

How can I fix the ValueError that states “operands could not be broadcast together with shapes”?

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To resolve the ValueError that states "operands could not be broadcast together with shapes," one can check for inconsistencies in the dimensions of the operands being used in the operation. This error typically occurs when the dimensions of the operands do not match, making it impossible to perform the desired operation. To fix this, one can ensure that the dimensions of the operands are compatible by either reshaping the arrays or using functions such as `np.reshape()` or `np.broadcast_to()`. Additionally, checking for any missing or extra dimensions in the operands can also help resolve this error.

Fix: ValueError: operands could not be broadcast together with shapes

One error you may encounter when using Python is:

ValueError: operands could not be broadcast together with shapes (2,2) (2,3)

This error occurs when you attempt to perform matrix multiplication using a multiplication sign (*) in Python instead of the `numpy.dot()` function.

The following examples shows how to fix this error in each scenario.

How to Reproduce the Error

Suppose we have a 2x2 matrix C, which has 2 rows and 2 columns:

$$C = \begin{bmatrix} 7 & 5 \\ 6 & 3 \end{bmatrix}$$

Suppose we also have a 2x3 matrix D, which has 2 rows and 3 columns:

$$D = \begin{bmatrix} 2 & 1 & 4 \\ 5 & 1 & 2 \end{bmatrix}$$

Here is how to multiply matrix C by matrix D:

$$C \times D = \begin{bmatrix} 7*2 + 5*5 & 7*1 + 5*1 & 7*4 + 5*2 \\ 6*2 + 3*5 & 6*1 + 3*1 & 6*4 + 3*2 \end{bmatrix}$$

This results in the following matrix:

$$C \times D = \begin{bmatrix} 39 & 12 & 38 \\ 27 & 9 & 30 \end{bmatrix}$$

Suppose we attempt to perform this matrix multiplication in Python using a multiplication sign (*) as follows:

```
import numpy as np
```

```
#define matrices
```

```
C = np.array().reshape(2, 2)
```

```
D = np.array().reshape(2, 3)
```

```
#print matricesprint(C)
```

```
]
```

```
print(D)
```

```
]
```

```
#attempt to multiply two matrices together
```

```
C*D
```

ValueError: operands could not be broadcast together with shapes (2,2) (2,3)

We receive a ValueError. We can refer to the to understand why we received this error:

When operating on two arrays, NumPy compares their shapes element-wise. It starts with the trailing (i.e. rightmost) dimensions and works its way left. Two

dimensions are compatible when

they are equal, or one of them is 1

If these conditions are not met, a ValueError: operands could not be broadcast together exception is thrown, indicating that the arrays have incompatible shapes.

How to Fix the Error

The easiest way to fix this error is to simply using the `numpy.dot()` function to perform the matrix multiplication:

```
import numpy as np
```

```
#define matrices
```

```
C = np.array().reshape(2, 2)
```

```
D = np.array().reshape(2, 3)
```

```
#perform matrix multiplication
```

```
C.dot(D)
```

```
array(,
```

```
])
```

Notice that we avoid a ValueError and we're able to successfully multiply the two matrices.

Also note that the results match the results that we calculated by hand earlier.

The following tutorials explain how to fix other common errors in Python:

[How to Fix: ValueError: cannot convert float NaN to integer](#)

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