SCS1312 Operating System Concepts

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Quiz

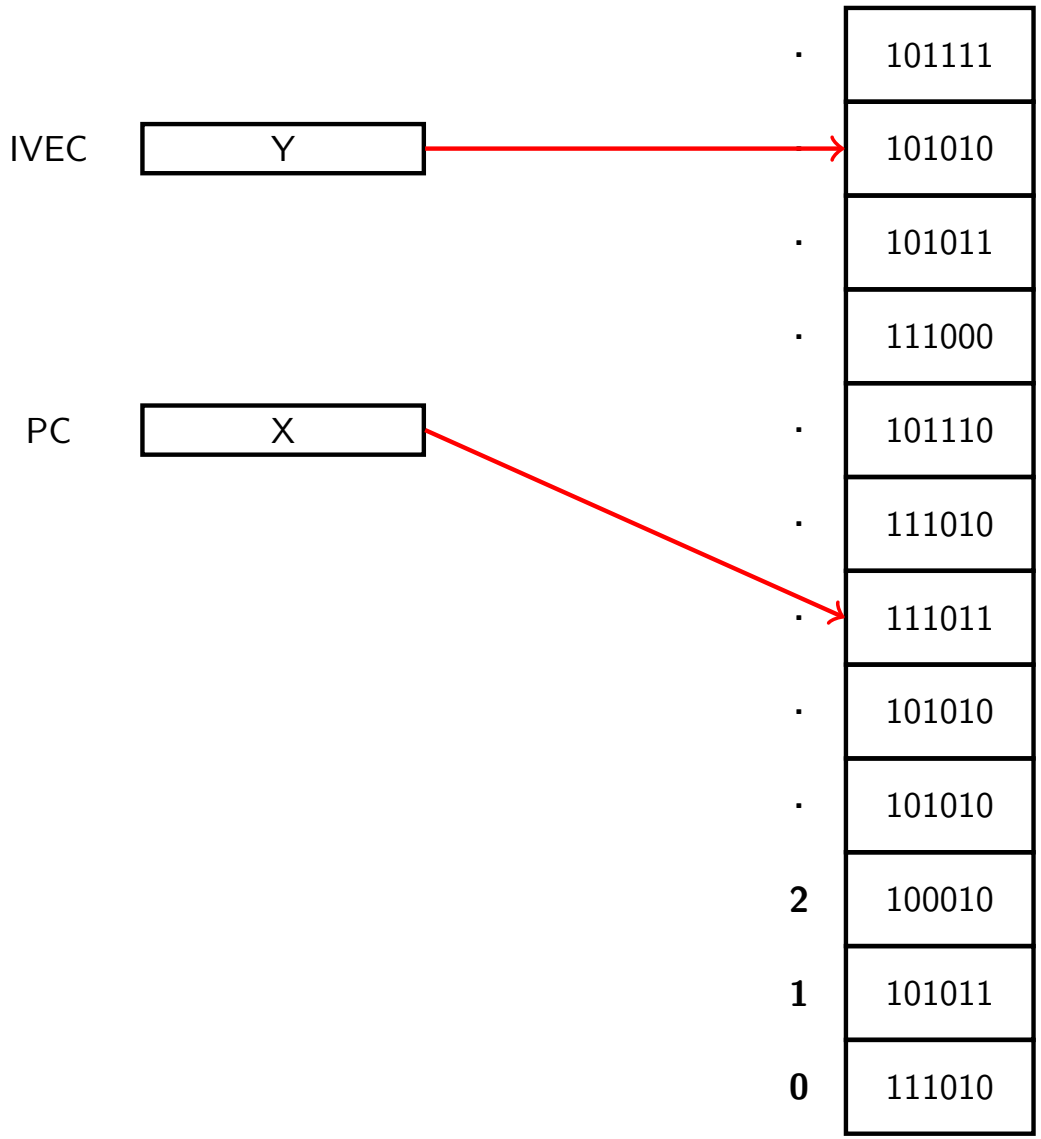
PC	1100
eax	100
ebx	125

1000	movl 100 eax
1001	movl 125 ebx
.	...
1100	call 3000
1101	addl eax ebx
.	...
3000	movl 20 eax
.	movl 10 ebx
.	...
3200	ret
.	...

