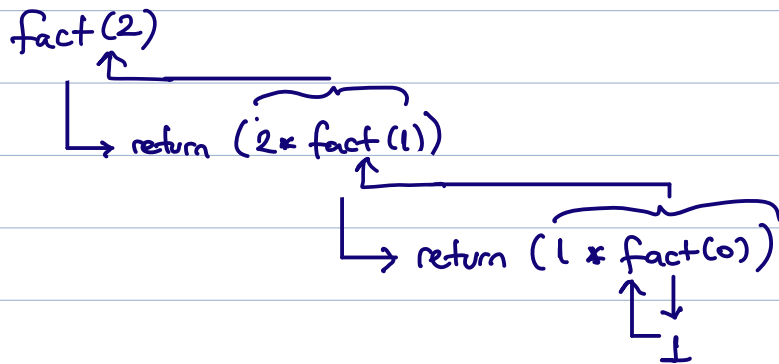


FACT FUNCTION

```
int fact (int n) {  
    if (n < 1) return 1;  
    else return n * fact(n-1);  
}
```

$n \rightarrow \$a0$

Result $\rightarrow \$v0$



(Let us trace for $n=2$)

MAIN PROG

...	
0010	jal fact
0014	---
0018	---



0014
2
0068
1
0068
ϕ

HIGH ADDRESS

Low ADDRESS

SLIDE 58

The segment of the stack containing
procedure's saved registers / local variables
→ procedure frame

frame pointer (\$fp) → point to first word
of frame of a procedure

- Reference variables via stable frame
pointer (\$fp)

Slide 61

lb \$t0, 20(\$s3)



load a byte from memory

00...00...00...00...01011101

Representing Strings

- ① First position gives the length of str.
- ② Accompanying variable has the length
- ③ last position of string has end of string marker.

A string in C: "Cal" → 4 bytes

```

graph TD
    S["A string in C: 'Cal'"] --> B["4 bytes"]
    S --> C["67"]
    S --> a["97"]
    S --> l["108"]
    S --> N["0"]
    N --- E["end of str.  
(null in ASCII)"]
    style C stroke:#f00,stroke-width:2px
    style a stroke:#f00,stroke-width:2px
    style l stroke:#f00,stroke-width:2px
    style N stroke:#f00,stroke-width:2px
  
```

Slide 62

```

void strcpy (char x[], char y[])
{
    int i;
    i = 0;
    while ((x[i] = y[i]) != '\0')
        i += 1;
}
  
```

Addr of x, y in \$a0, \$a1
i → \$s0

\$t1 ← Addr of y[i] (\$s0 + \$a1)

* Not multiply i by 4

why: y is an array of bytes not words,

Exit the loop if character was 0
(last char of string)