

Fundamentals of Computing: Lecture 18

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Summary on arrays and pointers

- ▶ Arrays are passed as pointers to the first element.
- ▶ A two dimensional array is passed as a pointer to an 1 dimensional array e.g `int (*a)[10]`.
- ▶ In general an n dimensional array is passed as a pointer to an $n - 1$ dimensional array.

```
int a;
```



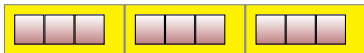
```
int a[3];
```



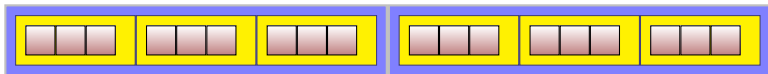
```
int a[3];
```



```
int a[3][3];
```



```
int a[2][3][3];
```



```
#include <stdio.h>

int main()
{
    int a[2][3] = {11,12,13, 21,22,23};
    int *ptr,*qtr;
    ptr = (int *) (a+1);
    qtr = a[1];
    printf("**a      = %d\n",**a);
    printf("*(a+1) = %d\n", *(a+1));
    printf("*(a+1) with cast %d\n", * ((int *) (a+1)));
    printf("*ptr = %d \n", *ptr);
    printf("*qtr = %d\n", *qtr);
}
```