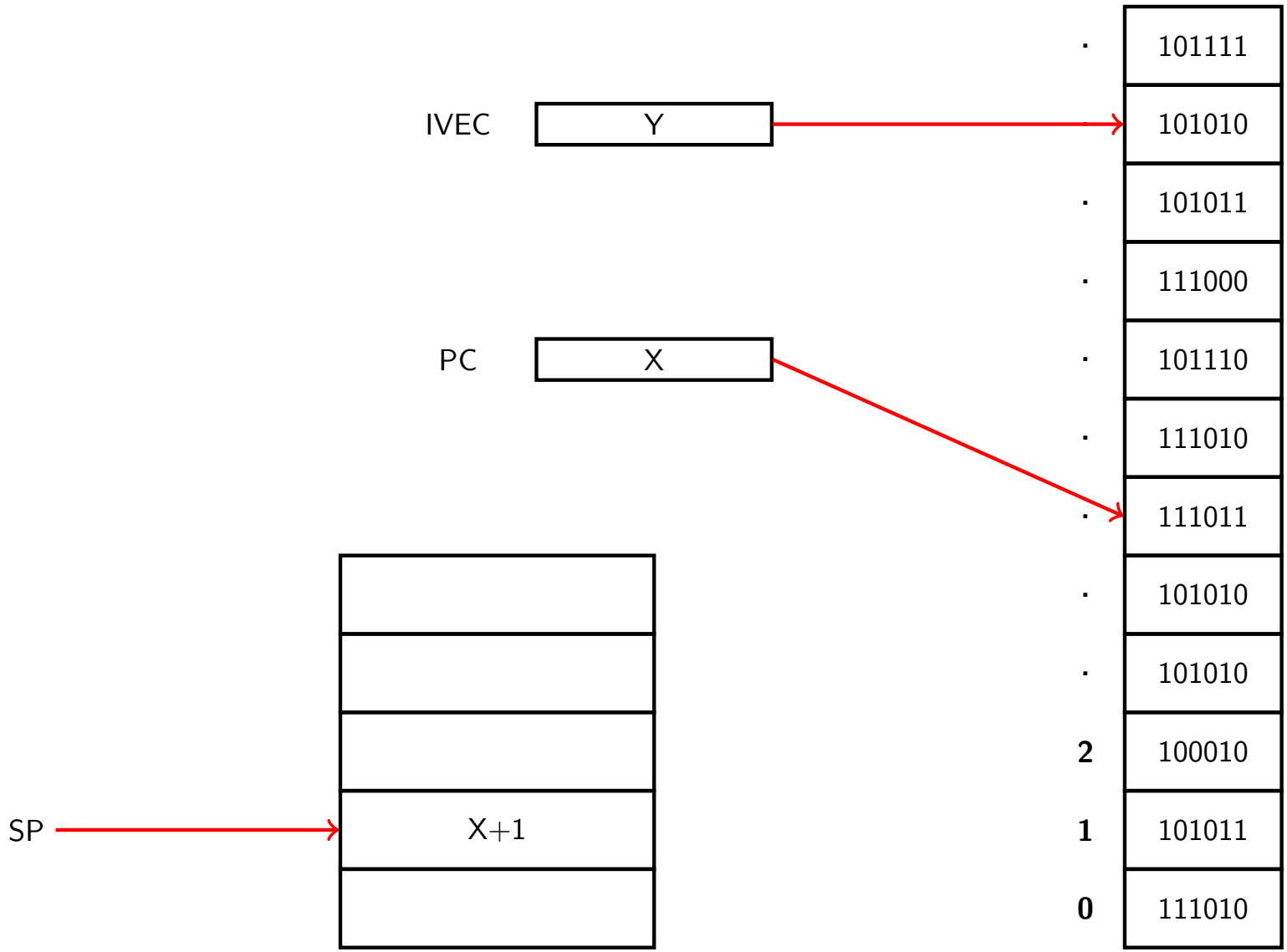
What is the next value of the PC?

