

# CS241 Lecture 19

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Recal:

- put all local vars on the stack, including params of wain.

```
int wain(int a, int b){return a;}
```

```
sw $1, -4($30)
sw $2, -8($30)
lis $4
.word 8
sub $30, $30, $4
lw $3, 4($30)
add $30, $30, $4
jr $31
```

name	type	offset from \$30
a	int	4
b	int	0

**Problem:** Can't know the offsets until all decls have been processed because \$30 changes with each new decleration

```
int wain(int a, int b){
int c = 0;
return a;
}
```

name	type	offset from \$30
a	int	8
b	int	4
c	int	0

Introduce two conventions:

- \$4 always contains 4
- \$29 points to the bottom of the stack frame

- if offsets are calculated with relation to \$29 they will be constant

```
int waint(int a, int b){
int c = 0;
return a;
}
```

```
lis $4
.word 4
sub $29, $30, $4
sw $1, -4($30)
sw $2, -8($30)
sw $0, -12($30)
lis $5
.word 12
sub $30, $30, $12
lw $3,
```

name	typ	offset from \$29
a	int	0
b	int	-4
c	int	-8