DICTIONARIES

Hello guys welcome to yet another programming screen cast, in this programming screen cast we are going to see of data structure called as the dictionaries. I hope you are familiar with the term data structures because in your precious weeks you have been introduced to data structure called list. This week we will see a data structure called dictionary. So dictionary as the word says it is similar to the English dictionary or any language dictionary for that matter. How is the data stored in the dictionary? You have words and meanings corresponding to it so there are two items in this dictionary words and the meaning something like that even in python dictionaries you have two elements and the relationship between the two is what is model by this data structure called dictionary, technical terminology is key and the value is what they say it is key and the value is what they say, key is nothing but the unique identifier for a given value for example this is the common example which people generally say there may be multiple people sharing a same name in a college in that case to identify a student uniquely the college may assign some id number something like that there is unique id associated with an item that is called as key and the value is nothing but the other details of the item for example assume there are more people by the name amit so if there are multiple persons with name amit they may assign some id number and they may store the person's name. So that the id number would uniquely identify which person is being referred to as something like that, in such applications this dictionary data structure is highly useful, so we will take some other example this student id and the student details is something with generally people say so let us take some other example in this screen cast, i will take the currency conversion concept so here our keys that is our unique things will be our name of the currency and the value will be the conversion factor so i will take Indian rupees as the base so i will take the different currencies dollar euro yen whatever you say i will, dollar is the key and value is nothing but one dollar equals how many Indian rupees? That will be my value this is what i am going to take in this screen cast. So dictionary as you could see is a data structure that models this kind of relationship that there is a unique identifier and value associated with it. So two, two elements relationship what is captured here ok let us see how shall we create a dictionary. Very simple, how did you created a list? You said l equal to this kind of brackets right? This will create a list something like that for creating a dictionary you have to give the name of the dictionary conversion factor let me name the name that itself conversion factor this is a dictionary see this is the curly braces as you could see her, these are the curly braces, curly braces denotes the dictionary, so if say this and press enter a empty dictionary gets created so if i say conversion factor and press enter see an empty dictionary is what is shown as the output, so now what should i do? I should start adding the values that is i should adding the conversion factor for various currency systems, as i said i will be taking the Indian rupees as the standard one to which we want to convert, so that is from this particular currency system we dollar or euro or yen whatever be there from there we want to convert it to the Indian rupees that's what we want to do here, i want to add the value of dollar please note that these are just approximate value i want to add the value dollar so how should i do that? Here goes the syntax please observe, conversion factor this is the name of

the dictionary and i need to use the same brackets that i used in list, here is should give the value of my unique key here the value of my unique key is i will say dollar, dollar is my unique key and equal to what is the corresponding value, i assume that it is sixty rupees, one dollar is equal to sixty rupees this is just my assumption so i give the name of the dictionary as you could see here i gave the name of the dictionary this brackets this square brackets within the square brackets i gave my key that is the unique identifier and equal to the corresponding value this is the syntax of how you have to add a new item, so new item got added how would we know? Let us just display the conversion factor see a new item got added dollar colon sixty so dollar is the key corresponding value is sixty it got added, if i want to add further more item i can add it let me do that, euro equals let me say eighty this is just an approximate see i print it now see you got it, dollar colon sixty, euro colon eighty another item got added up so this is how dictionary is worked you have a key which uniquely identifies your value and the associated thing is called as a value. Now let us see how can we view the dictionary? So this is in console i am doing it, but when you do it do it in your programme you generally use the print command just like how you gave print the list something like that you can give here as well print conversion factor which is the name of our dictionary, you can give this see this got printed dollar and then euro and now let us see how can we access the individual items. So i want to know that is the value of euro, how would i do that? I would say conversion factor of the key is euro that is i want to know the value corresponding to euro, see eighty is shown as the output that is corresponding to euro the value stored is eighty so this is how you access this specific value, you retrieve the specific value now if you want to list out all the keys present in your dictionary, you need to say conversion factor which is the name of our dictionary dot keys this is the functionality if i put this see i got the list of all keys that has been enhanced into some special data structure so if you wanted to be there in the list i need to convert it into list, you could see here if i converted into a list i got the output as a list this list the all keys that are present in your dictionary if you want to list the values that is the associated item you want to list it, it is simple instead of keys you put values and as you could see here the values are listed corresponding values are listed in case you want to fetch both keys and values simultaneously that is what are all the items that is present in the dictionary is what you want to see, the dictionary name here it is conversion factor dot items it will list the items in the dictionary see it says dollar comma sixty euro comma this whole thing what you call as tupple that i something but something which is constant as dollars and sixty are associated ones you cannot separate it something like that also if you want to know what are all the functionality that is available conversion factor dot and press the tab that is you get the all functionality whatever is available from this whatever is the item you want to know you can type that for example let me say pop is the functionality i want to know, i want to know what this functionality does? You just put a question mark at the end so it gives the documentation corresponding to it so it says it will remove the specified key and return the corresponding value the key is not found it will raise an error for example here dollar and euro is there now if i say conversion factor of yen i know that there is no such key but still let me show you see it has raised what is called the key error states that this particular key is not present in your dictionary so the key error would be raised in case if the key what you ask is not present otherwise it will remove the key and return you the value associated with it, there are lot of

functionalities available as i had said using the tab key you can get to know of all those functionalities, now we shall see updating, this for example i had written dollar is sixty and euro is eighty and i suddenly came to know that the value of dollar has been changed so i want to update it, how would i do that? Please observe it is very similar to insert the thing on your key conversion factor of dollar is equal to the new value, let me say not sixty its sixty five let me say sixty five and enter now let me list the dictionary see it got updated it was sixty initially it got updated to sixty five so this particular statement is same for create as well as update, if such a key is present already it will update the old value and write the new value if it is not present it will insert a new value that is what this statement does. This is the same syntax for both create as well as update so how shall we delete a specific key from the dictionary so let me add one more element conversion factor of yen, this is just my approximation i assume that it is fifty rupees this is my assumption ok so let me enter so now let me check what is in my dictionary so my dictionary contains dollar euro yen now i want to delete specific some values see for example yen is something i had inserted but then i realise that i don't need it so i want to delete it so how would i do it? Observe the syntax d e l is the key word for delete del space name of the dictionary name of the dictionary and inside that you need to give the key so it would search for the value corresponding to the key and delete that key value back this what this functionality would do, key would have got deleted now let me display see it was deleted see if the initial stage when we print it we had yen i had deleted it so if you would see in this updated dictionary there is no specific value corresponding to yen in case i give some key which is not in the dictionary it would throw a key error as you had seen earlier so this is how you handle with dictionary as i had said let us do a small currency conversion so i want the value in rupees, this is thirty Euros i want the value in rupees it is nothing but the value of Euros currently e into whatever is the conversion factor conversion factor corresponding to Euros is what i wanted now check the value of r it's two thousand four hundred so thirty Euros is nothing but two thousand four hundred so in such situations you see a data structure like dictionary is very handy, i would recommend that guys use this tab key and explore whole lot of functions that are available in dictionary keep exploring keep learning happy leaning thank for watching this screen cast have a nice day.