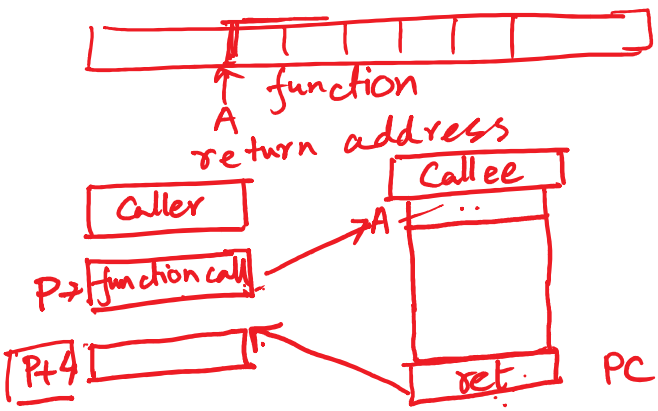
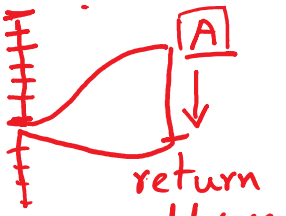
Lec 16

Thursday, June 23, 2022 11:38 AM

Functions:



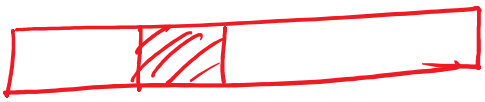


PC ← P + 4

return address
1012

```
.addition
2000 → add r2, r0, r1
2004   ret
.main:
1000  mov  r0, 3
1004  mov  r1, 5
1008  store r3, 100[r4]
10012 Call .addition
1016  mov...
```

* Space problem
* Overwrite " ← Spilling



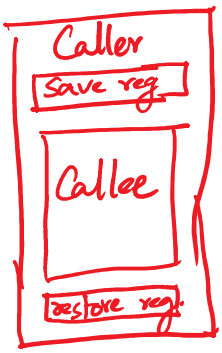
Register Spilling

Caller saves the set of registers.
Calls function
Restores the set of registers after function returns.

Callee saved scheme

Caller " "

Caller



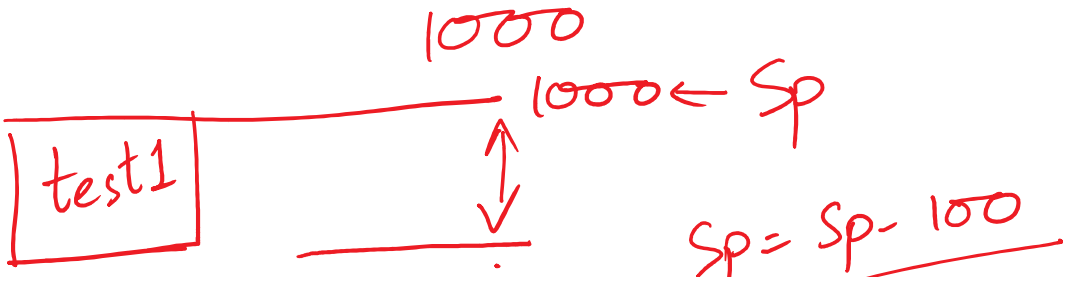
Caller Saved

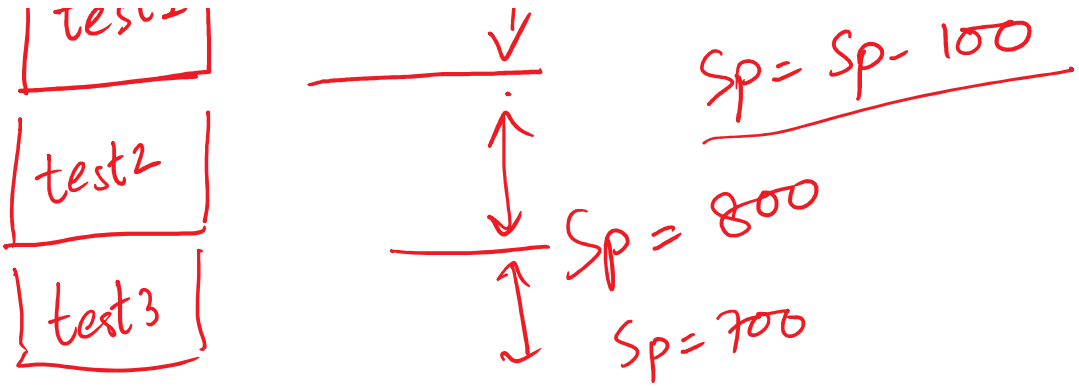
Callee saved.

* Strict agreement bet^n caller & callee regarding the memory location & its use.
* All the space need to be reclaimed as soon as the function execution is done.

Activation Block :

memory block of a function.





Through Stack

* Solve space problem
  - activation block for passing as many parameters.

* Overwrite problem
  - activation block

* management of activation block
  - by stack.

Call & return

Call — ra ← PC+4 ; PC ← address of function.

ret — PC ← ra