

# SCS1312 Operating System Concepts

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```
int f()  
{  
    // Some stuff here  
  
    return 0;  
}
```

```
f:
    movl $20, %eax
    movl $10, %ebx
    ....
    ....
    ret
```

```
int main(void)
{
    // Some stuff here

    f();

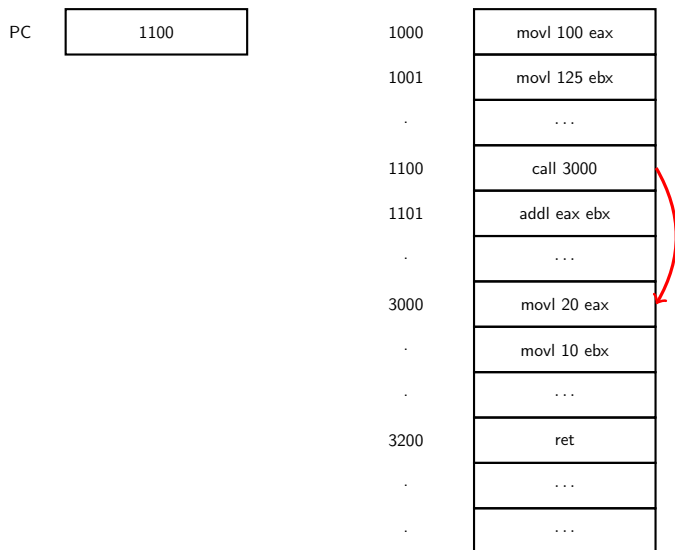
    // Some other stuff here
    return 0;
}
```

