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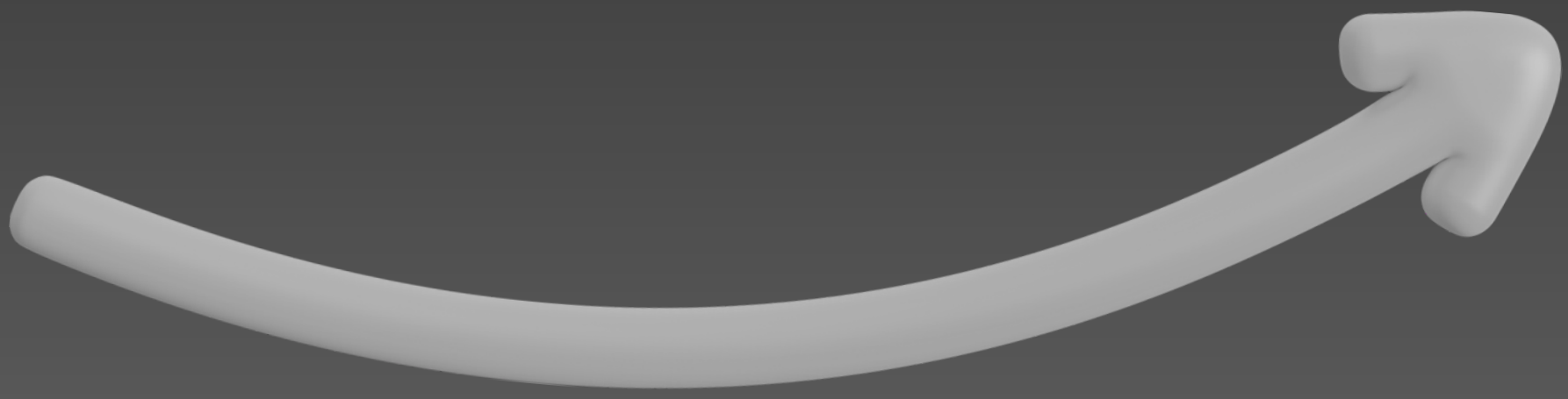
# MASTERING DATA SCIENCE WITH NUMPY



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@learneverythingai

**NumPy is the fundamental package for scientific computing in Python, and it's an absolute game-changer in data science! Let's dive in and explore some of its powerful capabilities.**

# ARRAY CREATION WITH NUMPY

**The first step is to collect the data. Here, we're loading data from a CSV file using Python's pandas library.**

```python
import numpy as np

my_array = np.array([1, 2, 3, 4, 5])
print(my_array)
```

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# GENERATING RANDOM NUMBERS

**NumPy makes it easy to generate random numbers with just a few lines of code. Check out this example:**

```python
import numpy as np

random_nums = np.random.randint(1, 100, size=5)
print(random_nums)
```

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# ARRAY SHAPE MANIPULATION

**NumPy allows you to reshape arrays effortlessly! Take a look at this code snippet:**

```python
import numpy as np

my_array = np.array([1, 2, 3, 4, 5])
reshaped_array = my_array.reshape(1, 5)
print(reshaped_array)
```

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# ARRAY INDEXING

**Accessing elements in a NumPy array is intuitive! Here's a simple example:**

```python
import numpy as np

my_array = np.array([10, 20, 30, 40, 50])
print(my_array[2])  # Output: 30
```

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# ARRAY OPERATIONS

**NumPy makes array operations a breeze! Check out this example of element-wise addition:**

```python
import numpy as np

array1 = np.array([1, 2, 3])
array2 = np.array([4, 5, 6])
result = array1 + array2
print(result)
```

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# FILTERING DATA WITH NUMPY

**NumPy enables you to filter data based on specific conditions easily!**
**Take a look at this code:**

```python
import numpy as np

data = np.array([10, 20, 30, 40, 50])
filtered_data = data[data > 30]
print(filtered_data)
```

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# BROADCASTING IN NUMPY

**NumPy's broadcasting simplifies array operations on arrays of different shapes! Check it out:**

```python
import numpy as np

array1 = np.array([1, 2, 3])
scalar = 10
result = array1 * scalar
print(result)
```

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# AGGREGATION WITH NUMPY

**NumPy lets you perform aggregation operations effortlessly! Have a look at this example:**

```python
import numpy as np

data = np.array([10, 20, 30, 40, 50])
mean_value = np.mean(data)
print(mean_value)
```

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