Programming in Java
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Lecture - 52
JDBC - III

Now, this is the 3rd session of our JDBC learning and then in this session we are going to learn about the five step, that we should follow from the program execution point of view in order to access the database remotely from the hope your host machine.

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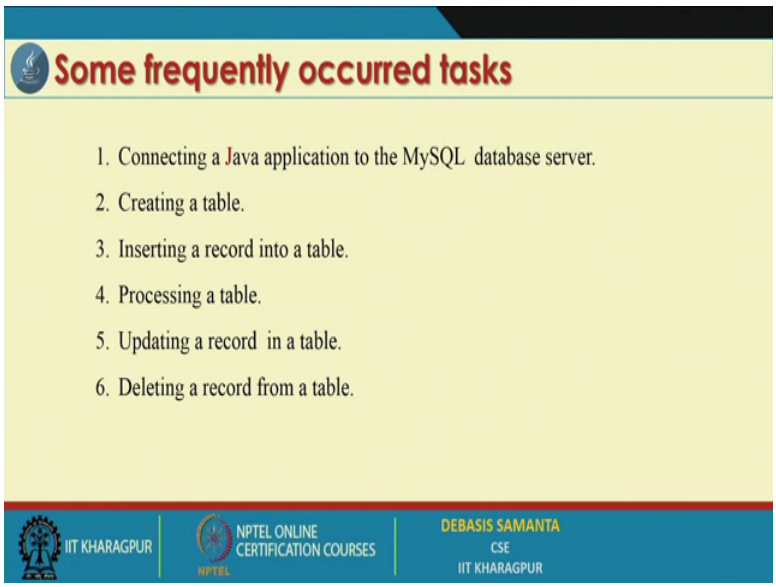

Now, so we will see exactly how all those things can be done, but using some examples one by one different examples that we are going to cover in this slides are like how we can connect JAVA application to the database server. In this case; obviously, MySQL only and then how a table can be created and then how the records into such a table can be inserted. And, then how the results obtained from a table can be processed and then the record can be updated and then record can be deleted. All these things we have done in our first session of learning of JDBC when we are just connecting directly from our console missing to the SQL server. But, here we will do the same thing, but using our from program not from the console.

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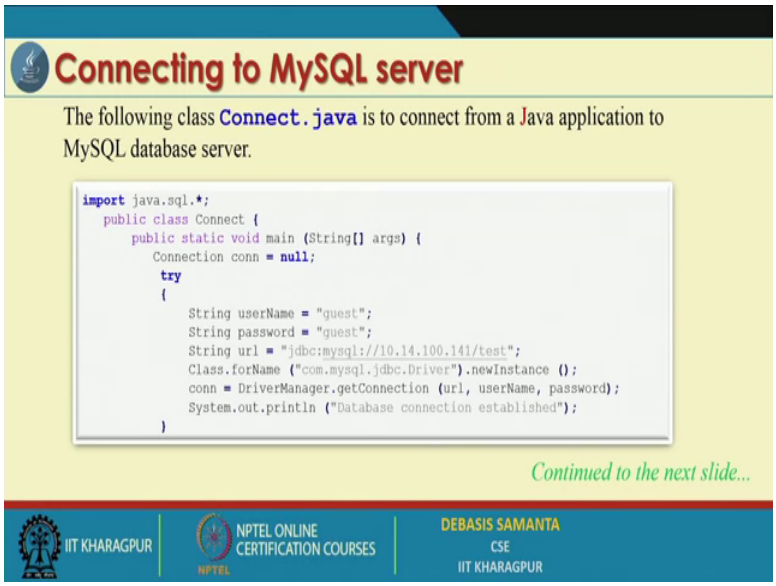

Now, let us first see exactly how the connection to the remote a SQL server can be done, as you have already mentioned about this idea about that connection as we see here . So, basically this is the guest login and password that is a information that is required and these basically shows the jdbc mysql database location driver actually we have to connect it and test is the name of the database and then that connection class that can be created by using this method only.

So, this basically return you the connection objects and then connection object basically can be obtained using url, username, password which we have set in the last three statement. And then finally, we can have this statement console from your System out dot println usual database connection established successfully if it is there. And all these things should be put under try catch block as I have already told you in order to handle the exception, if any occurs during any problem which may occurs during either this time or this time it is there.

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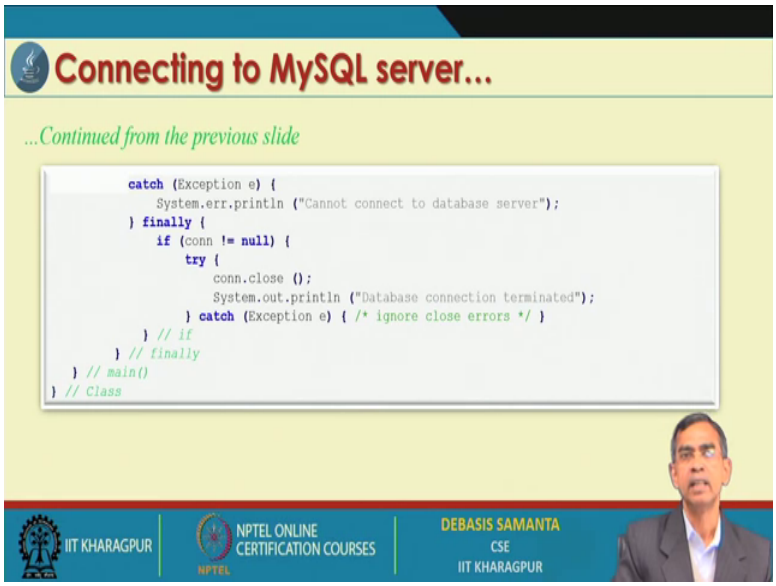

So, this way the connections can be established and then so, this is a method by which a connection can be done right. And, this is a simple statement that you have to follow usually in every Java application you have to include this kind of course, in your program always.