Program Vs Process

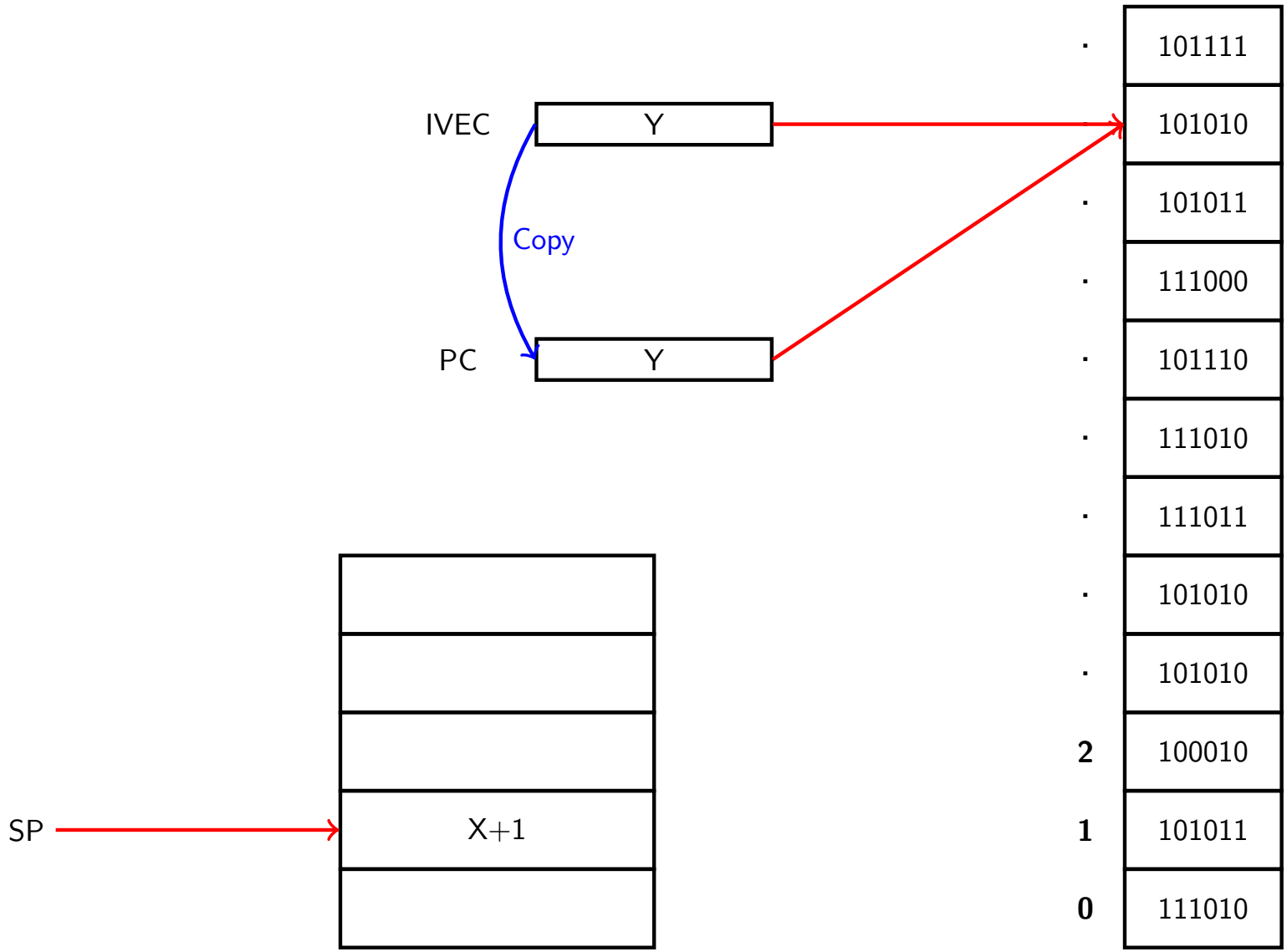
Interrupt


IVEC
Y
PC
X
101111
101010
101011
111000
101110
111010
111011
101010
101010
100010
101011
111010
2
1
0

Interrupt


IVEC
Y
PC
X
SP
X+1
101111
101010
101011
111000
101110
111010
111011
101010
101010
100010
101011
111010
2
1
0

Interrupt


