# Using Arrays

## Last updated 6/19/23

These slides show some examples of using arrays in C

# Using Arrays

- Example – student scores

    - Read the scores for 10 students from the keyboard and store them in an array

        ```
        int scores[10];
        int i;

        for(i= 0; i < 10; i++){
            scanf("%i", &scores[ i ]);
        }
        ```

# Using Arrays

- Example – student scores

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        scanf("%i", &scores[ i ]);
    }
    ```

    note: still need '&' since scores[i] is not a pointer (address) It is an individual value

    scores is a pointer
    scores[3] is an individual element

# Using Arrays

- Example - print

  - Print the scores for 10 students from an array to the console

```
int scores[10];
int i;

for(i= 0; i < 10; i++){
    printf("%i", scores[ i ]);
}
```

# Using Arrays

- Assignment

  - Whole arrays cannot be used on the right side of an assignment operator

    ```
    int array1[10];
    int array2[10];
    …
    array2 = array1;
    ```

# Using Arrays

- Assignment

  - Arrays must be copied element by element

```
int array1[7];
int array2[7];
int i;
…
for(i = 0; i < 7; i++){
    array2[ i ] = array1[ i ];
}
```

# Using Arrays

- Example

  - Exchange the values in array1 and array2

```
int array1[10];
int array2[10];
int i;
…
for(i = 0; i < 10; i++){
    int tmp;
    tmp = array1[ i ];
    array1[ i ] = array2[ i ];
    array2[ i ] = tmp;
}
```