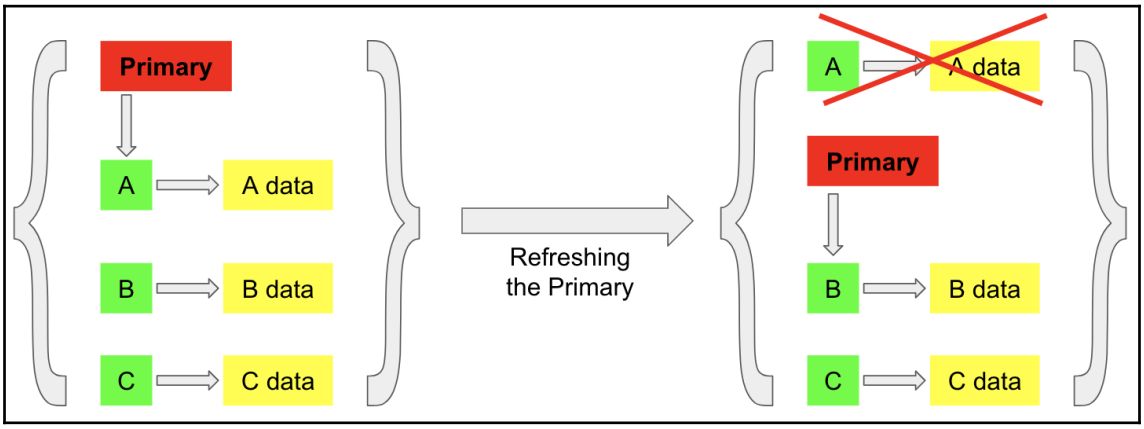


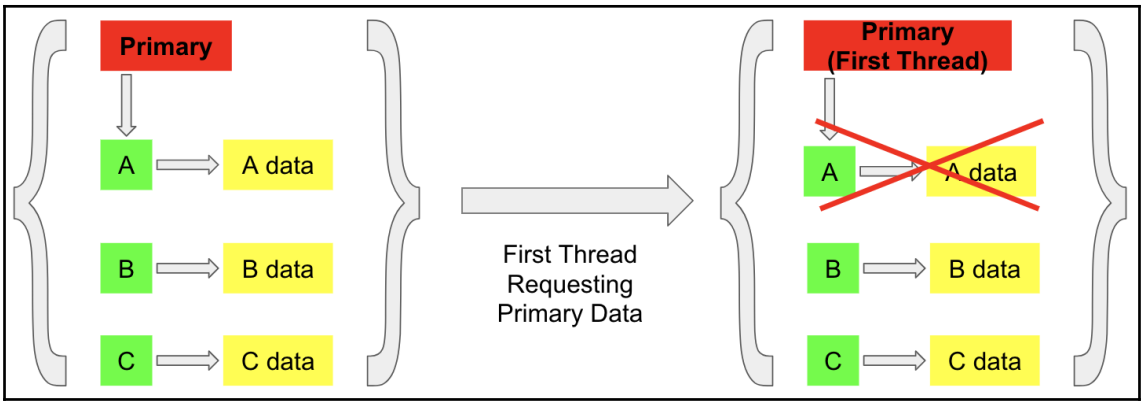

seconds
40
35
30
25
20
15
10
5
0
1
2
3
4
5
6
7
8
9
10

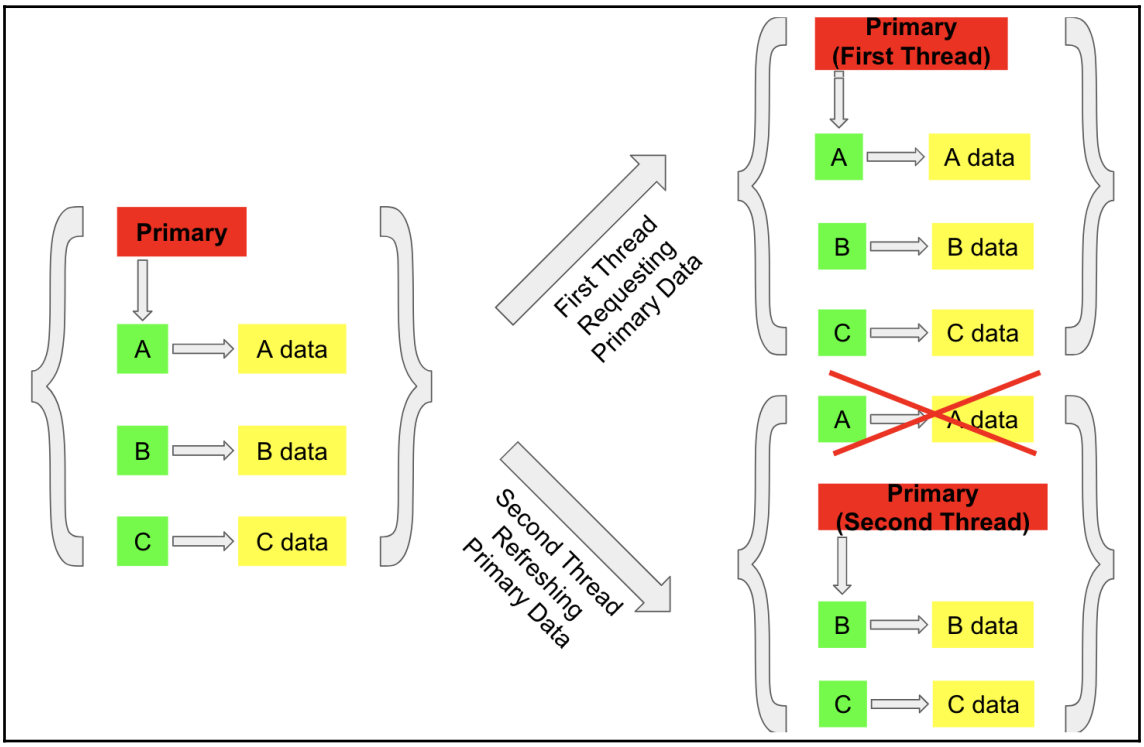

1.4
1.2
1.0
0.8
0.6
0.4
0.2
Time in seconds
2
4
6
8
10
Number of threads


Thread 1
Local
Counter
Resetting
Incrementing
Global
Counter
Thread 4
Local
Counter
Thread 2
Local
Counter
Thread 3
Local
Counter

