LISTS PART 3: OPERATIONS

Alright guys we have list of ages of different people see there are some ages we have had checked using the count functionality let us check once again probably. Ages.count of twelve see it returns two whereas ages.count of seventy it returns zero where as some other values say twenty five it returns one twenty three it returning two see look at the let us print the ages so that we can refer it again print ages see these are the values i cannot verify it manually i am believing but still if i want to verify its taking me some time to check whether the answer written is right or not? Also i couldn't get an idea of what is the age group of people there living in that city something like that say for example this area has a lot of youth population or this area has a lot of senior citizens something like that some kind of inference i couldn't male out from this data do you think is there some way if i modify this list you can infer something? Just give it a thought. Yes one simple way, if you would thing out is if the data is sorted that is it is arranged in ascending order or descending order something like that if it is sorted we can get an idea what is an minimum value what is the maximum value or may be examine the mid position to get the average of it something like that you can get some analyses you can give some more idea than having the idea like this if it is sorted that is if it is arranged in some ascending or descending order you can get some more idea so let us see how can we sort it, there are some sorting algorithms you would have heard of techniques like bubble sort quick sort merge sort don't worry if you haven't heard of it nothing its nothing never not a problem it's not a rocket science don't worry if you haven't heard of it you can definitely learn it in fact will be pitching some sorting technique in our course as well also python has a functionality which lets you sort the numbers even if you don't know any of the sorting techniques just say sort it will sort the numbers for you so let us see how sorting can be done. Ages.sort this is the way you will get the sorted list see ages could have been sorted now i want to print the sorted functionality so let me say print ages i obviously use the history look ups using the up arrow ok, see now the ages has been sorted now you can verify count of twenty three was two yeah there are two values twenty three i the previous list since it was distributed some way i couldn't really check if it is correct or not something like that just not for checking but we can make many analyses the least is one year old kid to the eldest person in the city is eighty seven year old person so here just two senior citizens and till thirty five it can generally consider as youth so yeah more youth is there in this particular factious city that we have considered probably because am an youngster who is typing in the ages i have list of age that is young it all depends so you can make some analyses right? That's what is the point. Sorting by sorting you can get some analysis will be easier so sorting is one such technique that will make most of your things handy it will make most of your things simple your complicated life would be made simplified with the sorting technique so this i the way how you can sort it in case you want to reverse it what is the method? That is sorted in the reverse sorted fashion sort will generally do it in the ascending order so if you want the descending order ascending order is nothing but the elements if you would see one less than two less than three that is if you go in this way from left you will see the numbers in increasing order like see if you have seven here something less than seven definitely lie to the

left of it, it will never come in the right of it. If the numbers are arranged in that way if you take any number all numbers less than that will be in the left side and all greater than that will be on the right side if the numbers are arranged in this fashion then you call numbers then you call numbers are arranged in ascending order and if you want the numbers to be arranged in descending order what is the way? Just think for some time you will get the idea. I hope you got the idea, nothing? Just if you would print this thing in the reverse order it is descending order, descending order is nothing but as i had said you would scan from the left numbers will go in the decreasing trend so eighty seven if i say in the reverse order eighty seven, eighty two fifty seven forty two see if at this point forty two the numbers they are before it that is if you would read it from the left to right just assume that it is left to right in that case you will get the numbers on the left will be greater than it and the numbers from the right will be less than it this is true for all numbers in that sequence this is what we call as a sequence mathematically, in nothing but a list in that list if all numbers are like this then you called as the list is sorted in descending order descending is decreasing order, ascending is increasing order, ascend and descend they say right? For mountain if you are climbing up the mountain they call it as ascend and climbing down the mountain is called the descend right? so that's how the names comes ascending order and the descending order so let us see how can we make it descending order like i had said reversing the list that is by reading in the reverse order you are getting it so can w reverse the list? Yes! We can there is a functionality called reverse let us see there ages,reverse reverse ok it got reverse so let us print it now see as i has said it is in the reverse order eighty seven eighty two fifty seven and so on it is in the reverse order it is now in the descending order so by reversing again back you will get the ascending order so you alternately keep reversing you will get ascending and descending order once you apply sort you will get the ascending order and if you keep reversing you will travel between ascending and descending order ok this ordering of numbers comes handy in many situations and please note this method by which you use built in python functionality to perform this sorting operations that is ordering arranging in a particular order that is what we call as sorting technically sorting operation fine, so let us see some other powerful technique using lists for that let me consider some other data set the student data set that i had said you, let us have some data ok students data set let me just have some fractious data students equal to some names let me say let use doubles quotes let say arun i will say rajesh i will say for example harish some three girls akanksha lakshmi varsha some names i have taken some lists of students are they first sorted? I don't think so i had just randomly entered the names see why do i sort them? Because that's how generally we store right in academic records in an alphabetical order they will be arranged and that is called the attendance order so let me sort them we have just now learnt how to sort apply that technique and then sort so they would have been sorted so let us print students yeah they have been sorted akanksha harish lakshmi rajesh varsha so these are the students we have in a class just assume that so in that let us assign the role numbers to them let us say as i had said you can have it as zero generally our role numbers will start from one but computers starts from zero to counter that you can either make changes in your programme as you write code in the future or you can intelligently insert some mean values in the zeroth position that is first value that you see is index zero at zeroth index insert some dummy value then you can manage this as one two three so let us do the this way of managing this as one two three by inserting a dummy value in the zeroth

position let me say let us insert the course name for example so let me say how would i insert at specific position we had seen using the insert function right? So let me say students.insert at the position zero, zero is the first position see the computers perspective and the humans perspective differ by one so you for first position for humans and zeroth for computer so at zeroth position let me insert the course name for example joc this is our course name i have inserted it tight? Now let me print see i have an inserted it double variable right and now i wanted to extracted a subset of students what do i mean by that? Three are some six students in my data set in my class basically data set is nothing but in my data six students i have considered some six random names i have considered there are some six students i want to extract a subset that is the few of them only i don't want to considered every one of them so how would i do that? This is the special operation called slicing let me write that for you slicing.