```
main:
    movl $100, %eax
    movl $125, %ebx
    ....
    ....
    call _f
    addl %eax, %ebx
    ...
    ...
    ...
```

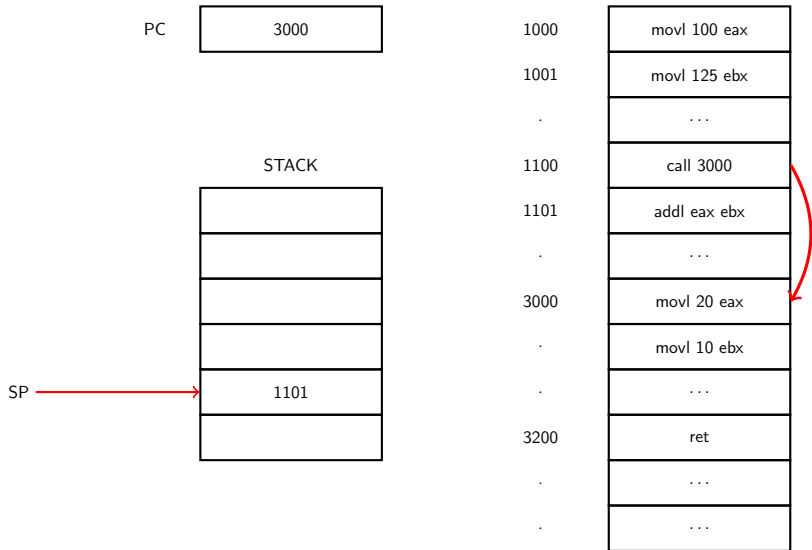
# Calling Functions

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

# Calling Functions

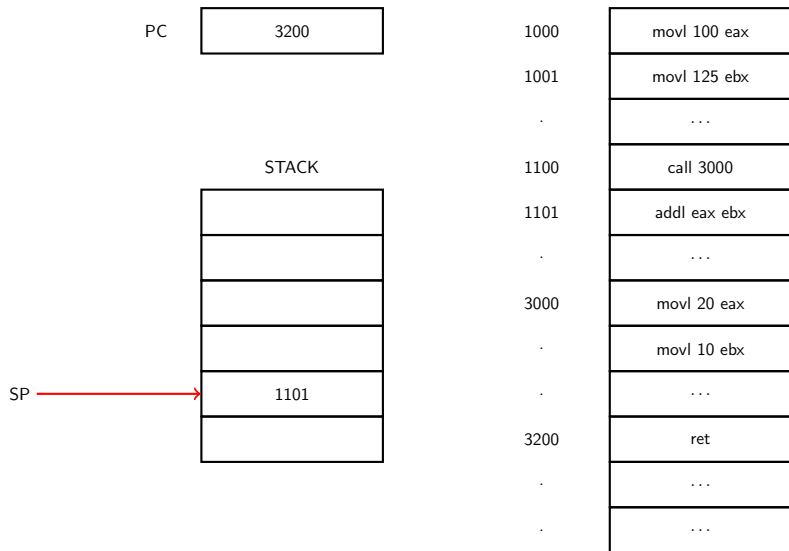


# Calling Functions

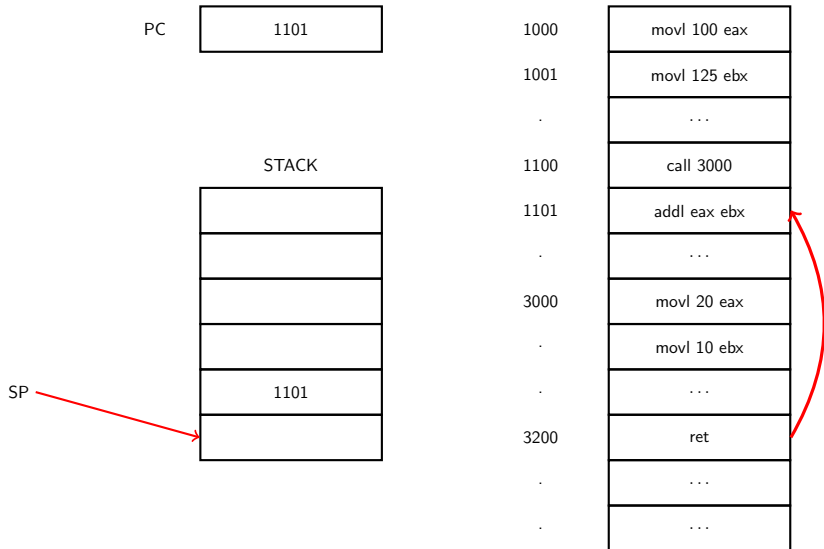




# Returning



# Returning



# Registers - Just before calling f()

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
.	...
.	...