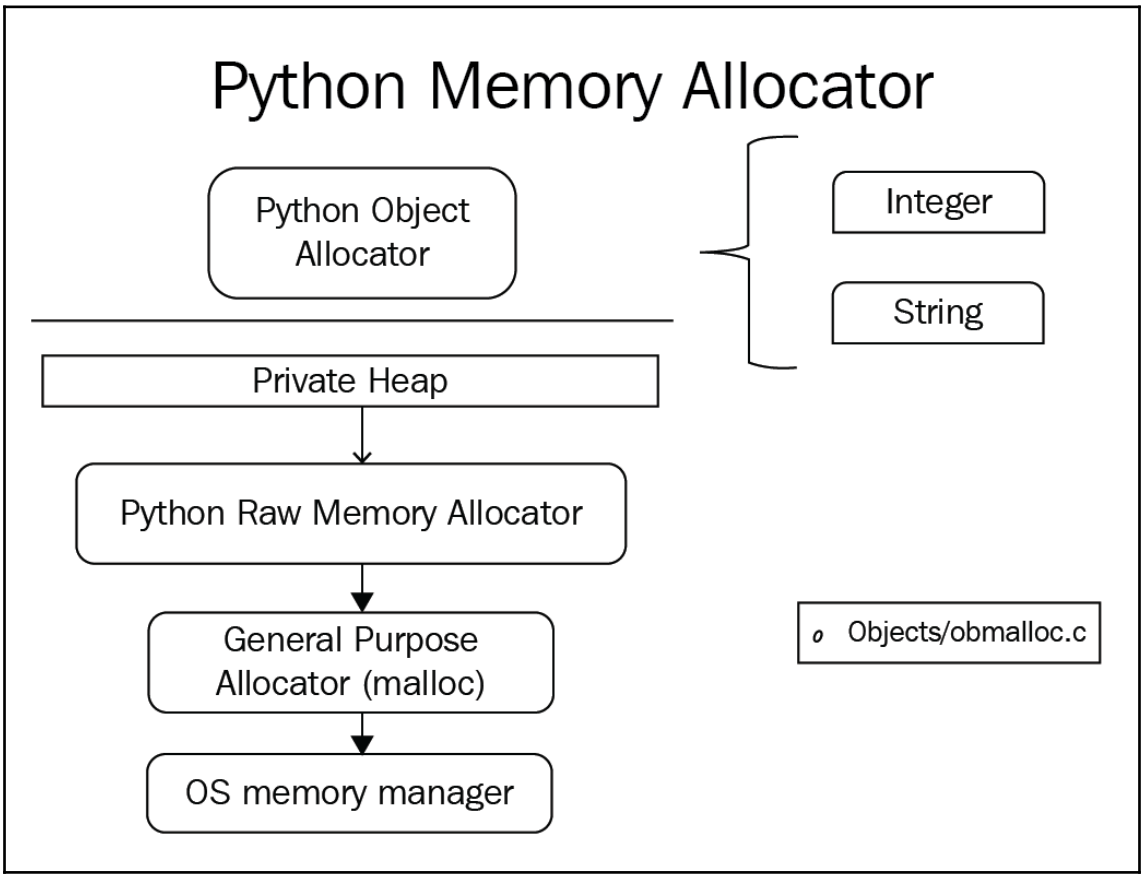

Single counter
Approximate counter
Time in seconds
1.4
1.2
1.0
0.8
0.6
0.4
0.2
2
4
6
8
10
Number of threads