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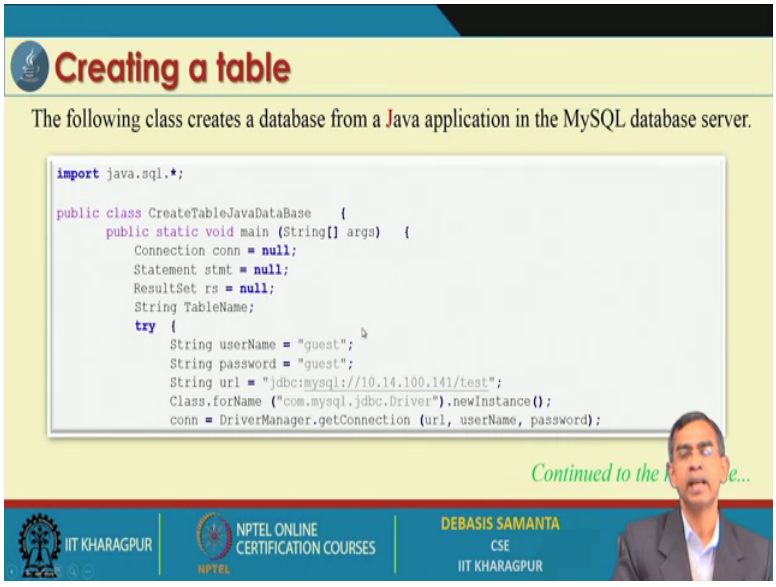

Now, let us see how a table can be created. First of all;' the same procedure that the connection can be done. So, this is the statement that you have to include.

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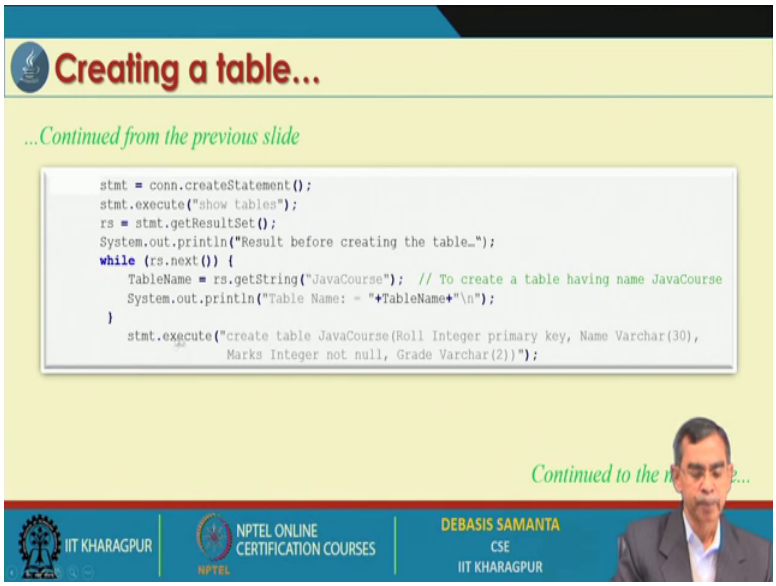

And this statement follows the different statement like how the; we can execute a statement here. As we see here in this example so, statement object is created using this statement, these two statement are to create a statement object. So, statement conn createStatement this is basically instantiation and finally, execute the method of the statement can be used using passing the SQL commands. So, this is basically SQL command show tables. Now, the result will be written and this result will be caught in the rs result statement object; rs is basically statement that we have created here.

And, then we just scan all the result that obtain that that is there in these rs we can say array of results we can say rs and then rs dot next means we scan each elements in this rs array one by one and then we can display on the console. So, if you can pass a while statement until all the elements are traverse; we will be able to do that. And, then statement dot execute another statement that we are going to execute after knowing that this table is there, create table JavaCourse Roll Integer primary key, Name Varchar Marks Integer not null, Grade Varchar. So, these basically tell you that new character table can be created and that name of the new table may be say JavaCourse.

So, this way the new table can be created and then we can get it. So, all the statement that we can we have executed ones using SQL server directly from the console it can be existed from the Java program using this statement actually.

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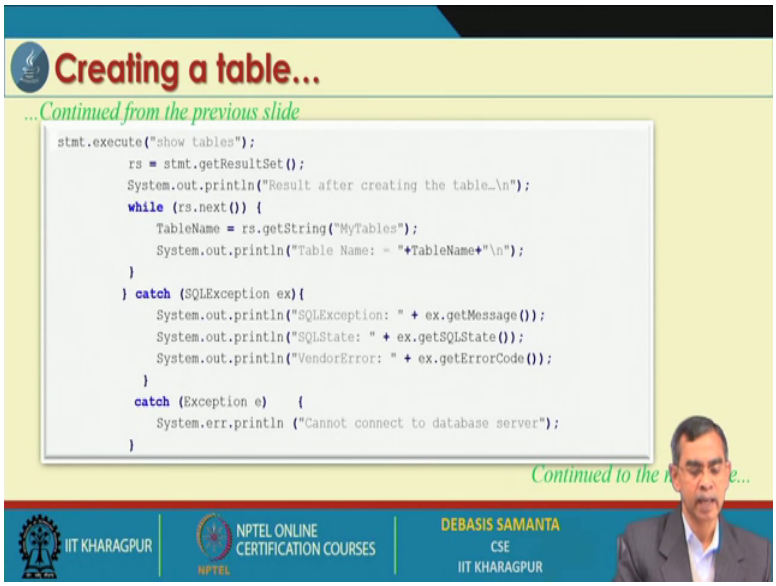

And then the statement can be executed again after the in creation is there, if you want to see exactly where the table is created again the same statement can be executed show tables. And, then rs statement getResultSet it will again the return the results is showing all the table and in this case you will be able to see that new tables which have been recently added can be shown in there.

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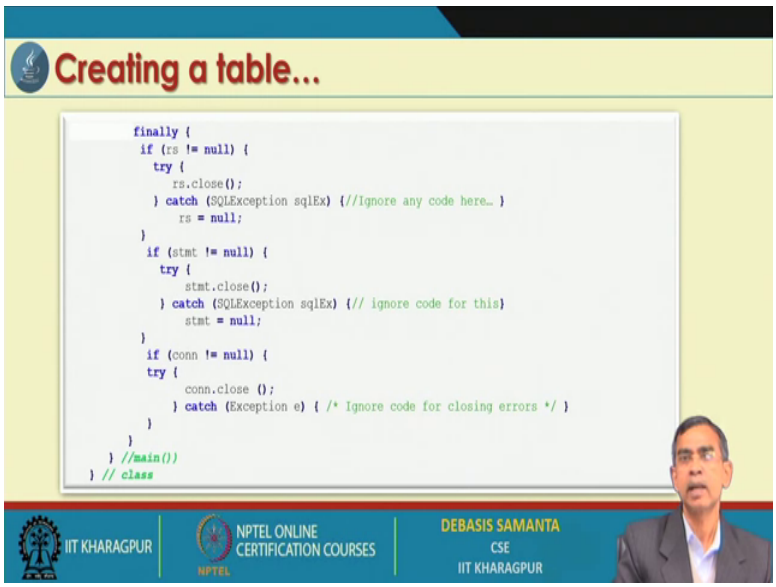

And then these are the parenthesis things under the catch and try and catch blocks should be there so, that the exception can be handled properly. So, these course are available

readily will be able I will give you the source of all these course in our next session when you will discuss then you can run all those course and you can understand thoroughly one by one so, that if you can. So, that will give you a lot of practices to understand how the things is going on.