IVEC
Y
Copy
PC
Y
SP
X+1
·
101111
101010
·
101011
·
111000
·
101110
·
111010
·
111011
·
101010
·
101010
2
100010
1
101011
0
111010

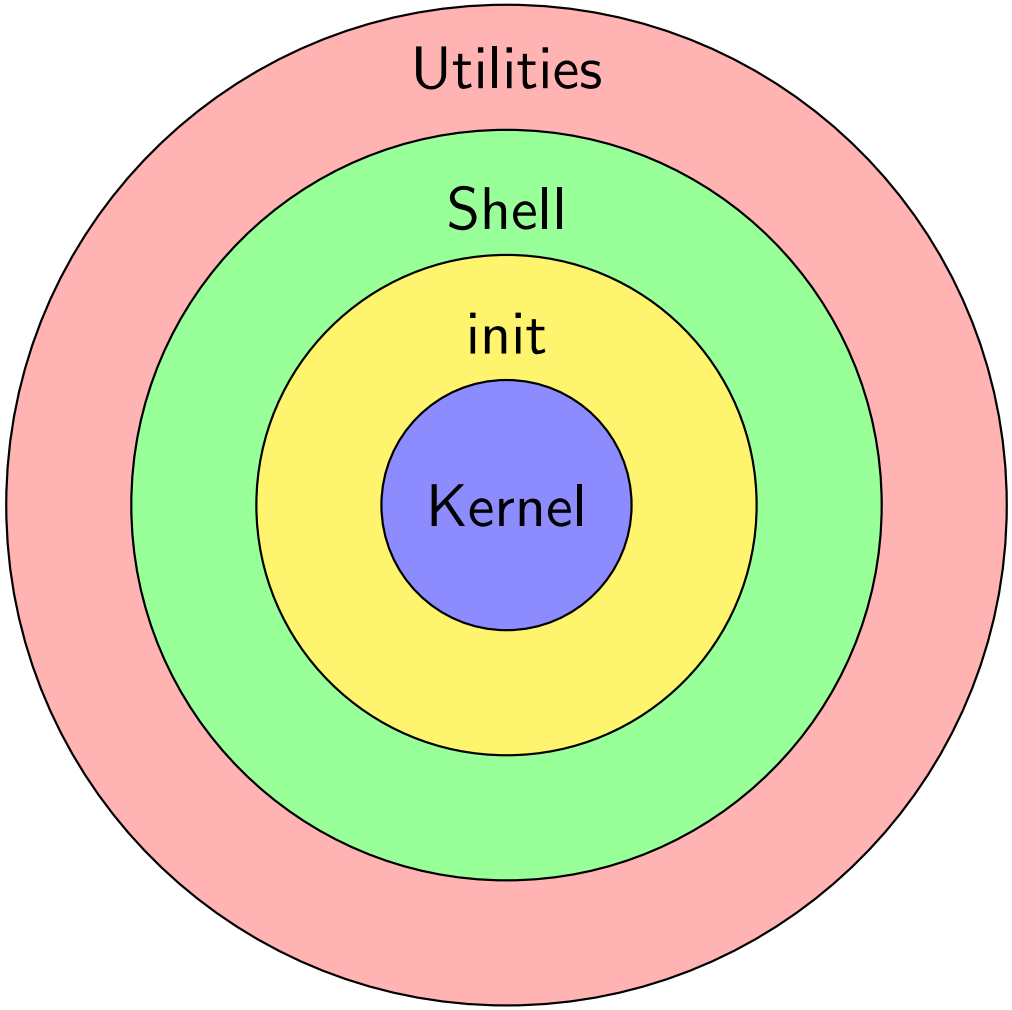
Process Control Block

Idle Task

OS

- Kernel
- init
- Shell
- Utilities

OS



Kernel

"the central or most important part of something"