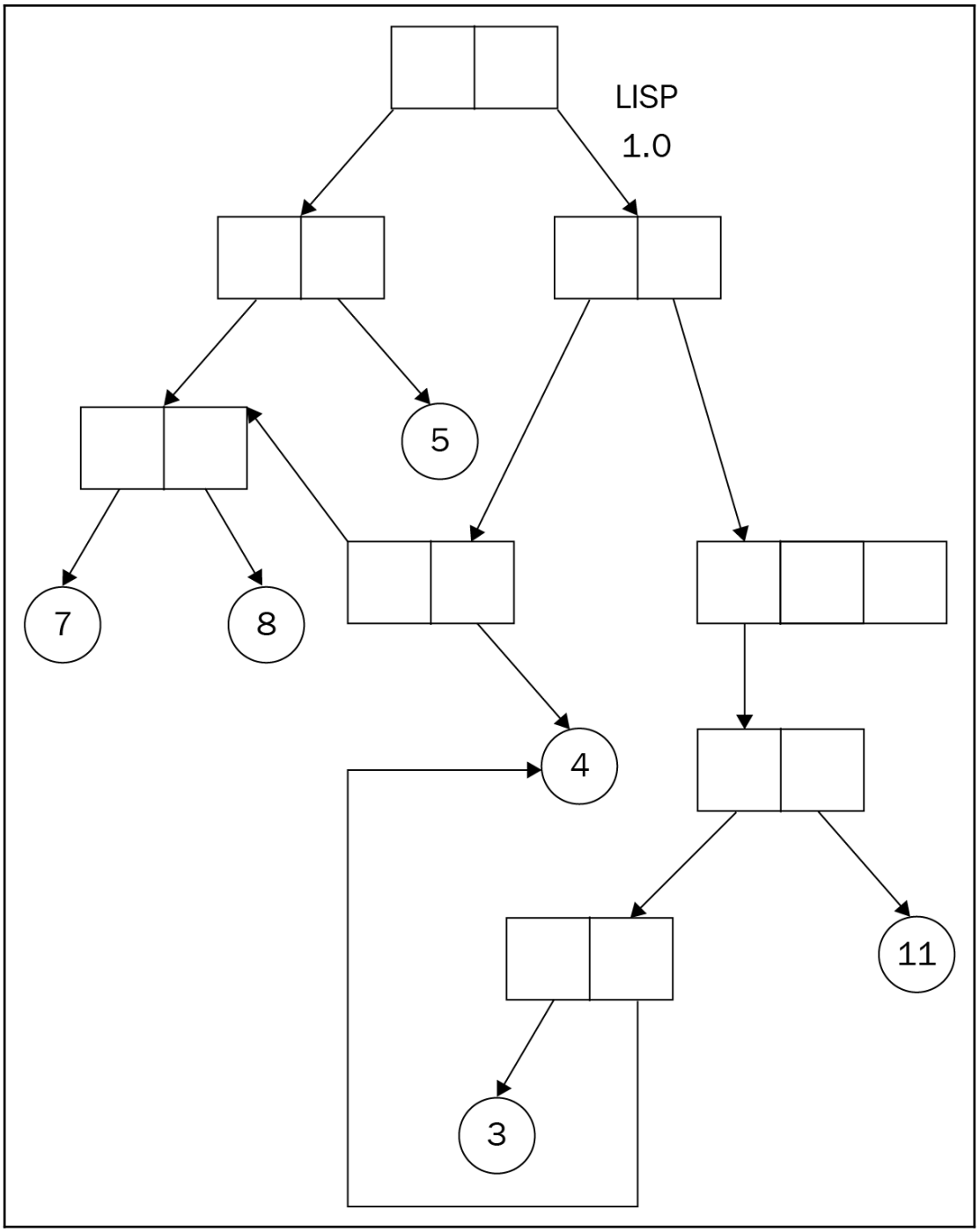

Primary
A
A data
B
B data
C
C data
Refreshing
the Primary
A
A data
Primary
B
B data
C
C data


Primary
A
A data
B
B data
C
C data
First Thread
Requesting
Primary Data
Primary
(First Thread)
A
A data
B
B data
C
C data

