

LAB#04

Artificial Intelligence
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Lab Objectives

Numpy
Library

Pandas
Library

Numpy Library

In Python we have lists that serve the purpose of array

- But being heterogenous these are slow to process

Numpy provides an array object that is 50x faster in processing than the lists:

- Array object is called ndarray

Numpy Objectives

Creating Numpy
arrays

Array Operations

Array Manipulations

Advanced Topics

```
>>> import numpy as np
>>> a = np.array([1.0, 2.0, 3.0])
>>> b = np.array([2.0, 2.0, 2.0])
>>> a * b
array([2., 4., 6.])
```

Broadcasting

- Numpy allows operations on arrays of different shapes with certain constraints



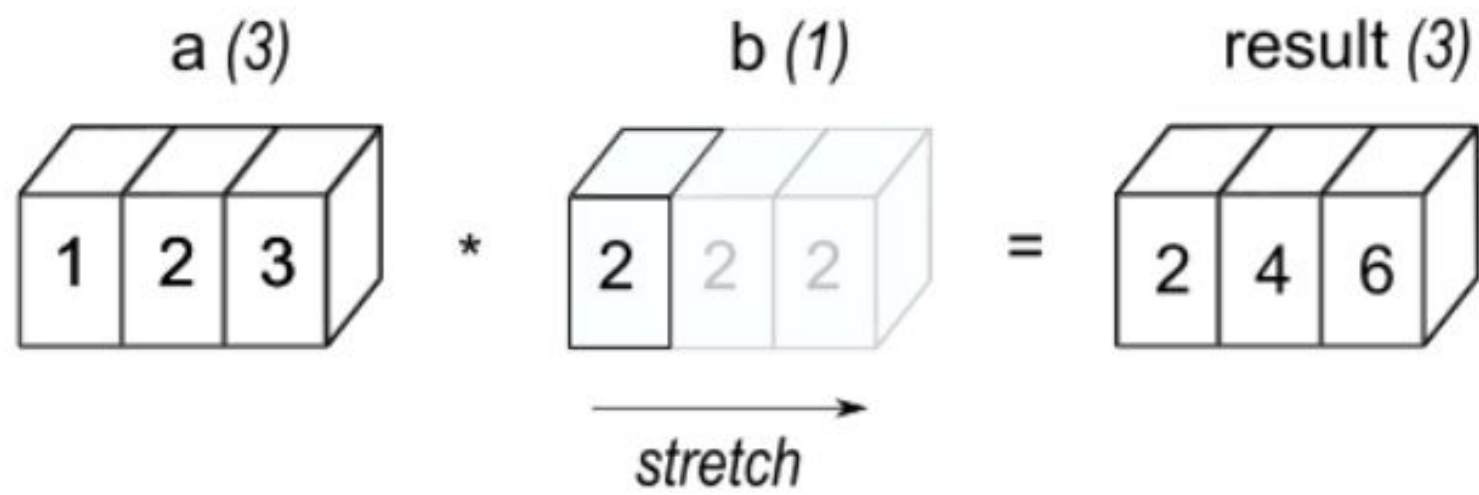


Figure 1

Data Analysis

Process of analyzing large data sets to get answers to questions related to that data set

Pandas Module in python allows us to do data analysis easily



Data Munging/Wrangling

- Process of cleaning messy data (Polishing), for example filling in the missing values, refilling the noisy values



Pandas Objectives

Data Frame Basics

Different ways of creating Data
Frame

Handling Missing Values

GroupBy

Tasks

- Taks 01: Get all those rows from the dataframe where temperature is even and windspeed is odd
- Task 02: Get all those rows from the dataframe where windspeed is lesser than the mean of the windspeed column
- Taks 03: Get all those records when event is either snow or rain and temperature is above 25

Tasks

Section 1: Data Exploration

- Load the dataset into a pandas DataFrame.
- Display the first 5 rows of the dataset.
- Check for missing values
- Get the summary statistics (mean, std, min, max) for each column

Section 2: Data Filtering

- Filter wines with quality rating > 7.2 .
- Filter wines with alcohol content $> 13\%$.
- Filter wines with pH < 3.5 .