

CS 315-02 RISC-V Assembly 3

Arrays & Functions

Lab03 Q&A

Local VM Setup

Arrays

pointers

```
// int *arr;
```

```
int arr[5] = {1, 2, 3, 4, 5};
```

Hints

arr & *
 address of ↑
 dereference

$x = arr[0]; \rightarrow x = *arr;$

$y = arr[1]; \rightarrow y = *(arr + 1);$

$y = arr[3]; \Rightarrow y = *(arr + 3);$

$arr[0] = 99; \rightarrow *arr = 99;$

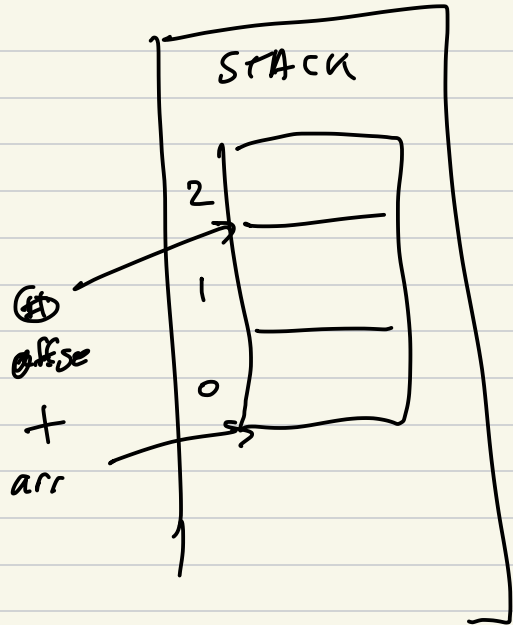
$arr[1] = 100; \rightarrow *(arr + 1) = 100;$

```
main() {
```

```
    int arr[3];
```

Question :

```
    x = arr[i];
```



```
int arr-get-c(int arr[], int i) {
    return *(arr+i); ←
```

```
}
```

```
# a0 - int arr[]
```

```
# a1 - int i
```

```
arr-get-s:
```

```
li to, 4
```

```
mul to, a1, to # to = a1(i) * to(4)
```

```
add to, a0, to # to = a0(arr) + to(offset)
```

```
lw a0, (to)
```

```
ret
```

byte
offset

Functions

Simple Functions

arguments: $a_0, a_1, a_2, \dots, a_7$

func-s:

USE only "a" and "t"
registers

n.o calls to other
functions

"leaf" function

ret