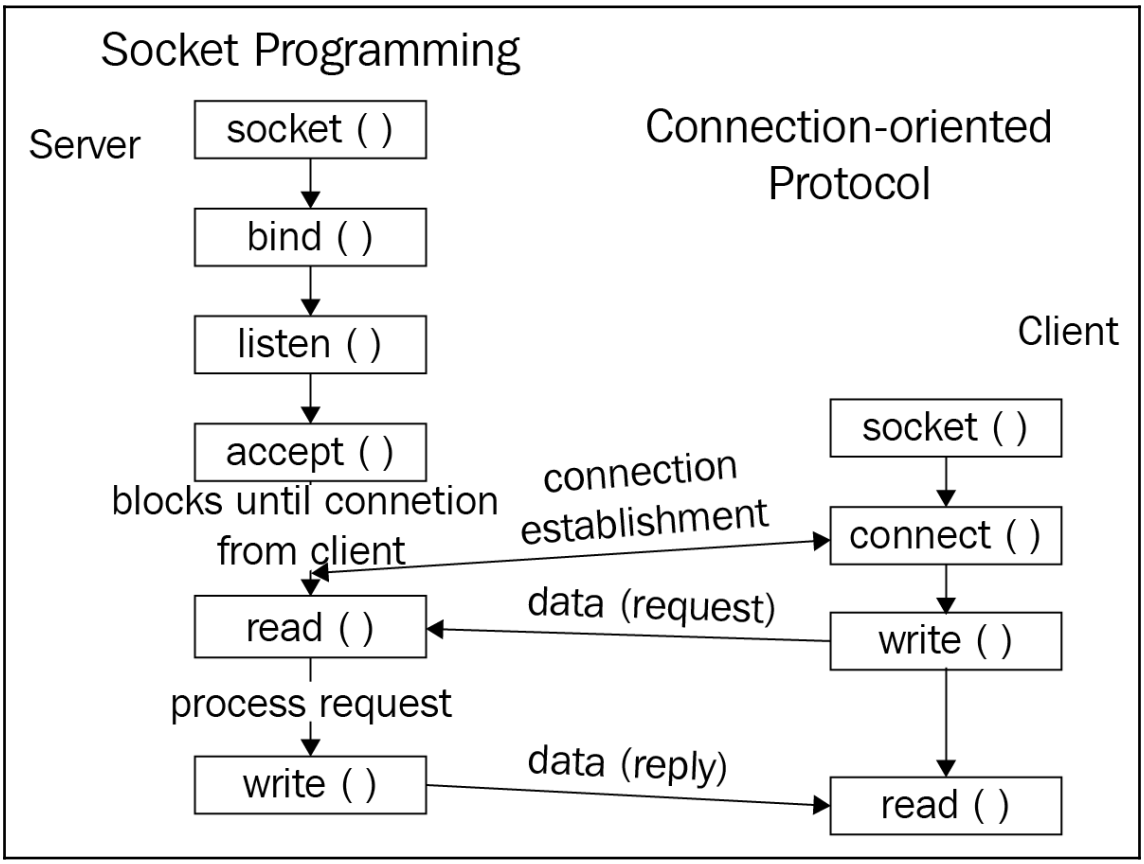

Primary
A
A data
B
B data
C
C data
First Thread
Requesting
Primary Data
Second Thread
Refreshing
Primary Data
Primary
(First Thread)
A
A data
B
B data
C
C data
A
A data
Primary
(Second Thread)
B
B data
C
C data

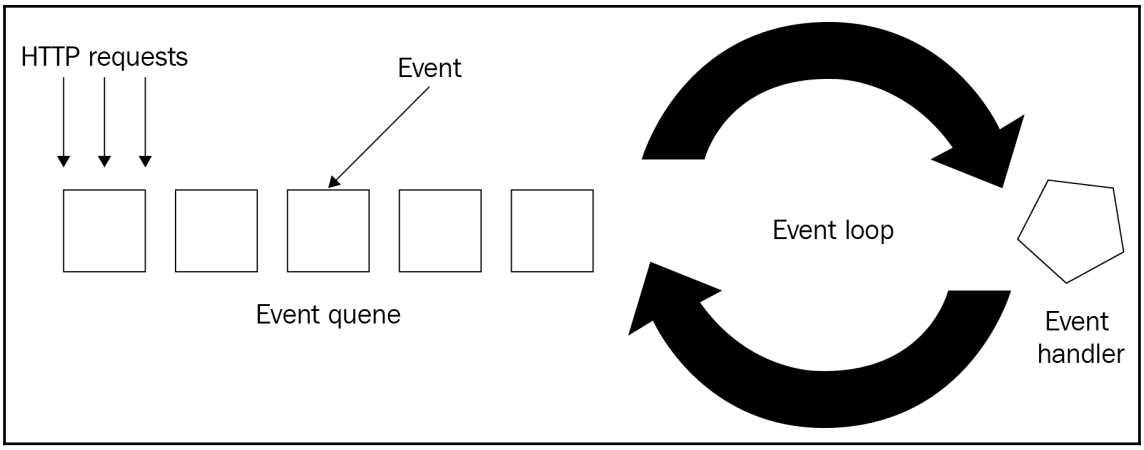
Chapter 17: Memory Models and Operations on Atomic Types




LISP
1.0
5
7
8
4
11
3

Chapter 18: Building a Server from Scratch




HTTP requests
Event
Event quene
Event loop
Event
handler

Chapter 19: Testing, Debugging, and Scheduling Concurrent Applications