Now, we will discuss about how a record can be inserted into a table again from the Java application; you know how the same thing can be done from the console directly to the MySQL server.

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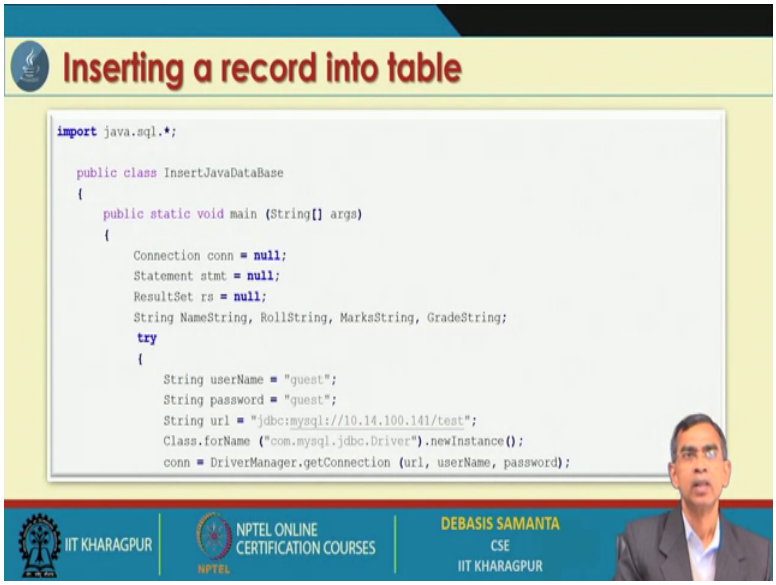

So, again here you see the Connection type of object conn Statement and rs these are the three different type of objects of type connection statement and the result sets that is the things we have defined it. And finally, we create a connection here using the same method that we have discussed.

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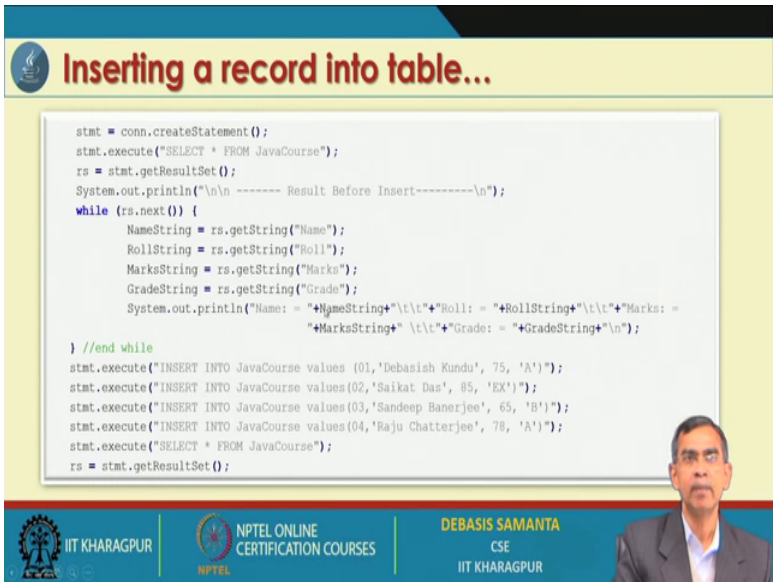

So, connection is established and then finally, we execute the statement and this a statement object is created and this a select star from JavaCourse. This is the SQL statement we fire from this program and then it will result return the results rs. And, then we can browse the results through this while statement; each record can be printed on our screen. I mean displaced screen like using this simple System dot out dot println. Once the record will be obtained and this is the process by which we can get the values and then processing these values into the string, actually it will display all the results.

And, then once the result is the after execution of the select star from JavaCourse we have to execute some other statement like statement execute INSERT INTO JavaCourse with value this one. So; that means, here the five different statements SQL statements we have fire these are relate to the inserting the records into the table. This is the initial table, it may we usually if it is the initial table it does not have any record after inserting this one it will give the records are to be inserted into there. And finally, we can get results sets using this rs statement and then result can be obtained after the result of this in secretion is there.

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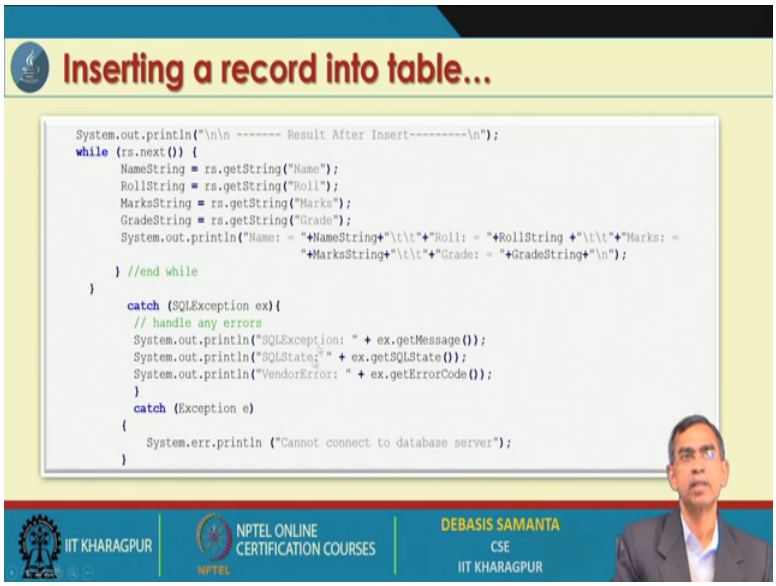

And then that the result again be processed using the again passing because, it will process all the re results that can be obtained from this one and then result can be shown on the display screen. So, this way you can connect you can establish a connection and then once the connection is established we can fire lot many skill statement to be executed. And, then on the successful execution of each statement we can get the result and then all those result can be processed using these are the few course that we have mentioned here.

