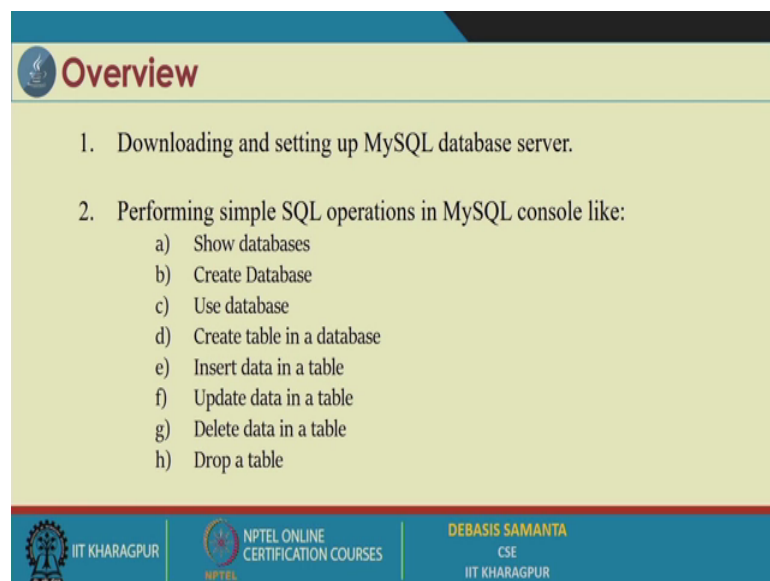**Programming in Java**
Prof. Debasis Samanta
Department of Computer Science and Engineering
Indian Institute of Technology, Kharagpur

Lecture - 53
Demonstration – XX

So, here is the session about JDBC, there are there is a series of demonstration will be followed after the learning, so, for the theoretical concepts.

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So, first we will discussed about regarding the MySQL server installation and after the steps of installation we will decide exactly how to access the MySQL server. Initially we will consider about the console based accessing and then later on another session where we will demonstrate how the same can be done through the JDBC driver. So now, let us have the demonstration about the MySQL database server installation in your own machine right.

It may be laptop, it may be PC we will we are going to consider the installation in Windows system. However, the procedure and the steps basically in variance for any other systems to be followed. So, as a installation the first step is basically to download the software as you have told the download the link that we have already given.

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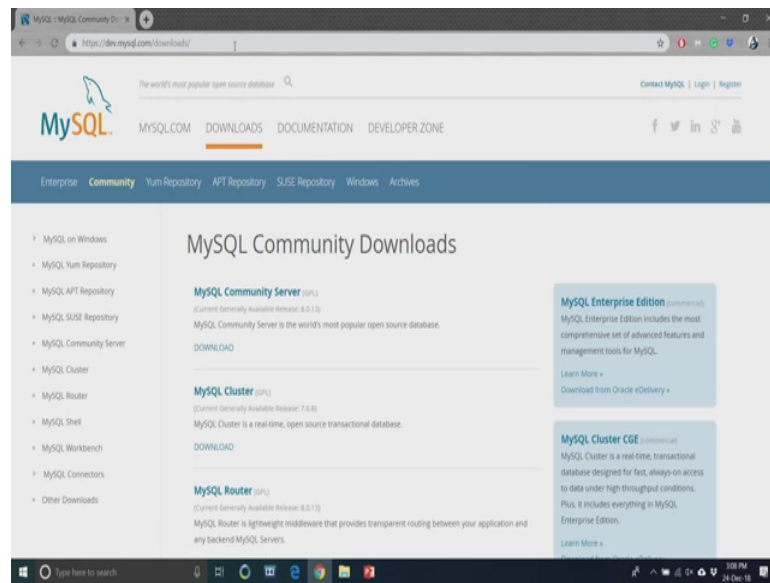
So, this is the link the https then colon double slash dev and then mysql dot com slash download slash. So, this actually is the link; so, if you just able to access this link then it will open a browser window where you can find MySQL community downloads.

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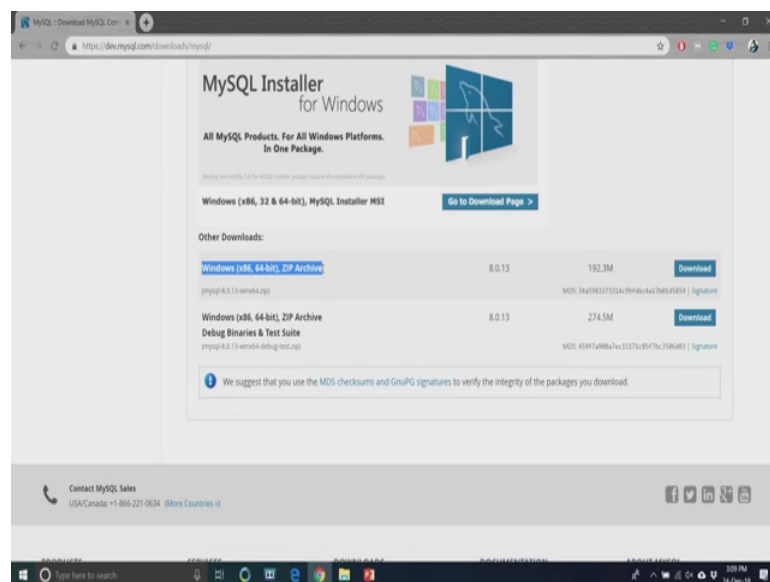
So, we have just clicked the link and then we see that MySQL community server is there. So, we have to open the link and then we will find the installer basically as you have told Windows installer you have to consider here. So, this is basically archive a ZIP Archive.