# Registers - Just after returning from f()

PC	1101
eax	20
ebx	10

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

f:

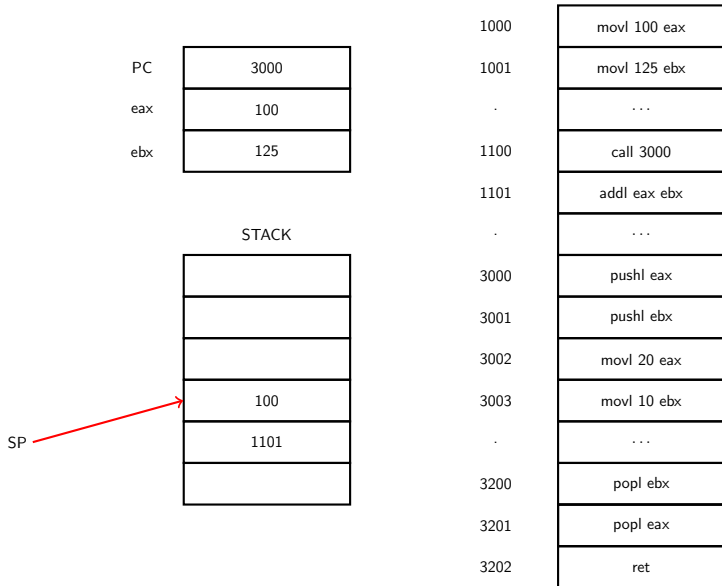
```
    pushl %eax
    pushl %ebx
    movl $20, %eax
    movl $10, %ebx
    ....
    ....
    popl %ebx
    popl %eax
    ret
```

# Registers - Just before calling f()

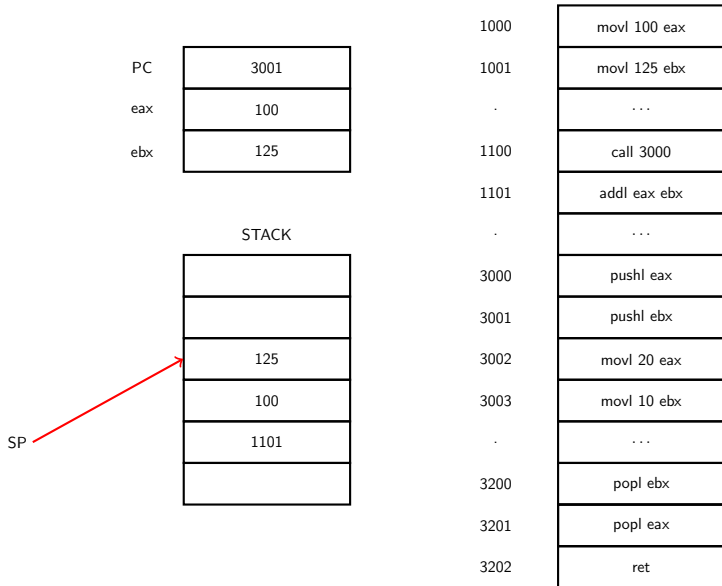
PC	1100
eax	100
ebx	125

1000	movl 100 eax
1001	movl 125 ebx
.	...
1100	call 3000
1101	addl eax ebx
.	...
3000	pushl eax
3001	pushl ebx
3002	movl 20 eax
3003	movl 10 ebx
