DATA COMPRESSION 02

Hi guys, in this video we will see a basic illustration of numpy library of python so what numpy is? Numpy is actually is numerical python stands for numerical python so in our precious videos in our previous joys we have seen some part of numpy we have been using numpy a lot of times and to do some tasks to perform some tasks but in this video i will show you what else you can do, how basic operation you can perform in numpy very easily. So what exactly numpy is useful mainly it is useful to perform some matrix operations in python and to do it easily you are using use mostly numpy library so array what say matrix mostly matrix we use numpy and there are lot of lot of matrix if you know linear algebra and matrix and you must know that the application of matrixes are huge in mostly in image processing and even machine learning and ai matrix the applications are a lot mostly if you know matrices and their operations and you can definitely easily cope up with the ai elements and machine learning so even in deep learning so for that we use numpy library a lot suppose some of you wanted to want to machine learning or ai or deep learning whatever it is then you need to understand this library numpy library because you will be using this library a lot there. I will give you very very very basic operations in numpy library which you can perform. So let's see this i will just import the library or let me just oh sorry yeah let me increase this pane in most of the videos i keep both of my pane because i like keeping this but you can when you are working on your programming part or coding part you can zoom out this part, zoom in this part or exclude this part vice versa so let's see this let me import the numpy library so i will write here import numpy as my alias will be np here you can put here it's the convention people mostly put np so you can put np here so you can put x also so looks nice here great. So i will create an array of how do i create array, i have been creating a array of elements before in python as a list for examples see this console here let me ok should be fifty fifty percent ok so let's see this suppose i create a list of name l in my elements are one two three so i will make a list, list is created like this one comma two comma three ok and i will just run it and if i see the elements of this list i tell one two three so same thing i will do but it will create an array what's the difference? What you can do? When you get an array as array just see it is an object when you get when you create an array of let's say elements of one two three you can perform a lot of operations through numpy library which has been return this in this numpy library so you can perform all those operations a lot lot lot of operations there so will make an array of let's say all these three elements one two three first so let's see a is equal to np dot array it will show you here ok np dot array and what are my elements so let's say one comma two comma three so the convention is you pass the list there, the list of array as an argument so np dot array will take an argument an argument will be my list great you just print this let's see what happens, print a let me just run this we will see one two three exactly what i was expecting here i am getting here nothing different i got an array great now let me do some other thing here with this array i have the array just print something let me just write it and you will understand what is it exactly. Type of a ok see showing class numpy dot nd array n dimensional array this is one dimensional it is known as one dimensional array let me print something else one dimensional why because just one row and there are three columns if you see this as a matrix there is only one row this is one two three and there are three columns, first column second column and third column so one row

there are three elements so that's why is the one dimensional array ok let me write some more functions let say a dot shape ok let me see this three comma nothing three comma nothing means it has one row and it has three columns, three columns one row great i can print the elements how am i supposed to get the elements same as the list a dot zero let say a one and a two it will give the elements as one two three so exactly same as the list how am i suppose to how i receive the elements of a list using the indexes same analogy is there ok great i can change the elements also exactly if i want to change the elements of the index let say one and make it let say six and just run it and i can see the array one six three same analyst nothing, great what if i want to create a two dimensional array? Same thing let me just delete all these things i will change array as the two dimensional array so how i put two dimensional list? One list inside that there will be two lists. List number one will be first row ok so first row let's say one comma two comma three ok comma second row is a list which is four comma five comma six that's it let me run it to see yeah, it's running everything is fine you can see a as if you run it array one two three four five six this is first row second row as an array and if you just print the shape of b not the shape of you shape of b shape b dot shape but you will see these sorry what did i put! It's not b sorry sorry ok a dot shape to see two comma three ok so there are two rows two rows and three columns great awesome there are many ways through which you can create arrays and this is this is one way suppose i want to create suppose i want to create an array of all zeros one thing i will just put a list zero zero zero zero zero i can through loop i can create a list of zeros and i will pass the list that list or i will just directly use that whatever it is but through numpy you can with one line of code you can create such array easily. Suppose i want to create an array of zeros so i will just a is equal to nm dot said zeros and i will just give the dimension as array of matrix of two cross two zero ok i just run it i just see a see zero zero zero zero great or if i want to create an array of one's np dot ones let me give the dimension as two comma two i will just run it i will see b give me one one one one great ok or if i want to put some particular number in all the at all the places let's say so i can just put np dot full ok and let's say i will give the dimension of array again two comma two and what is that constant let's say i want to give six that's it i will run it i will see c six six six six awesome great or if you want random numbers also that too is possible will just put np dot random dot random so you know random dot random put one zero two one you want from if you want from if you want integer then you can put integer values rand int so i will just give the dimension as two comma two and if you see d see some random values from zero two one between zero to one are coming in this array.