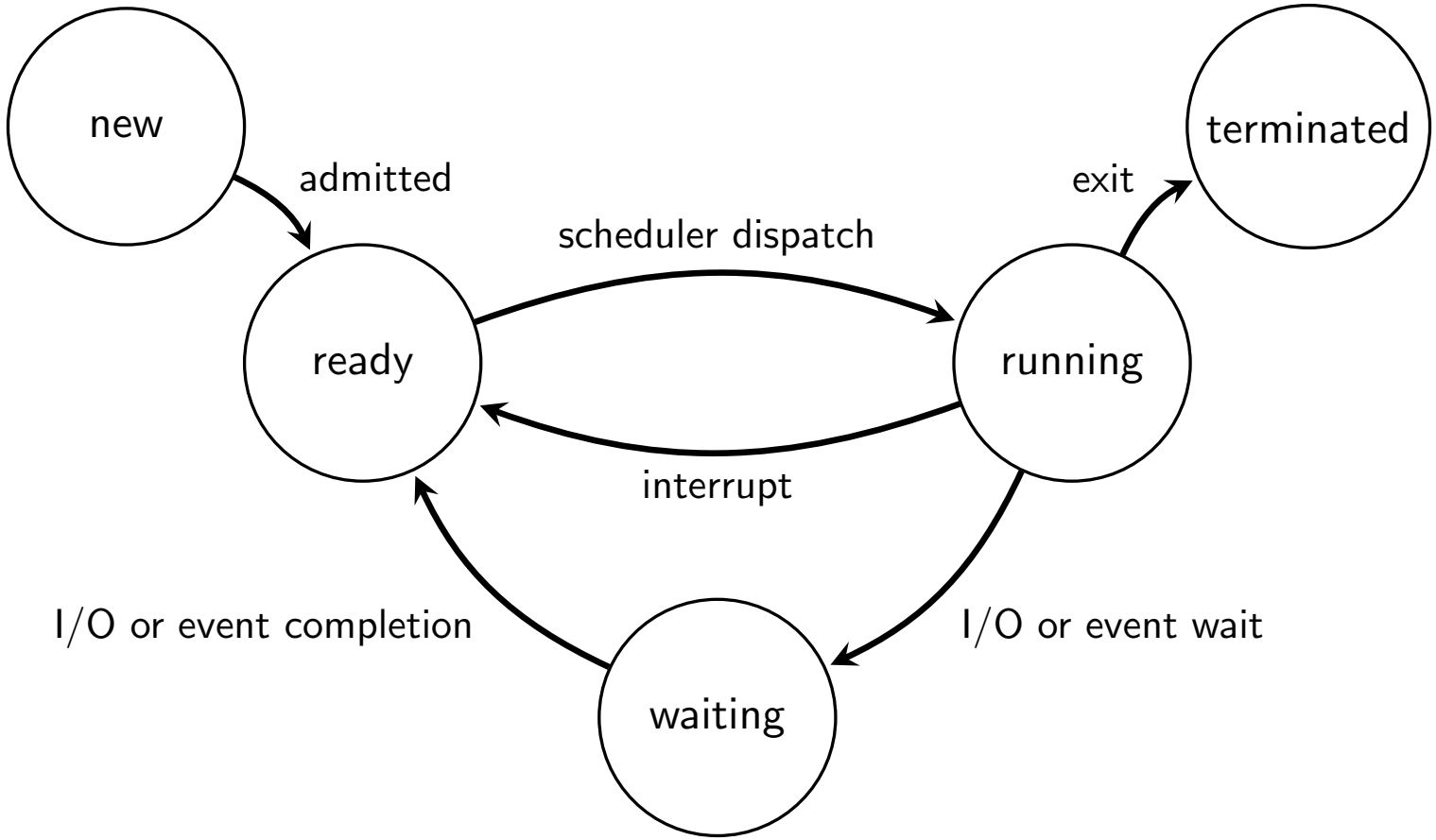
OS

- User Mode Vs Kernel Mode
- Normal User Vs Superuser (root)