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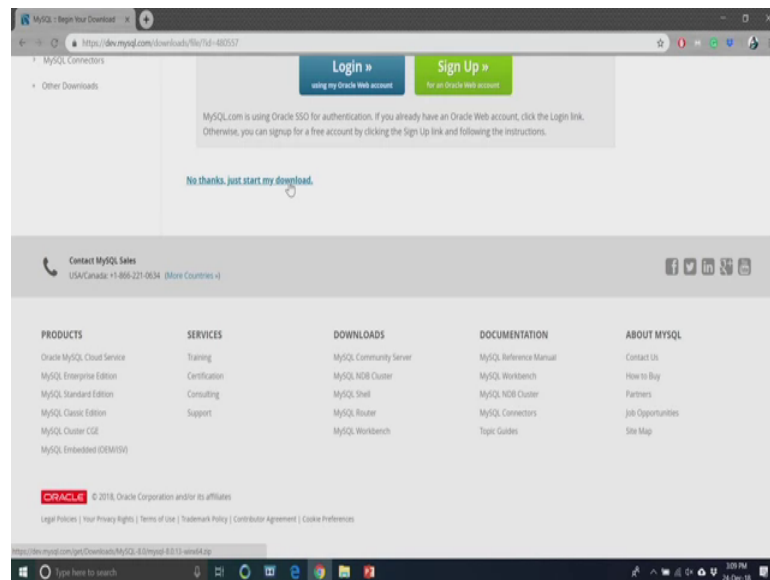
And depending on your machine configuration whether it is a 32 bit or is 64 bits; you have to decide the correct what is called downloading software for your download. So, that you have to ensure that otherwise your installation may not be successful operation. So, assuming that our machine is Windows 64 and we are just going to download the latest version of the MySQL server which is the MySQL 8.0 and then release 13.0. So, we are going to install it; so, here actually we have already pre-installed, it is in our desktop terminal.

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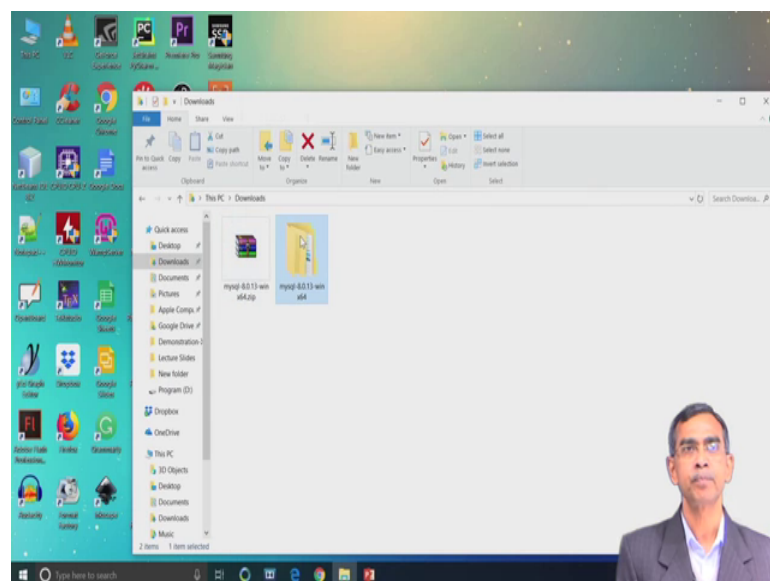
And then so, this is a zip file. So, this zip file you should copy into some directly where you were you want to install; obviously, zip file is a compressed one you have to unzip the folder. And then so, it will basically give you all the installable file that is there in there in the zip file.

