How can I use the NumPy where() function to filter an array based on multiple conditions?

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The NumPy where() function is a powerful tool that allows users to filter an array based on multiple conditions. This function takes in three parameters: a boolean array, a true condition array, and a false condition array. By specifying the desired conditions in the boolean array, the function will return the elements from the true condition array for the corresponding true values, and the elements from the false condition array for the corresponding false values. This allows for efficient and convenient filtering of arrays, making data manipulation and analysis much easier for users.

Use NumPy where() With Multiple Conditions

You can use the following methods to use the NumPy function with multiple conditions:

Method 1: Use where() with OR

#select values less than five *or* greater than 20

x

Method 2: Use where() with AND

#select values greater than five and less than 20

x

The following example shows how to use each method in practice.

Method 1: Use where() with OR

The following code shows how to select every value in

a NumPy array that is less than 5 or greater than 20:

```
import numpy as np

#define NumPy array of values
x = np.array()

#select values that meet one of two conditions
x

array()
```

Notice that four values in the NumPy array were less than 5 or greater than 20.

You can also use the size function to simply find how many values meet one of the conditions:

```
#find number of values that are less than 5 or greater than 20
(x).size

4
```

Method 2: Use where() with AND

The following code shows how to select every value in a NumPy array that is greater than 5 and less than 20:

```
import numpy as np

#define NumPy array of values
x = np.array()

#select values that meet two conditions
x

array()
```

The output array shows the seven values in the original NumPy array that were greater than 5 and less than 20.

Once again, you can use the size function to find how many values meet both conditions:

```
#find number of values that are greater than 5 and less than 20
(x).size

7
```

Additional Resources

The following tutorials explain how to perform other common operations in NumPy: