Assignment 1

1.How can you identify the datatype of a given NumPy array? how do I change the data type of an array?

Answer:-

In NumPy, you can identify the data type of a given array using the .dtype attribute and change the data type using the .astype() method.

Identifying the Data Type of a NumPy Array

You can check the data type of the elements in an array with .dtype:

```
import numpy as np

# Creating a numeric array

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

print("Array data type:", array.dtype)
```

Changing the Data Type of a NumPy Array

To convert the data type of an array, use .astype() with the desired type:

```
# Converting array to float type

array_float = array.astype(float)

print("Converted Array data type:", array_float.dtype)
```

Explanation:

- **.dtype**: Displays the data type of elements in the array (e.g., int32, float64).
- **.astype()**: Creates a copy of the array with the specified type (e.g., float, int).

2.Create a array using in numpy. Then convert numeric array to a categorical (text) array.

Answer:-

To create a NumPy array and then convert it from a numeric array to a categorical (text) array, follow the steps below.

Steps:

1. Create a numeric NumPy array.
2. Convert the numeric array to a categorical (text) array using np.char or astype(str) to change the numeric values to text.

Example Code:

```
import numpy as np
```

```
# Step 1: Create a numeric NumPy array
numeric_array = np.array([1, 2, 3, 4, 5])

# Step 2: Convert numeric array to categorical (text) array
categorical_array = numeric_array.astype(str)
# Print the results
print("Original Numeric Array:", numeric_array)
print("Converted Categorical Array:", categorical_array)
```

Output:

```
Original Numeric Array: [1 2 3 4 5]
Converted Categorical Array: ['1' '2' '3' '4' '5']
```

Explanation:

- **astype(str)**: Converts the numeric values into strings, effectively making it a categorical (text) array.
- The result is an array where each number is now a string representation of the number.