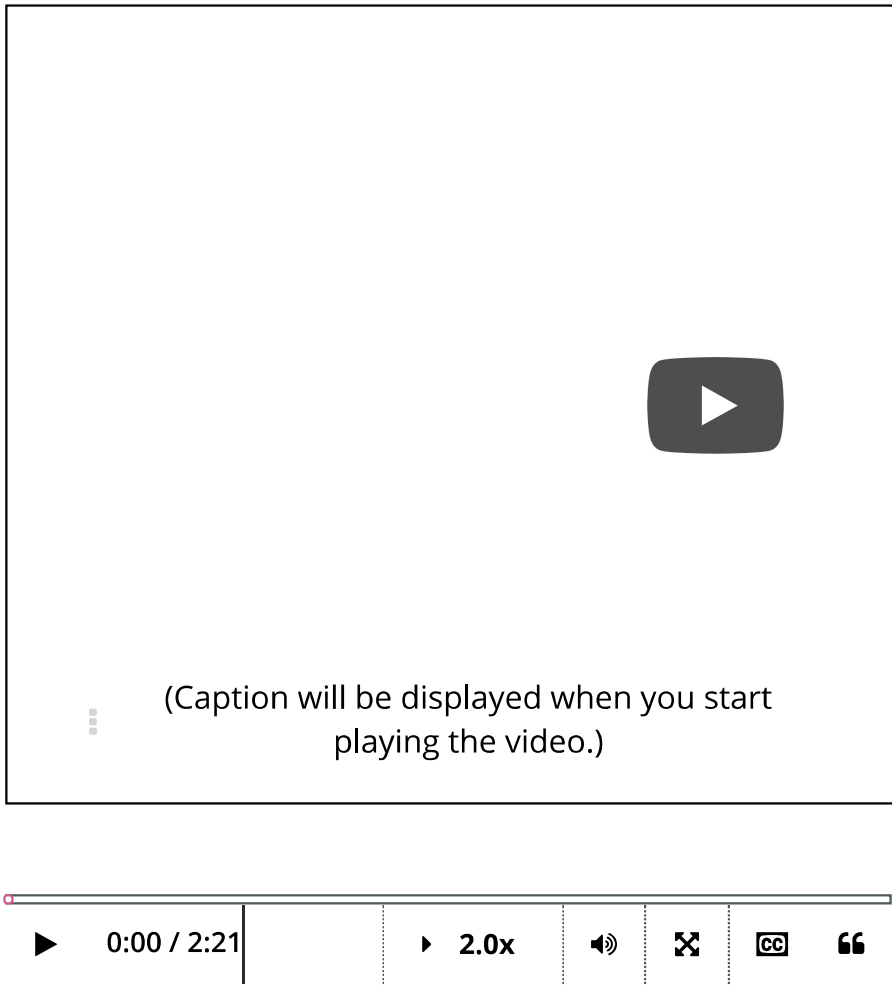
2. MATLAB matrices and their elements
Accessing elements of a matrix



Start of transcript. Skip to the end.

Often, we have a larger data set than we need, and really only want to analyze a subset of our data.

Here we have pollution readings where columns represent days of the week

and rows keep track of the time.

We want to understand pollution levels by looking at data from different times and days.

How can we extract subsets

Entries of a matrix (External resource) (1.0 points possible)

Entries of a matrix

1. Suppose we have created a matrix $\mathbf{A}$. Then we can extract the element of the matrix in the mth row and the nth column by defining it as a variable a:

```
a = A(m,n)
```

For example, if $\mathbf{A}$ is the following matrix

$$\mathbf{A} = \begin{bmatrix} -1 & 1 \\ 3 & 2 \end{bmatrix}$$

then the command

```
a = A(2,1)
```

will define a variable a with the value 3.

2. We can also extract the columns (or rows) of a matrix. The command

```
v = A(:,1);
```

will create a column vector whose elements are the same as those in the first column of $\mathbf{A}$. For the above matrix, we would obtain

$$\mathbf{v} = \begin{bmatrix} -1 \\ 3 \end{bmatrix}$$

Now do the following. Use the script below to create a 3×3 matrix $\mathbf{B}$ whose entries are random integers between 0 and 50.

```
B = randi([0,50],3);
```

Then:

1. Define a new variable b as the element in the 2nd row and 3rd colum
2. Define a new row vector $\mathbf{v}$ which corresponds to the second row of $\mathbf{B}$.

You should use the same syntax explained above. You will not get full credit for simply typing out the elements of b and $\mathbf{v}$!

Your Script

Save Reset MATLAB Documentation (https://www.mathworks.com/help/)

```
1 % Firstly enter a 3x3 matrix B of random integers
```

```
B = randi([0,50],3);
% Now define b and v
b = B(2,3);
v = B(2,:);
```

▶ Run Script ()

Assessment: Correct

Submit ()

✔ **Value of b**

✔ **Value of v**

Output

```
Code ran without output.
```

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