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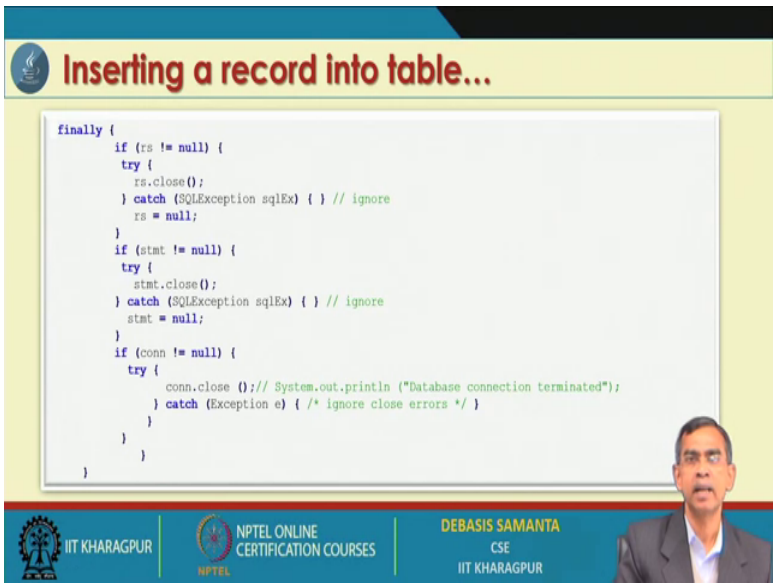

And then finally, all those programs should be put into the exception handling trike and broths mechanism.

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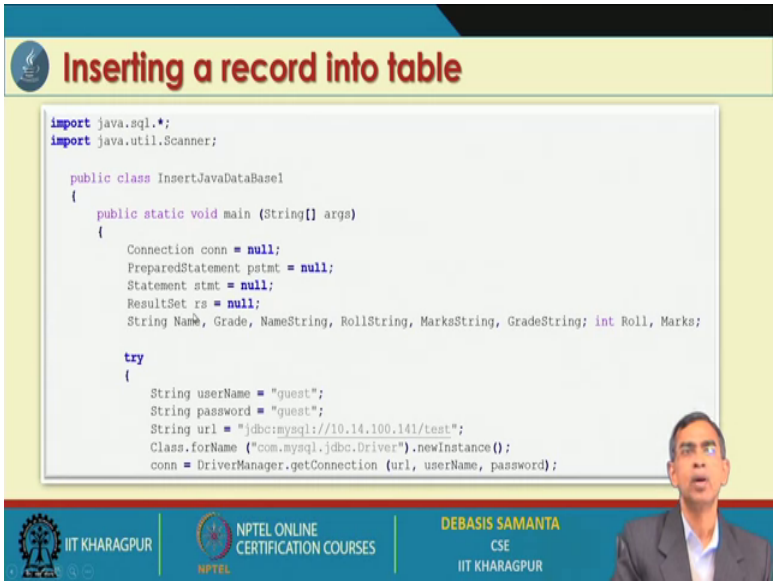

Now, inserting a record with another example; let us see how the things can be done. Again it is the same as the previous one we create the conn and then p statement here basically we have to prepared statement we have to follow; that means, we can read some values from the keyboard and then statement can be prepared and then finally, this statement can be executed. So, these are p statement object is created finally, this is a statement and then rs the result where it will be store. So, they are the four objects that we have defined here and this is the connection mechanism few lines of course, that is obvious it is there and we can just simply make a connection.

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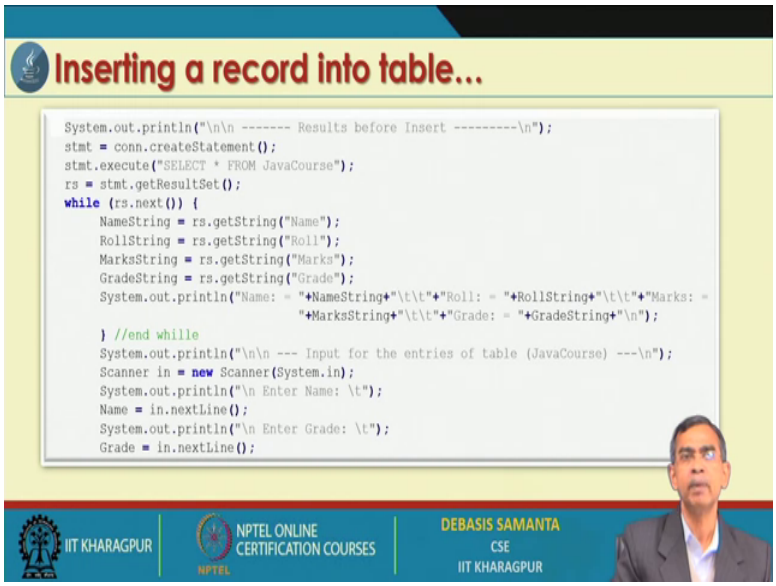

And then once this connection is there we can execute some statement. So, statement is created and then this is the SQL statement is fired from this. So, SELECT star FROM JavaCourse and these basically first we want to see result before insertion what is the data it is there; so, it is the basically it will get all the records those are there at the moment before executing any insertion. And, now we are going to take the input from the entries of the table JavaCourse; first we give a prompt Enter Name read the name from the buffer keyboard. So, keyboard from the keyboard the array name will be entered and then it will read it and then this will store into this name right.

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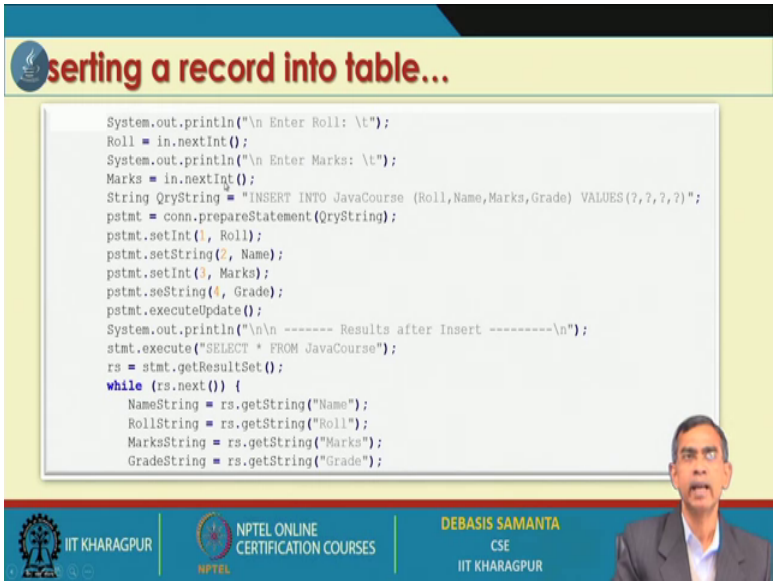

So, it is basically name and then grade and then roll number and the marks everything can be read from the keyboard and then their value can be temporarily hold there. And, then the p statement using this command all these values that we have read from recently from the keyboard can be goes to these values. So, this basically this thing we prepared using INSERT INTO JavaCourse Roll, Marks, number, Grade VALUES is this one; all those value is question mark. Those value will obtain from the p statement all these get int get string setInt seString.

