

2-D array in dynamic memory: pointers to pointers

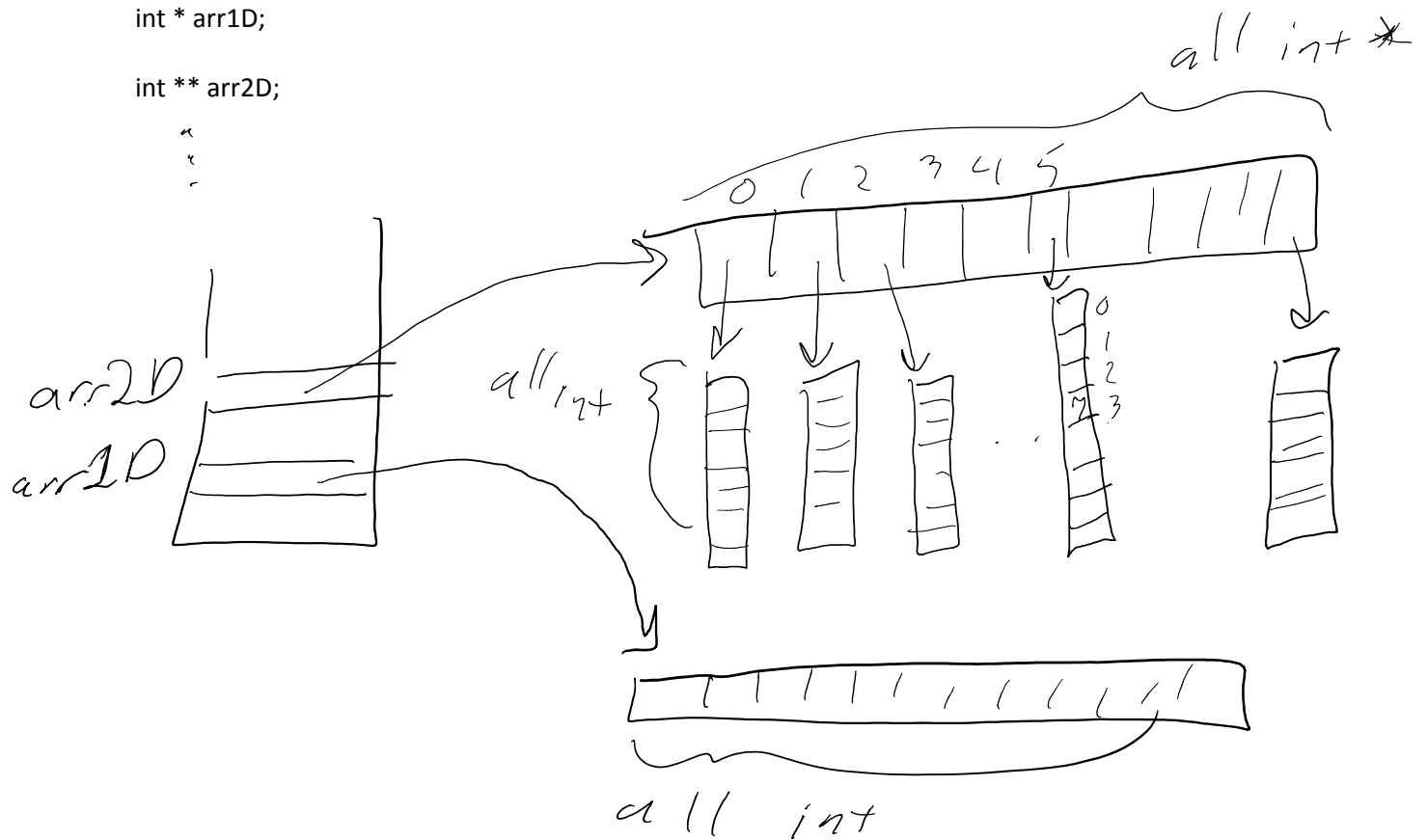
Pointers to pointers may occur in a pass-by reference parameter for a pointer variable

2-D array also are implemented with pointers to pointers

```
int * arr1D;
```

```
int ** arr2D;
```

```
...
```

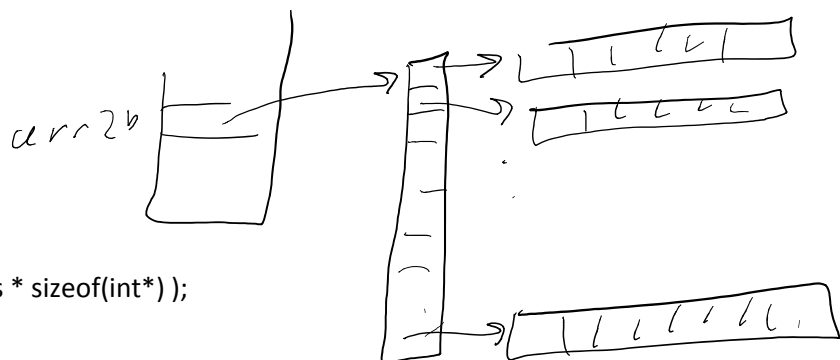


```
arr2D[5][3] = 7;
```

```
int rows = 10;
int cols = 20;
```

```
arr2D = (int**) malloc (rows * sizeof(int*));
```

```
int i;
```



```
For (i = 0 ; i < rows; i++)  
{  
    arr2D[i] = (int*) malloc (cols * sizeof (int));  
}
```

```
int j;  
For (i = 0 ; i < rows ; i++)  
    For (j = 0 ; j < cols ; j++)  
        arr2D[i][j] = 0;
```

# Stacks

- push
- pop  $\Rightarrow$  - top & pop ( )
- isEmpty
- top