System Calls

Software Interrupts - `int 0x80`

State Transitions

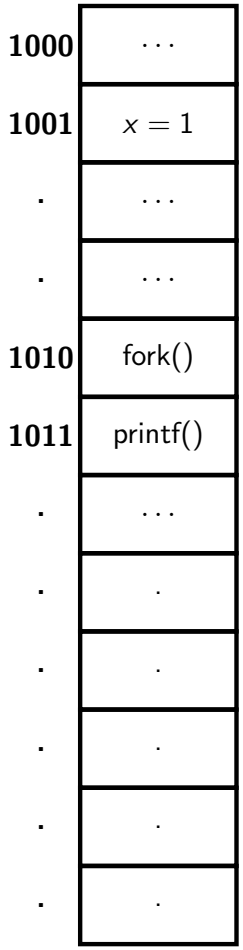


fork()

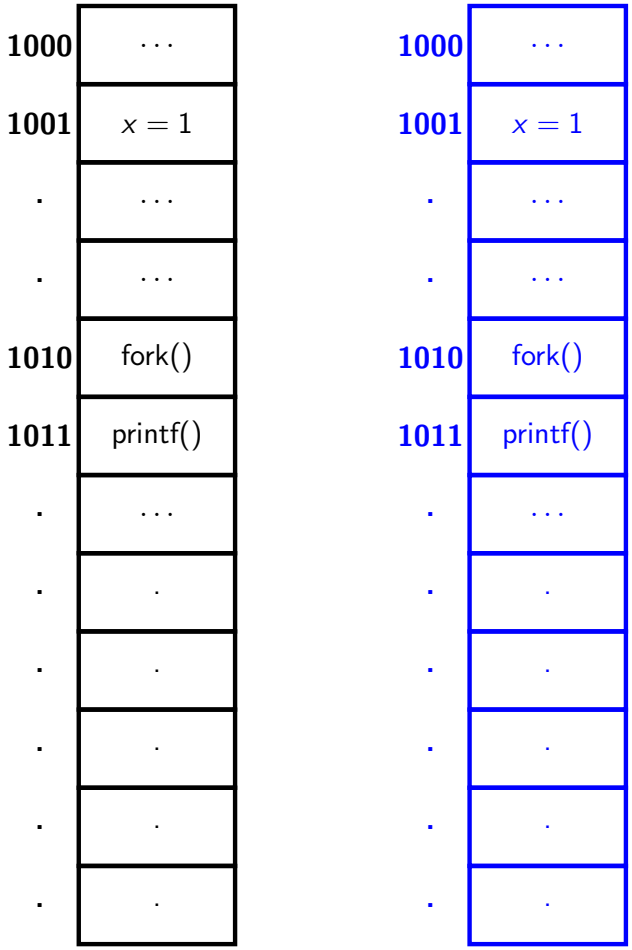
fork()

```c
#include <unistd.h>
#include <stdio.h>

int main()
{
        int x=1;

        fork();

        printf("%d\n", x);
}
```

fork()

