Lab Assignment 7

Fundamentals of Machine Learning

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Q.Implementing Numpy

1, #Implementing Numpy

import numpy as np

Creating a NumPy array from a Python list

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

print(arr)

```
#Implementing Numpy
import numpy as np
# Creating a NumPy array from a Python list
arr = np.array([1, 2, 3, 4, 5])
print(arr)

```

```
[1 2 3 4 5]
```

2, # Element-wise operations

arr1 = np.array([1, 2, 3])

print(arr1)

arr2 = np.array([4, 5, 6])

sum_result = arr1 + arr2

print(sum_result)

Mathematical functions

sin_values = np.sin(arr1)

print(sin_values)

Linear algebra operations

matrix1 = np.array([[1, 2], [3, 4]])

matrix2 = np.array([[5, 6], [7, 8]])

dot_product = np.dot(matrix1, matrix2)

print(dot_product)

```
# Element-wise operations
arr1 = np.array([1, 2, 3])
print(arr1)
arr2 = np.array([4, 5, 6])
sum_result = arr1 + arr2
print(sum_result)

# Mathematical functions
sin_values = np.sin(arr1)
print(sin_values)

# Linear algebra operations
matrix1 = np.array([[1, 2], [3, 4]])
matrix2 = np.array([[5, 6], [7, 8]])
dot_product = np.dot(matrix1, matrix2)
print(dot_product)

```

```
[1 2 3]
[5 7 9]
[0.84147098 0.90929743 0.14112001]
[[19 22]
 [43 50]]
```

3, # Indexing

print(arr[0]) # Accessing the first element

Slicing

print(arr[1:4]) # Accessing elements from index 1 to 3

```
# Indexing
print(arr[0])  # Accessing the first element

# Slicing
print(arr[1:4])  # Accessing elements from index 1 to 3

```

```
1
[2 3 4]
```

4, # Shape of an array

print(arr.shape)

Reshaping

reshaped_arr = arr.reshape(5, 1)

print(reshaped_arr)

```
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print(arr.shape)

# Reshaping
reshaped_arr = arr.reshape(5, 1)
print(reshaped_arr)

```

```
(5,)
[[1]
 [2]
 [3]
 [4]
 [5]]
```

Github Link: https://github.com/Jeyapathy/Machine-Learning