# Traversing 2D Arrays

In this lesson, students will extend their learning on 2D arrays by traversing through them. When attempting to access all elements in a 2D array, we can do so in two different ways. Row-major order traverses the 2D array by accessing each value in a row before moving to the next row and column-major order traverses each column down all rows before moving to the next column. This lesson corresponds with AP Computer Science A topic 8.2.

## Objective

Students will be able to:

* Traverse 2D arrays using nested for loops
* Traverse 2D arrays using nested enhanced for loops

## Enduring Understandings

This lesson builds toward the following Enduring Understandings (EUs) and Learning Objectives (LOs). Students should understand that…

* EU Con-2 Programmers incorporate iteration and selection into code as a way of providing instructions for the computer to process each of the many possible input values. (LO’s 2.N)
* EU Var-2 To manage large amounts of data or complex relationships in data, programmers write code that groups the data together into a single data structure without creating individual variables for each value. (LO’s 2.F, 2.G)

## Row vs. Column Major

Using the example code from Row vs. Column Major, answer the following questions in complete sentences:

1. Is Row-Major or Column-Major order faster? Why do you think that is. Please explain using execution counts.
2. In what scenario would you use Row-Major ordering when traversing a 2D array? In what scenario would you use Column-Major ordering?