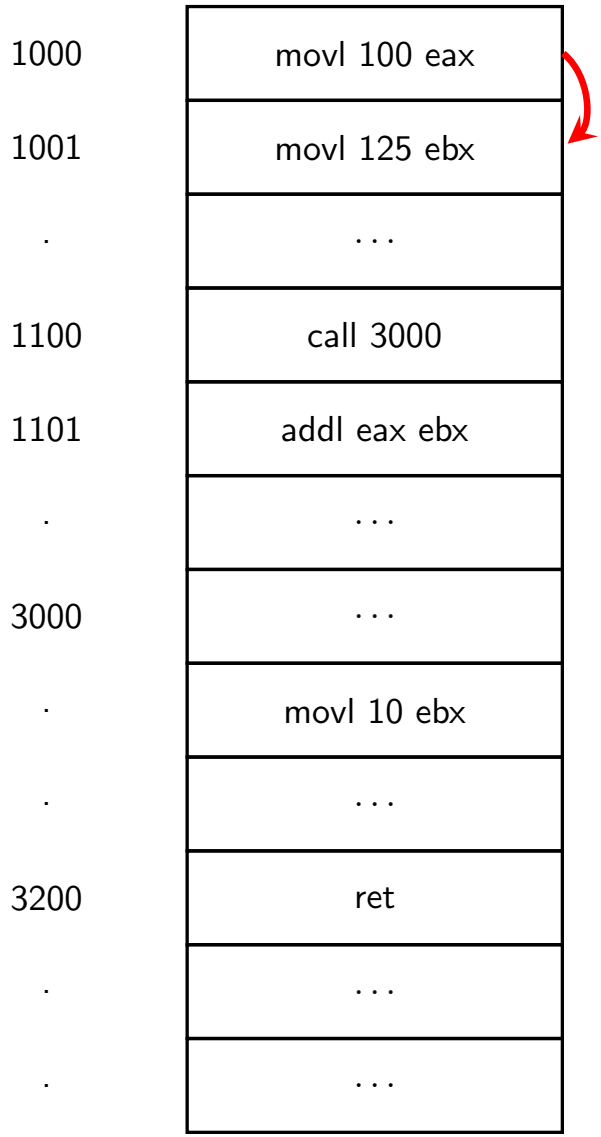


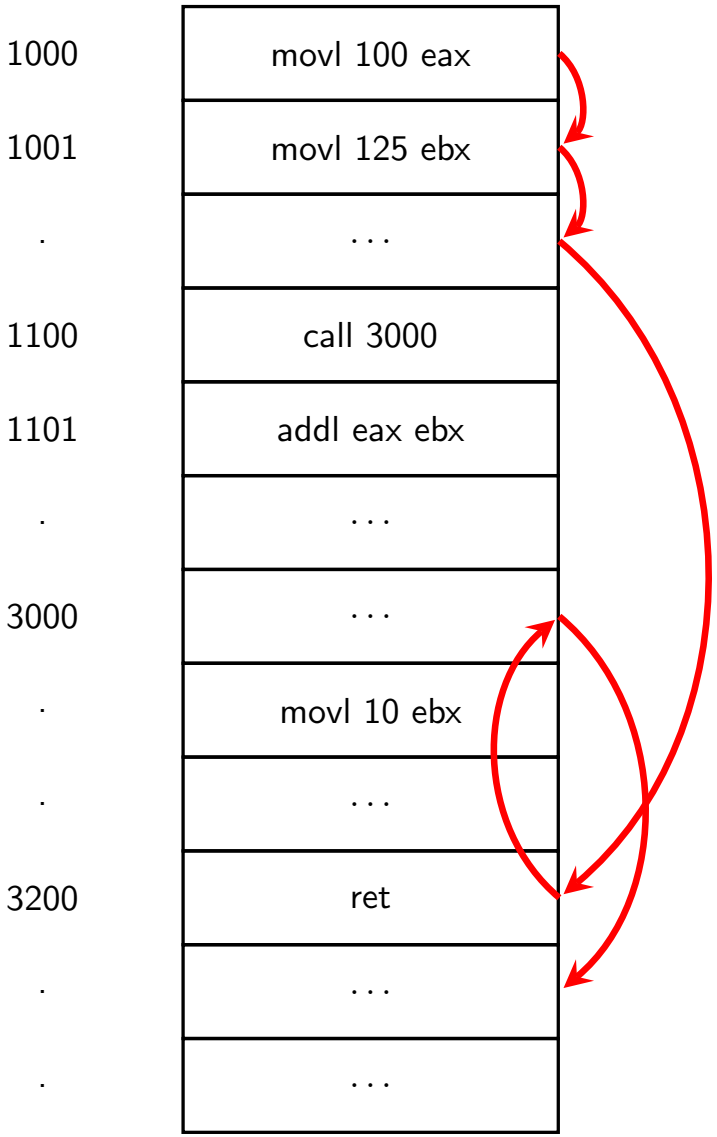
fork()


