

Compare arrays in Python

The screenshot shows a web browser window with the URL `campus.datacamp.com/courses/intermediate-python/logic-control-flow-and-filtering/ex-4`. The page is titled "Compare arrays" and is part of an "Intermediate Python" course. The instructions state: "Out of the box, you can also use comparison operators with NumPy arrays. Remember `areas`, the list of area measurements for different rooms in your house from *Introduction to Python*? This time there's two NumPy arrays: `my_house` and `your_house`. They both contain the areas for the kitchen, living room, bedroom and bathroom in the same order, so you can compare them."

The instructions also provide a list of questions to answer using comparison operators:

- Which areas in `my_house` are greater than or equal to 18?
- You can also compare two NumPy arrays element-wise. Which areas in `my_house` are smaller than the ones in `your_house`?
- Make sure to wrap both commands in a `print()` statement so that you can inspect the output!

The code editor shows the following Python code:

```
1 # Create arrays
2 import numpy as np
3 my_house = np.array([18.0, 20.0, 10.75, 9.50])
4 your_house = np.array([14.0, 24.0, 14.25, 9.0])
5
6 # my_house greater than or equal to 18
7
8
9 # my_house less than your_house
10
```

****Question:****

Using comparison operators, generate boolean arrays that answer the following questions:

1. Which areas in `my_house` are greater than or equal to 18?
 2. Which areas in `my_house` are smaller than the ones in `your_house`?
- Make sure to wrap both commands in a `print()` statement so that you can inspect the output!

****Answer:****

Here is the Python code that solves the problem:

```
# Create arrays
import numpy as np

my_house = np.array([18.0, 20.0, 10.75, 9.50])
your_house = np.array([14.0, 24.0, 14.25, 9.0])

# my_house greater than or equal to 18
print(my_house >= 18)
```

```
# my_house less than your_house  
print(my_house < your_house)
```

****Explanation of the Code:****

1. ****Importing numpy library****: The numpy library is imported to perform array-based operations.
2. ****Define `my_house` and `your_house` arrays****: These arrays represent the areas for different rooms in two houses.
3. ****Comparison operation (greater than or equal to)****: The code `my_house >= 18` generates a boolean array that indicates which elements of `my_house` are greater than or equal to 18.
4. ****Comparison operation (less than)****: The code `my_house < your_house` compares elements of `my_house` and `your_house` element-wise, returning a boolean array indicating which elements of `my_house` are smaller than the corresponding elements in `your_house`.
5. ****Printing the results****: The results of both comparisons are printed for inspection.