And then finally, p statement executeUpdate means all the value that we have already stored and will go to this one and finally, the entire statement will be executed. So, this is basically the problem the statement that you can do it and then finally, after this insertion is done we can display the result. So, results after the insertion again we can execute SELECT star FROM JavaCourse, the result set can be obtained again and then this results in can be scanned one by one for each field Name, Roll, Marks and Grade one by one. So, it will basically display all the records including the new record that we have added into the system and finally, it will try cache block it is as it is there.

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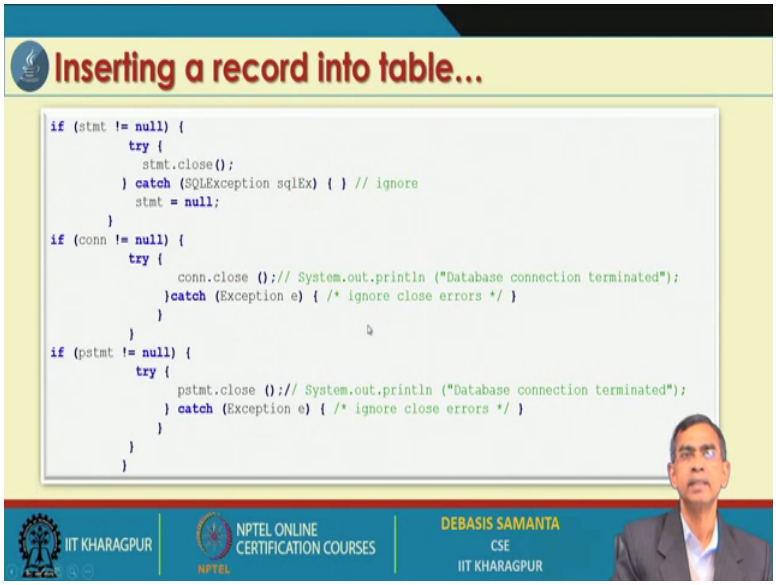

Now, inserting a record into a table that we have discussed how it can be there and now processing a table either we can do a lot of processing.

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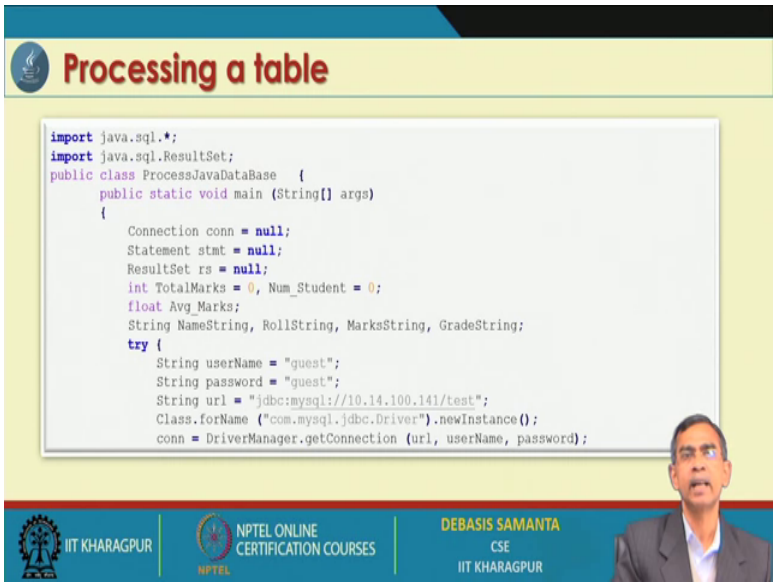

So, basically the result data set that can be processed here. Now, here again same thing we first import java dot sql dot star; all these things would be inputted there and this class basically is a Java application in this case by which we can we can process any execution like and these are the few statement here as we see here. In this example what you want to do is that say, suppose already a table is there and for each table all the marks is already there for say 100 records or whatever it is there.

Now, we want to get the results and then we can get the results from the server and then being all the results in our application end and then make their average. So, basically this program will tell how the results can be obtained from the remote server from a table and then the average of all the marks can be calculated and it can be finally displayed. So, it is the idea and so, this is the process that we are going to give a simple example here. So, these are the few statement as usual earlier. So, it basically establish a connection from where application to the server.

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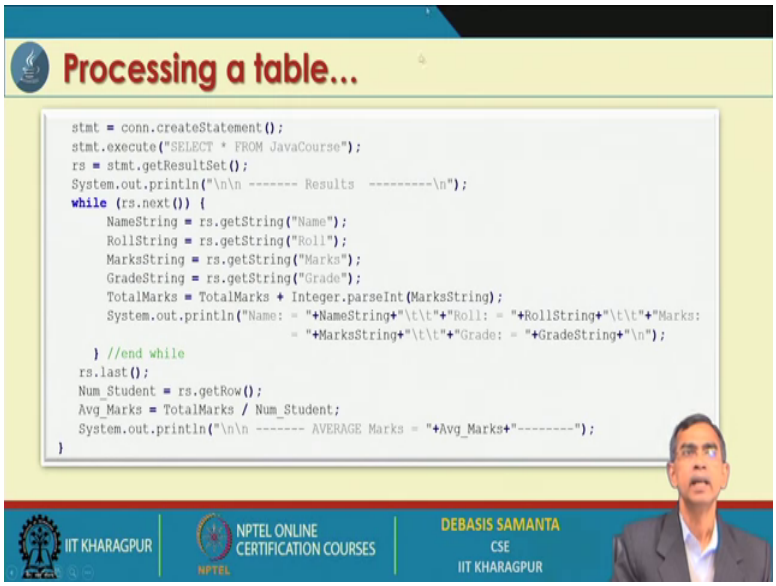

And then this is the statement object is created and then we got all the results because we need to fetch all the results. So, SELECT star FROM JavaCourse the it will basically fetch all the results, those the result will be store in rs results sets and then results that can be obtained can be processed it is like this as you see here. So, we just give the Name, Roll, Marks and Grade they are all string and then finally, we can convert all these things into the numbers form.

