

Thread Schedule #2

State:

0x9cd4: 100

%eax: ?

%rip = 0x195

thread
control
blocks:

Thread 1

%eax: ?
%rip: 0x195

Thread 2

%eax: ?
%rip: 0x195

T1 

- 0x195 mov 0x9cd4, %eax
- 0x19a add \$0x1, %eax
- 0x19d mov %eax, 0x9cd4

Thread Schedule #2

State:

0x9cd4: 100

%eax: 100

%rip = 0x19a

thread
control
blocks:

Thread 1

%eax: ?
%rip: 0x195

Thread 2

%eax: ?
%rip: 0x195

T1 →

- 0x195 mov 0x9cd4, %eax
- 0x19a add \$0x1, %eax
- 0x19d mov %eax, 0x9cd4

Thread Schedule #2

State:

0x9cd4: 100

%eax: 101

%rip = 0x19d

thread
control
blocks:

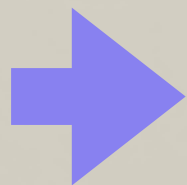
Thread 1

%eax: ?
%rip: 0x195

Thread 2

%eax: ?
%rip: 0x195

T1



- 0x195 mov 0x9cd4, %eax
- 0x19a add \$0x1, %eax
- 0x19d mov %eax, 0x9cd4

Thread Context Switch

Thread Schedule #2

State:

0x9cd4: 100

%eax: ?

%rip = 0x195

thread
control
blocks:

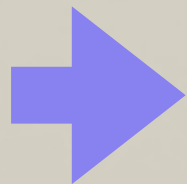
Thread 1

%eax: 101
%rip: 0x19d

Thread 2

%eax: ?
%rip: 0x195

T2



- 0x195 mov 0x9cd4, %eax
- 0x19a add \$0x1, %eax
- 0x19d mov %eax, 0x9cd4

Thread Schedule #2

State:

0x9cd4: 100

%eax: 100

%rip = 0x19a

thread
control
blocks:

Thread 1

%eax: 101
%rip: 0x19d

Thread 2

%eax: ?
%rip: 0x195

T2 →

- 0x195 mov 0x9cd4, %eax
- 0x19a add \$0x1, %eax
- 0x19d mov %eax, 0x9cd4

Thread Schedule #2

State:

0x9cd4: 100

%eax: 101

%rip = 0x19d

thread
control
blocks:

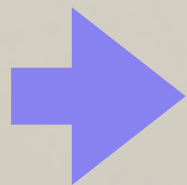
Thread 1

%eax: 101
%rip: 0x19d

Thread 2

%eax: ?
%rip: 0x195

T2



- 0x195 mov 0x9cd4, %eax
- 0x19a add \$0x1, %eax
- 0x19d mov %eax, 0x9cd4

Thread Schedule #2

State:

0x9cd4: 101

%eax: 101

%rip = 0x1a2

thread
control
blocks:

Thread 1

%eax: 101
%rip: 0x19d

Thread 2

%eax: ?
%rip: 0x195

- 0x195 mov 0x9cd4, %eax
- 0x19a add \$0x1, %eax
- 0x19d mov %eax, 0x9cd4A

T2 →

Thread Schedule #2

State:

0x9cd4: 101

%eax: 101

%rip = 0x1a2

thread
control
blocks:


Thread 1

%eax: 101
%rip: 0x19d

Thread 2

%eax: ?
%rip: 0x195

- 0x195 mov 0x9cd4, %eax
- 0x19a add \$0x1, %eax
- 0x19d mov %eax, 0x9cd4

T2 

Thread Context Switch

Thread Schedule #2

State:

0x9cd4: 101

%eax: 101

%rip = 0x19d

thread
control
blocks:

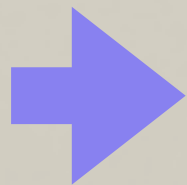
Thread 1

%eax: 101
%rip: 0x19d

Thread 2

%eax: 101
%rip: 0x1a2

T1



- 0x195 mov 0x9cd4, %eax
- 0x19a add \$0x1, %eax
- 0x19d mov %eax, 0x9cd4

Thread Context Switch

Thread Schedule #2

State:

0x9cd4: 101

%eax: 101

%rip = 0x19d

thread
control
blocks:

Thread 1

%eax: 101
%rip: 0x19d

Thread 2

%eax: 101
%rip: 0x1a2

T1 →

- 0x195 mov 0x9cd4, %eax
- 0x19a add \$0x1, %eax
- 0x19d mov %eax, 0x9cd4

Thread Schedule #2

State:

0x9cd4: 101

%eax: 101

%rip = 0x1a2

thread
control
blocks:


Thread 1

%eax: 101
%rip: 0x1a2

Thread 2

%eax: 101
%rip: 0x1a2

- 0x195 mov 0x9cd4, %eax
- 0x19a add \$0x1, %eax
- 0x19d mov %eax, 0x9cd4

T1 

Thread Schedule #2

State:

0x9cd4: 101

%eax: 101

%rip = 0x1a2

thread
control
blocks:

Thread 1

%eax: 101
%rip: 0x1a2

Thread 2

%eax: 101
%rip: 0x1a2

- 0x195 mov **0x9cd4**, **%eax**
- 0x19a add \$0x1, **%eax**
- 0x19d mov **%eax**, **0x9cd4**

T1 

WRONG Result! Final value of balance is 101

Timeline View

Thread 1

mov 0x123, %eax

add %0x1, %eax

mov %eax, 0x123

Thread 2

mov 0x123, %eax

add %0x2, %eax

mov %eax, 0x123

How much is added to shared variable? 3: correct!

Timeline View

Thread 1

`mov 0x123, %eax`

`add %0x1, %eax`

`mov %eax, 0x123`

Thread 2

`mov 0x123, %eax`

`add %0x2, %eax`

`mov %eax, 0x123`

How much is added?

2: incorrect!

Timeline View

Thread 1

`mov 0x123, %eax`

`add %0x1, %eax`

`mov %eax, 0x123`

Thread 2

`mov 0x123, %eax`

`add %0x2, %eax`

`mov %eax, 0x123`

How much is added? 1: incorrect!

Timeline View

Thread 1

```
mov 0x123, %eax  
add %0x1, %eax  
mov %eax, 0x123
```

Thread 2

```
mov 0x123, %eax  
add %0x2, %eax  
mov %eax, 0x123
```

How much is added? 3: correct!

Timeline View

Thread 1

```
mov 0x123, %eax  
add %0x1, %eax  
mov %eax, 0x123
```

Thread 2

```
mov 0x123, %eax  
add %0x2, %eax
```

```
mov %eax, 0x123
```

How much is added? 2: incorrect!