IIT Madras

ONLINE DEGREE

Programing in Python
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More on Dictionaries

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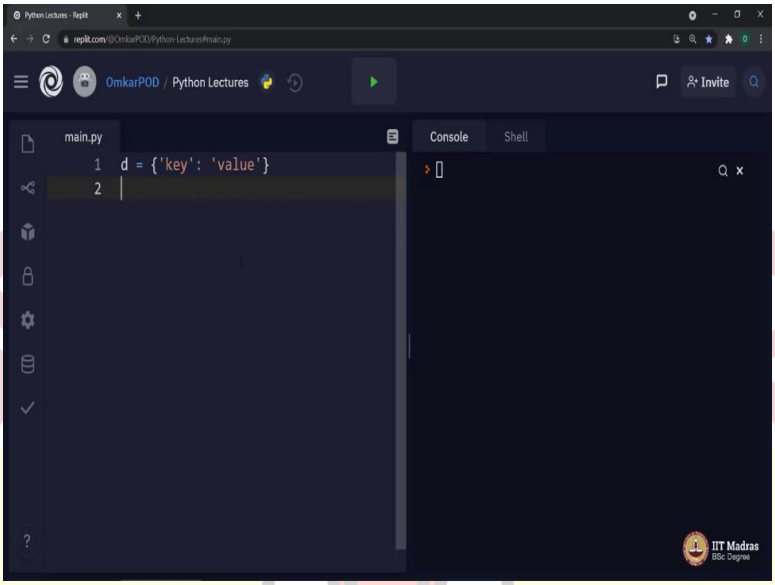

Hello by Python students. After list and tuple next one it is dictionary. List use square bracket, tuple use round bracket, whereas, dictionary use curly bracket. In addition to that, every dictionary element follow a standard structure which is referred as key value pair, which means every dictionary element has to be written in this particular structure, which has two components separated by colon.

The left-hand side of colon is referred that key, whereas, right-hand side of colon is referred as value. If you want to access a particular value in a dictionary we can do so by using key associated against that value, therefore, every key in a dictionary has to be an unique value, whereas, duplication is allowed for values.

So, the next question is apart from this what all things we can use as a dictionary key. Can we use an integer, as a dictionary key? Yes, we can use integer as a dictionary key, float, yes, Boolean, yes, string, yes, list, no, because list is mutable. Another dictionary once again, no, because dictionary is also mutable.

Then what about tuples? Can we use tuple as a dictionary key? And the answer is yes and no. Yes, because tuple is immutable, hence, it can be used as a dictionary key, but at the same time, no, because tuple allows you to have mutable values inside it. We have seen such an example in previous lecture and that time I asked you to remember one term called hashable.

So, in other words, a dictionary key has to be immutable hashable, which means all such tuples, which do not have any mutable entity inside are allowed at dictionary keys.

Then what about values? What all things we can use as value. Integer, float, Boolean, string, list, tuple, dictionary, anything else and the answer is all of the above. Dictionary value can be anything. There is no restriction on it and as it is a mutable entity all the different properties, which we have studied with list related to mutability are also applicable to dictionaries, which means if you want to copy a dictionary, you have to explicitly use copy method. Otherwise, what will happen.

In addition to that if we want to pass dictionary as an argument to a function, it will be passed as correct call by reference. Now, as this all basics of dictionary are covered let us move to the next point. How to iterate over a dictionary. Let us see that using an example.

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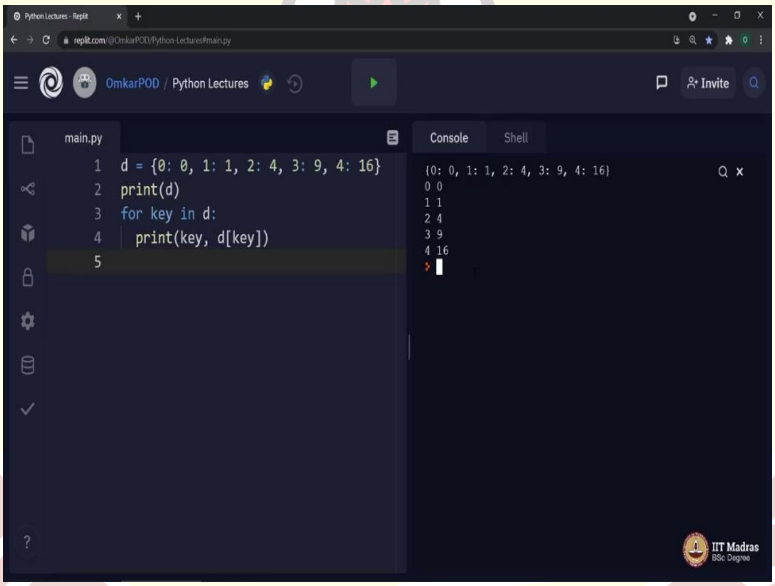

Dictionary d, and this is how we can print the entire dictionary. We can write a loop in order to iterate over the same dictionary in this way. It will print all the keys of the mentioned dictionary. What if I want to print values as well? As we have studied earlier values of the dictionary can be accessed using its key like this. Let us try to execute it. As you can see along with each dictionary key there is a value. This is how we can iterate over a dictionary. What about dictionary-specific methods? Let us look at three most important methods related dictionaries.

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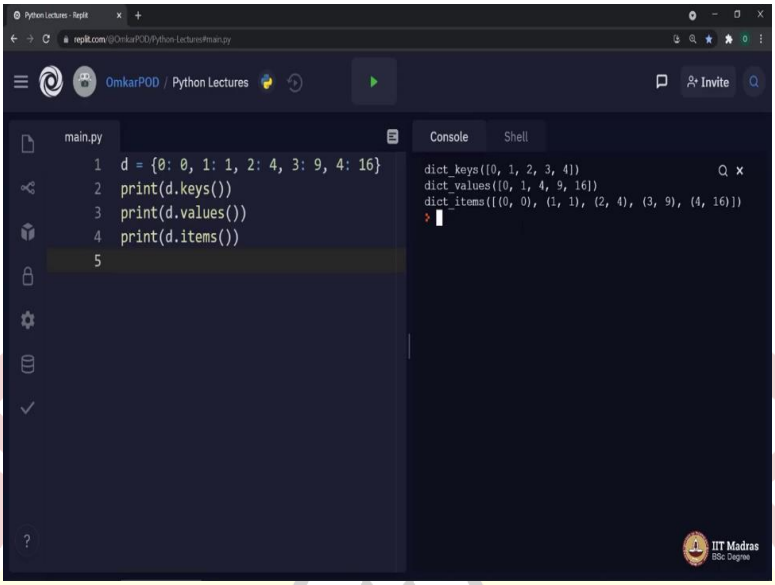

Let us look at this code, same dictionary d and then three different methods, d dot keys, d dot values, d dot items. Let us execute and observe. First d dot keys it prints a list of all the keys in this dictionary. Next d dot values, it also prints a list of all the values in the dictionary. Third one is a bit different, which is d dot items. It also prints a list, but every element in the list is a tuple and that couple holds two elements, key as well as value. This is another place where python internally use tuples. Thank you for watching this lecture. Happy learning.