1. Linear Algebra for Data Science & Machine Learning in Python.
2. **Learn Concepts of Linear Algebra and implement using python 3, Hands on Numpy, Pandas for Data Science & Linear Algebra**

What you’ll Learn

* Complete Understanding of python from Scratch
* Numpy Array, Numpy Operations
* Pandasn and Numpy for Data Analysis
* DataFrames , Pandas Series, Pandas Matrix
* Learn Numpy and Pandas Library
* Understand the Basics of Linear Algebra and Have a solid Foundation in Linear Algebra.
* Understand how to use Python to do linear algebra operations
* Understand Linear regression

1. **Python Basics and Data types**

* Installation and Setup
* Basics
* Variables
* Data types Introduction
* Numbers
* Strings part1
* Strings part2
* Strings part3
* Strings part4
* Lists
* Dictionaries
* Tuples
* Sets
* Booleans

1. **Statements, Functions and OOP in python**

* If, Elif and Else
* For loop
* While loop
* Useful functions in Python
* Functions part1
* Functions part2
* Map, Filter and Lambda Expression
* Scope of Variables in Python
* Introducing of Object Oriented Programming
* Class and Attributes
* Methods
* Inheritance

1. **Data Analysis with Numpy and Pandas**

* Introduction to Numpy
* Numpy Arrays
* Numpy Arrays: Indexing and Selection
* Numpy Operations
* Introduction of Pandas
* Pandas Series
* DataFrames Part 1
* DataFrames Part 2
* DataFrames Part 3
* Working with Missing Data
* Groupby Method
* Merging, Joining and Concatenating DataFrames
* Pandas Opeartions
* Reading and Writing Files

1. **Linear Algebra and Python**

* Linear System of Equations
* Elimination Method
* Gaussian Elimination part1
* Gaussian Elimination part2
* Gaussian Elimination part3
* Applications of Gaussian Elimination
* Row Echelon Form
* Row Echelon Form2
* Matrix Algebra 1
* Matrix Algebra 2
* Matrix Algebra in Numpy
* Special Matrices, Diagonal and inverse Matrices
* Special Matrices, Diagonal and inverse Matrices part2
* Inverse Matrices Continued
* Inverse and Transpose
* Determinants
* Determinants 2
* Inverse, Determinant Calculas
* Computation of Determinants
* Linear Regression in Python

1. **Requirements**

* Basic High School Math

1. **Description**

* In this Tutorial, We will explain the essentials of Linear Algebra and everything that you need to understand the basics of linear algebra as well as explain **Python from Scratch**

We will cover content such as:

1. Python 3 Basics to Advanced Level
2. Numpy Library and Pandas Library
3. Matrices and Linear System of Equations
4. Linear Regression with Python Numpy Library
5. Matrix Operations using Python Numpy Library
6. Gaussian Elimination
7. Reduced Echelon Form and RREF
8. Matrix Algebra
9. Special Matrices, Diagonal Matrices, and Inverse Matrices
10. Inverse Matrices and The Inverses of Transposed Matrices
11. Determinants and computing the Determinant
12. Much more!

By the end of this course, you should very comfortable with Python, Linear algebra, and be able to follow throw any Math which uses the Linear Algebra notation in Machine learning algorithms.

1. **Who this course is for:**

* Computer Science Students Who Want To Learn More Linear Algebra
* Students Who Want To Learn The Linear Algebra For Machine Learning and Deep Learning
* Anyone Who Is Interested In Math And Wants To Study Linear Algebra
* Data scientists who want to review their linear algebra
* Anyone Who wants to learn Python for Data Science