.	...
3200	popl ebx
3201	popl eax
3202	ret

# Registers - In f()

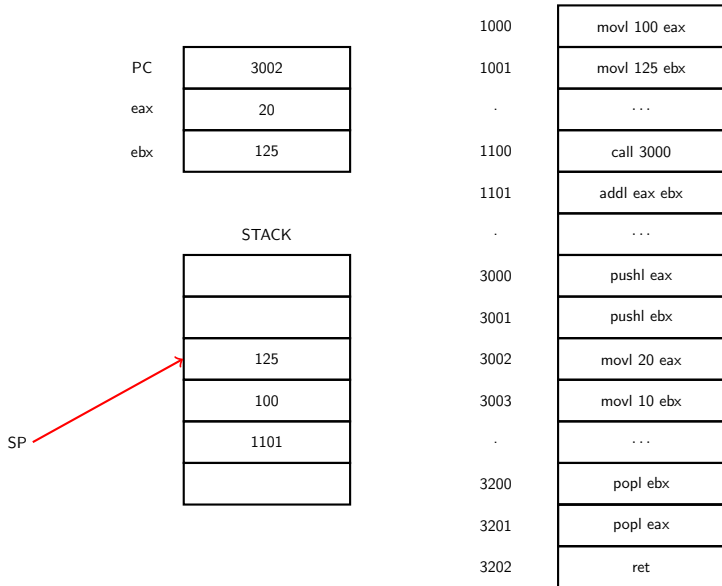


# Registers - In f()

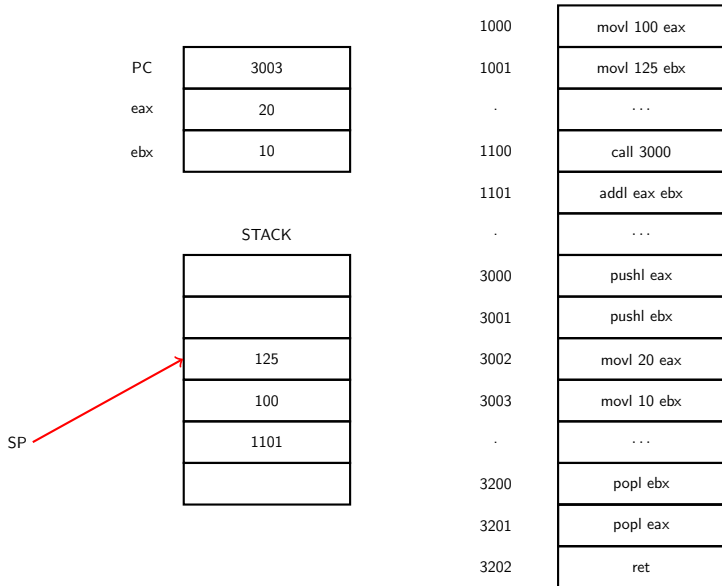




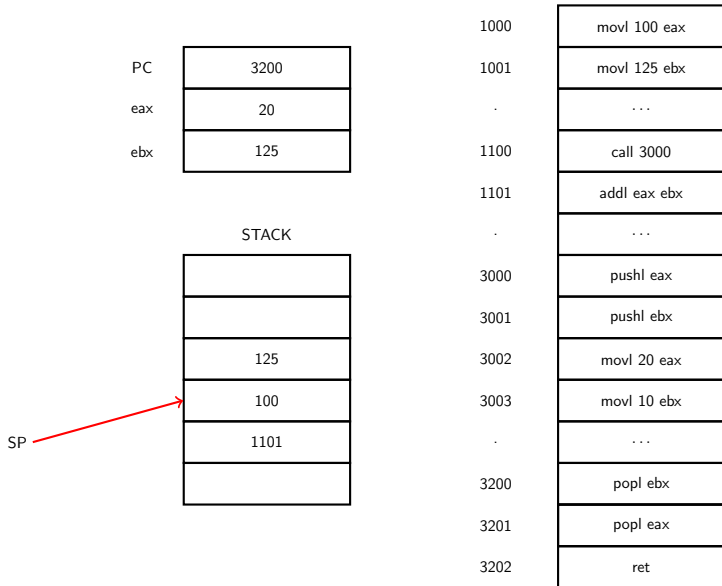
# Registers - In f()



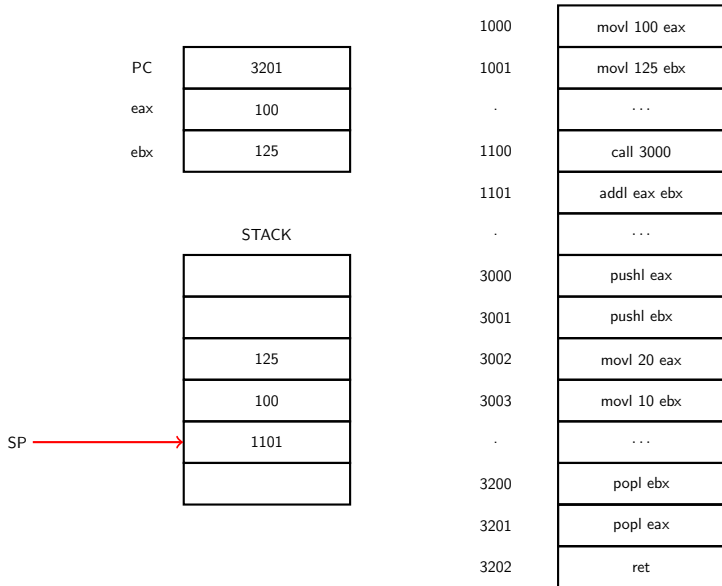
# Registers - In f()



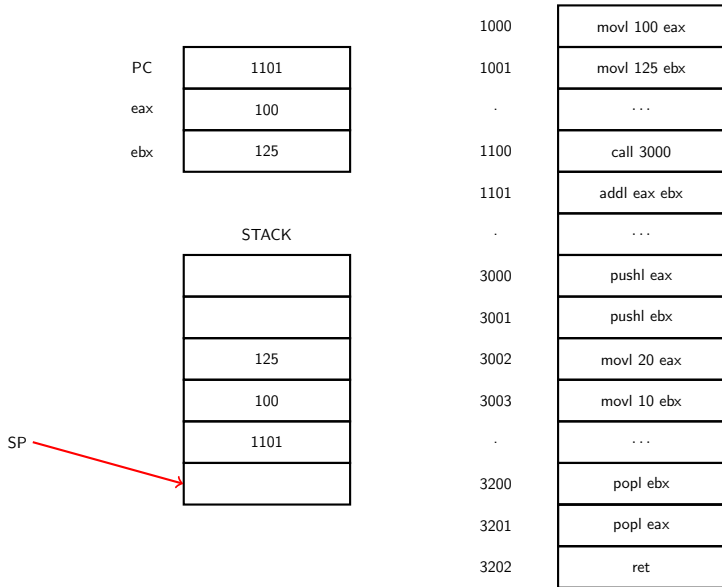
# Registers - In f()



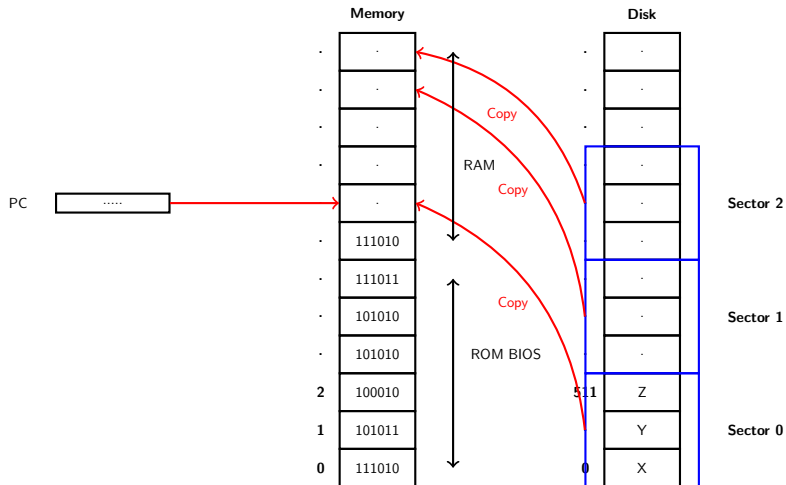
# Registers - In f()



# Registers - In f()



# *init/systemd* First Userland Process - PID 1



# Program Vs Process