1000
1001
1010
1011
x = 1
fork()
printf()
1000
1001
1010
1011
x = 1
fork()
printf()

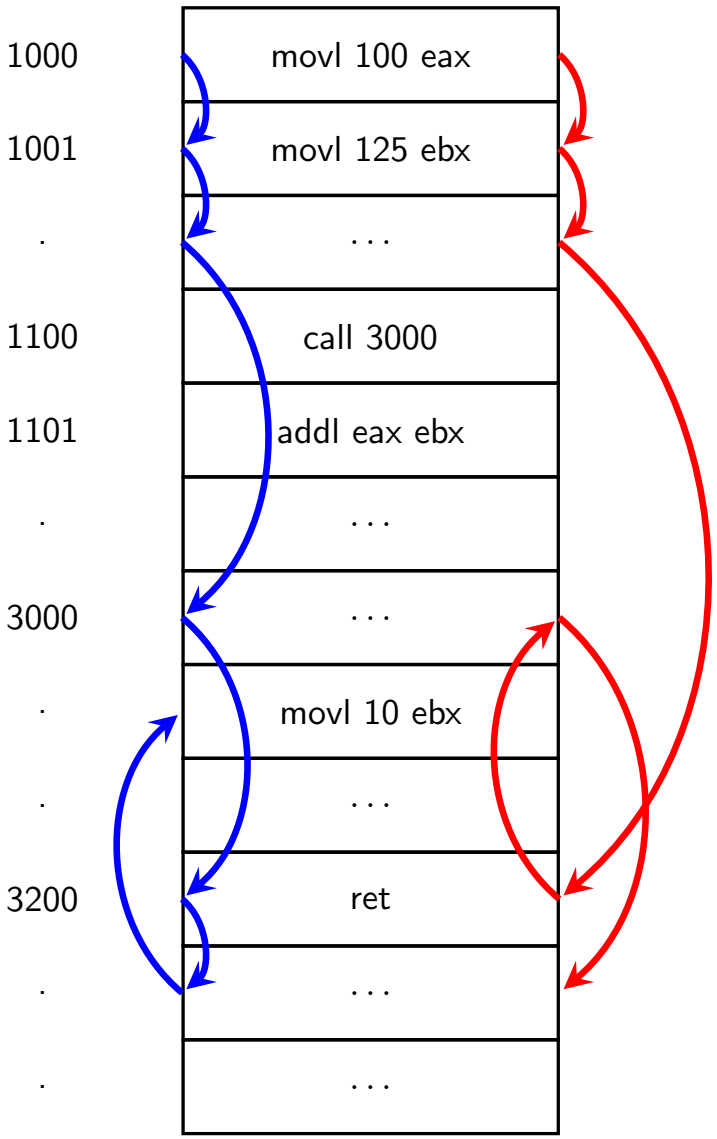
fork()

```
#include <unistd.h>
#include <stdio.h>

int main()
{
        int x=100;

        if(fork())
                printf("%d\n", x);
        else
                printf("Child\n");
}
```


1000
movl 100 eax
1001
movl 125 ebx
.
. . .
1100
call 3000
1101
addl eax ebx
.
. . .
3000
. . .
.
movl 10 ebx
.
. . .
3200
ret
.
. . .
.
. . .


1000
movl 100 eax
1001
movl 125 ebx
.
. . .
1100
call 3000
1101
addl eax ebx
.
. . .
3000
. . .
.
movl 10 ebx
.
. . .
3200
ret
.
. . .
.
. . .

Thread


1000
movl 100 eax
1001
movl 125 ebx
.
...
1100
call 3000
1101
addl eax ebx
.
...
3000
...
.
movl 10 ebx
.
...
3200
ret
.
...
.
...