So, total marks is integer parseInt MarkString so, it basically read the results are there. So, total marks will be obtained for each records getting one record at a time and then getting the results are there and then finally, total number of records can also be ca co obtained. So, this is the formula getRow from the result sets is basically says that how many rows that we have fetched it. So, this basically includes the total number of records are there. So, it is basically total number of students and we in this statement after parsing all the records we can got the total marks and then this is the total number of records. And finally, the average marks can be obtained by this one and the assign can be printed on the screen.

So, as you have learned about that how the entire results from a database can be fetched into your Java application and then some processing. It is a just an example that how this processing can be done. There are lot many processing also can be done from the SQL end also; this average calculation is also possible at the SQL site also using some SQL

command. But, this result also can be obtained and you can get it there. Now, here is a question some processing can be done at the server end, it is possible you can fire those processing exhibiting the statement from here and then get the result. Or, you can get the entire result in your n program end application and then compute it and then process it. So, both way it is there, some things which is not possible from the server end you can get it and then you can solve it that is also quite possible.

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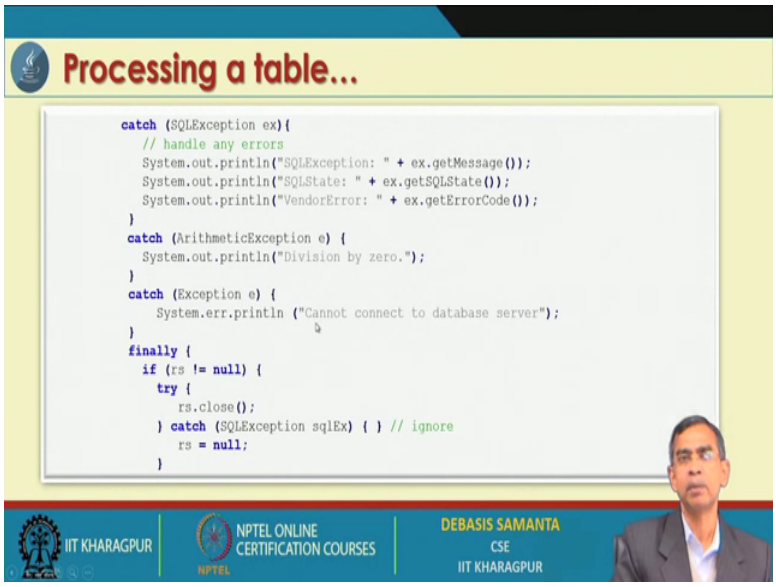

So, whatever the way the processing it is there and the rest of the trailing part of the program is basically related to the exception handling. Then updating a table it is basically how we can update command.

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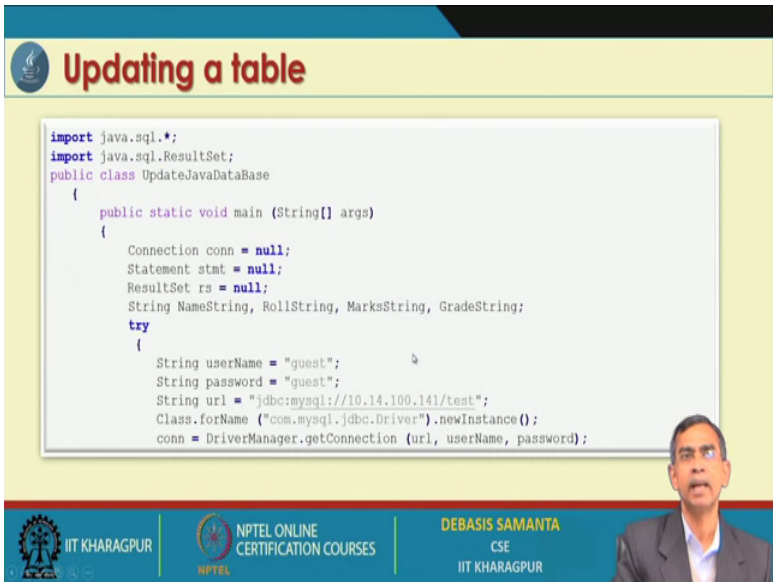

Update command already you have learned about while we are studying the SQL statement there. So, first of all we have to create an establishment and then create few important objects like conn statement and rs for related to the connection statement and others result states storing. And, then these are the basically string that we have declared to be used intermediate way and this is basically the; for five steps which is required for establishing a connection from your program to the JDBC server.

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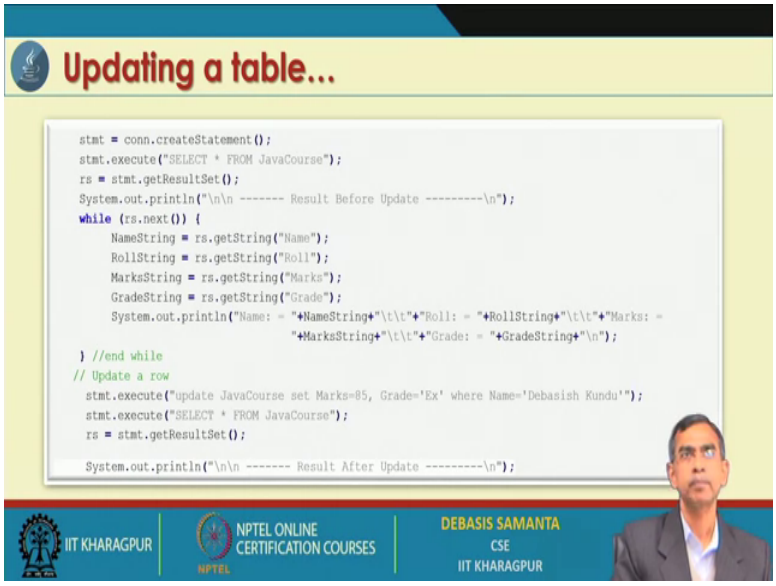

And then we can use the statement as this one this basically create a; I mean is a define a statement and then this is the execution of the statement like SELECT star FROM JavaCourse. So, this basically shows that what are the entries are there as usual earlier we have discussed it. So, this a statement will be executed, the data result will be stored in the rs object and then this rs object can be passed one by one, scan then finally, it will display.

