Explore

coursera

Q



Matrix-Matrix Multiplication

We multiply two matrices by breaking it into several vector multiplications and concatenating the result.

```
egin{bmatrix} a & bc & de & f\end{bmatrix}*egin{bmatrix} w & xy & z\end{bmatrix}=egin{bmatrix} a*w+b*y & a*x+b*zc*w+d*y & c*x+d*ze*w+f*y & e*x+f*z\end{bmatrix}
```

An **m x n matrix** multiplied by an **n x o matrix** results in an **m x o** matrix. In the above example, a 3 x 2 matrix times a 2 x 2 matrix resulted in a 3 x 2 matrix.

To multiply two matrices, the number of **columns** of the first matrix must equal the number of **rows** of the second matrix.

For example:

```
1  % Initialize a 3 by 2 matrix
2  A = [1, 2; 3, 4;5, 6]
3
4  % Initialize a 2 by 1 matrix
5  B = [1; 2]
6
7  % We expect a resulting matrix of (3 by 2)*(2 by 1) = (3 by 1)
8  mult_AB = A*B
9
Run
10  % Make sure you understand why we got that result
Reset
Reset
```



