

# Writing Array Functions

# Goal

- Write a function to initialize the elements of a two-dimensional array using values obtained from a user, through keyboard input. Prompt the user for each row of the input, telling which row they are entering, and the number of elements to input.

# Declarations and the Call

```
const int NUMCOLS = 100, NUMROWS = 100
```

```
int A[NUMROWS][NUMCOLS];
```

```
int rows = 20, cols = 50;
```

```
ReadArray(A, rows, cols);
```

```
*** Draw picture of A, and what we are modifying ***
```

# Design Function

- Input:
  - Number of rows to fill in
  - Number of columns to fill in
- Output:
  - Array with rows x columns filled in
- Algorithm
  1. For each row in the array
    - 1.1 prompt the user to input the row
    - 1.2 for each column in the current row
      - read in a value

# Function Code

Heading:

```
void ReadArray (int A[ ][NUMCOLS], int rows, int cols)
```

Body:

```
{  
    for (int i = 0; i < rows; i++)  
    {  
        cout << "Enter " << cols << " ints for row " << row;  
        for (int j = 0; j < cols; j++)  
            cin >> A[i][j];  
    }  
}
```

# Your Mission

- Write a function to output an array to the screen, showing each row on a separate line.
- Write a function to output an array to the screen, showing each column on a separate line.