And, then here we just give we just execute one more statement is called the update. As you see statement dot execute we are going to execute one more statement update, then JavaCourse set Marks. Here exactly you see update these are table name and set, the Marks equals to 85, code equals to Ex where Name equals to this one. So, that means, it will find a record whose name is this one, if it find this is the condition upon the condition; satisfying the condition it will basically change this record with this values. And, then after this update command is successfully executed we can face all the records and see whether the results is updated or not.

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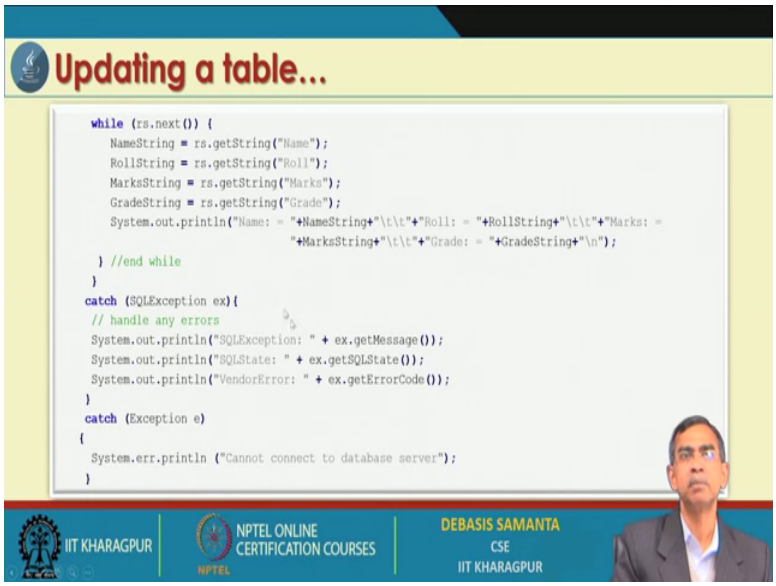

So, last few statement is basically execute the select start from and then rs dot next we can again reply we can see that whether the update common has been executed or not. If that data is satisfied this condition definitely you can do it and then finally, it will have updation is successful there and again the try catch block is basically to ensure that the program is executed in a reliable and more robust way.

And then deleting a record, it is basically how the record can be deleted, the same procedure will follow. First of all we have to create the statement object and then connection objects and then result set object and then we have to establish a connection. And, then using the statement object we have to fire the; a co statement SQL statement in this case delete record.

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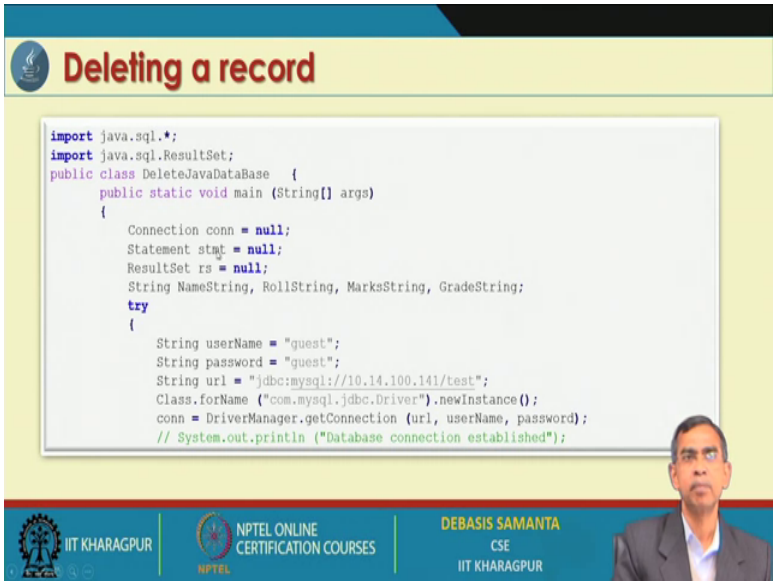

Now, here is the statement here we create the connection object, statement object, result set object and then these are the temporary variable that is required.

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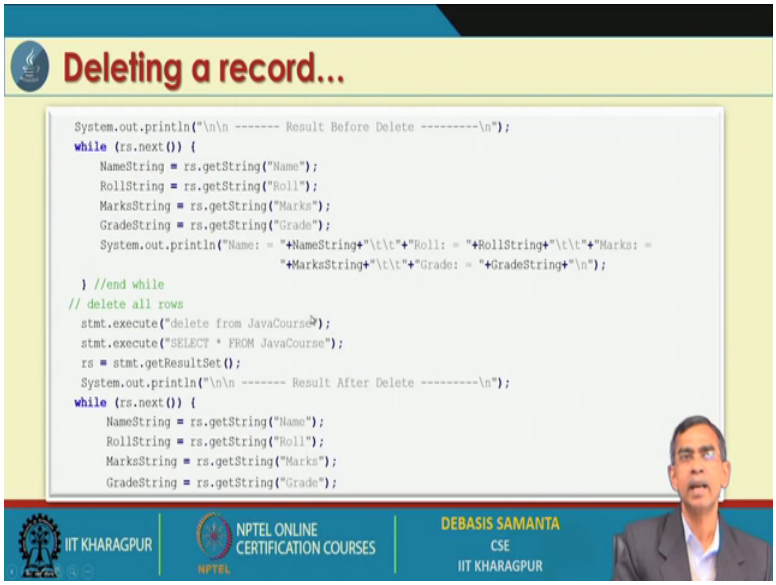

And then this is the five steps that is necessary to create a connection and all those things should be placed in the try cache block. And, here now Result Before Delete; we just see exactly what is the result it is there and then here basically we are creating we are executing one statement called the delete from JavaCourse. Now, if we delete from JavaCourse this means that it will delete the entire, I mean a number of records those are there in the table. If they delete some records from this one certification condition only that kind of records will be deleted whose condition is satisfied.

But, this is a very dangerous one delete common like it will delete all the records, but not the entire table. Table will remain there now, here after this deletion is there if we just simply execute this statement to get the other records if it is there, if you see then get result. And, then again processing the result as is the same way one by one you will see as this is not there so, rs dot next will return null.

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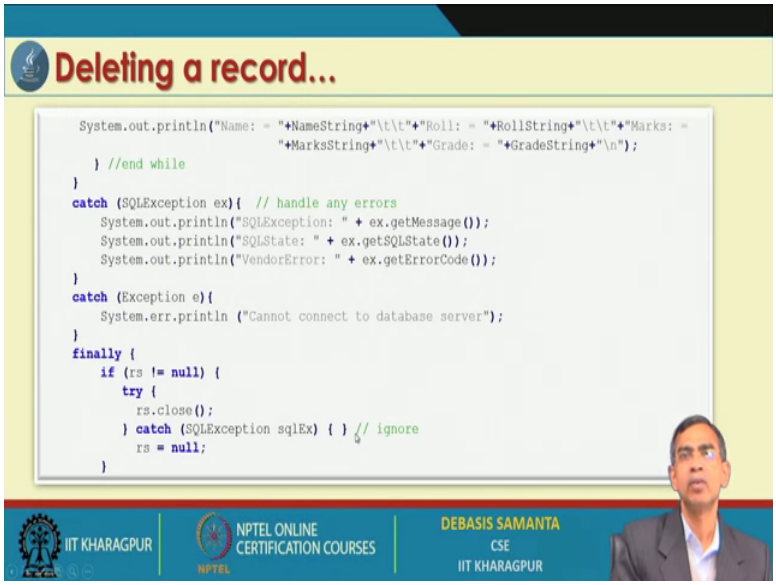

So, null means it will not execute further this statement and then it will do not give any print on the screen.

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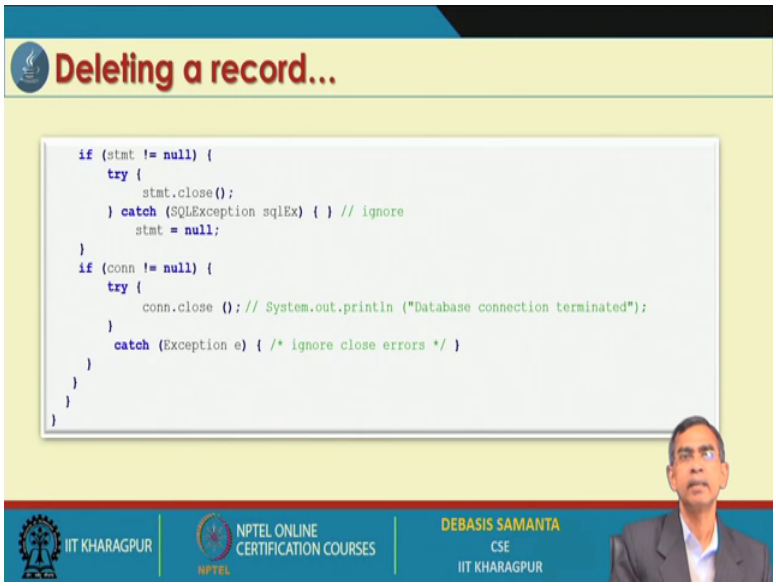

And so, this is the delete statement as we have seen.

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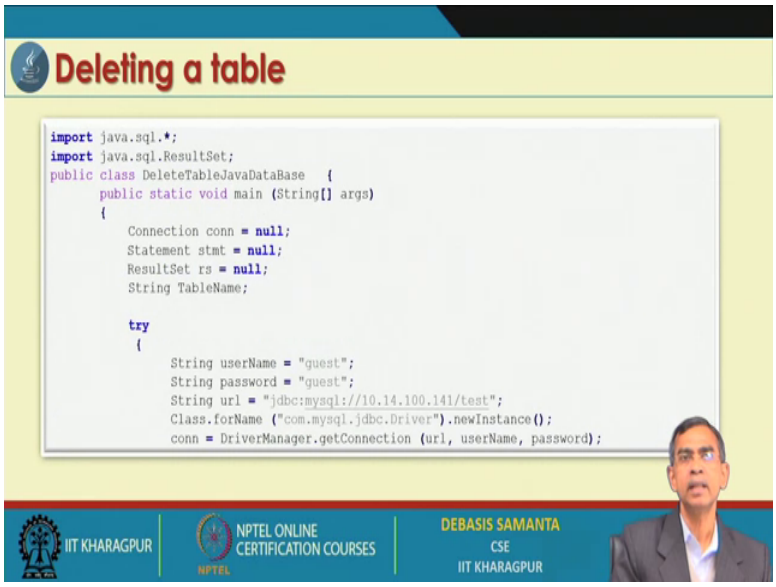

And then deleting a table and this is another command it is there drop command and again the Statement, Connection and the ResultSet is created and this is a connection is established.

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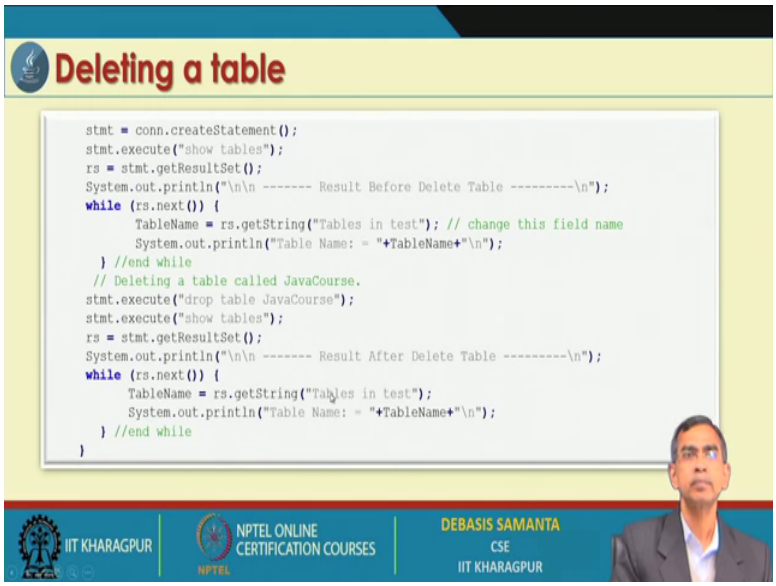

And we execute the show tables; that means, what are the tables are there. So, show table says you know show table, show databases every things are there you can execute it, under your own login password, your authorization. If there many database it is there show database will show you all the data bases. Now it is there so, results as getResultSet basically it will return you the result set and System dot out dot println it will show all the tables which are there including their table name. So, Table in test will be there and then table will be displayed; that means, whatever the tables are there.

Now, after these things we execute the drop table JavaCourse; that means, we want to delete the table permanently whether it contains a record or not. It will remove the table permanently physically from the server and then show tables after this thing again same thing if we repeat and then you will see that a all tables are there except the JavaCourse table is there because, JavaCourse table has been deleted. So, this is the way the different statement that can be executed and then after exiting the different statement we can process the results.

We have state three sessions, we will discuss about demonstration giving all those things in details starting from the installation of SQL server, installation of JDBC driver and the execution of some SQL statement from your application.

So, thank you very much.