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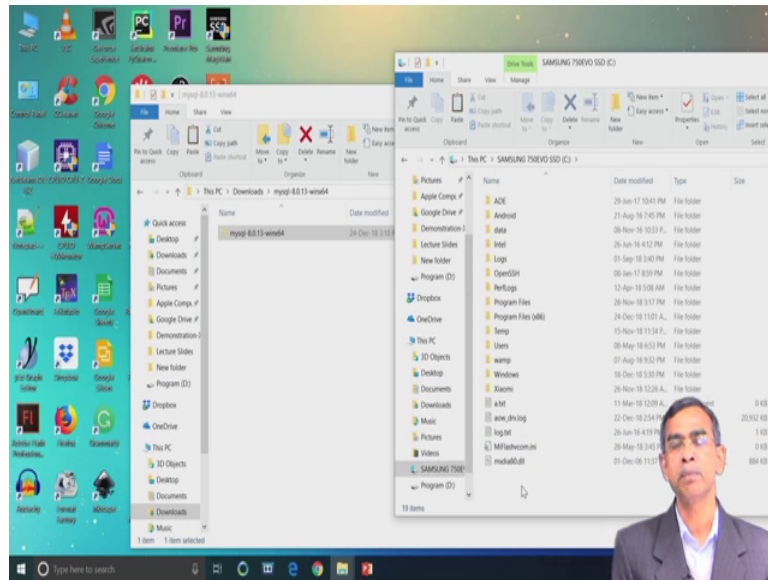
So, here as you see the folder where we have unzipped the all components is mysql 8.0 then 13.0 and then win war. So, this is the software basically we have right to copy this folder into the exact location where you want to install as we are going to install into our C drive. So, you just copy this folder into our C drive here and we just rename the drive as mysql because, you want to install this software as a MySQL.

So, we have done it my SQL ok. So, our zip file contains lot of other executable bin then data then docs etcetera. So, we can see these are the basically zip unzip these are the total installable file it is there. So, this is the first step that the download it and then we have to copy the folder into the proper location.
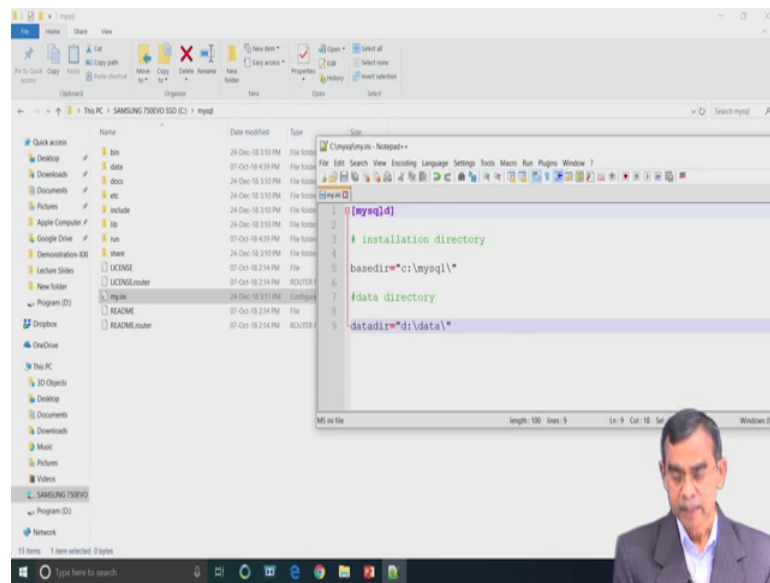
And then we have to so, this basically completes the downloading about it and then go to the command prompt. So, you have to copy the my any file as we have already mentioned and that my any files should be placed into the MySQL directory. So, my any file the configuration which is there that configuration and we have already mention in theory class; we are typing the configuration that is required for the my any file right.

So, this is the syntax that you have to follow verbatim without knowing what exactly the things are there, only the system can understand about the any file. This is required for the initialization so far the MySQL server is concerned. So, MySQL id then hash installation directory then base directory. So, it will be base dir equals these is a base directory where our zip file is located that is c colon then slash mysql slash within double quote. And then data directory hash data directory; data directory is equals to within d colon dash data.

So, this is basically back up file will be stored in this drive we have planned that all the backup file or data file will be stored in a D drive of this machine. You can make our some other stores location also no issue.

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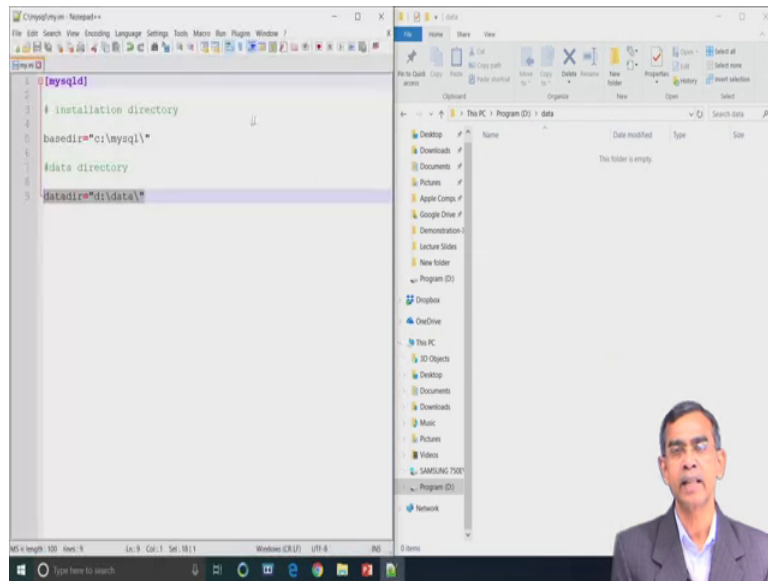
Anyway so, the data file is created here in D drive, we have created a folder there.
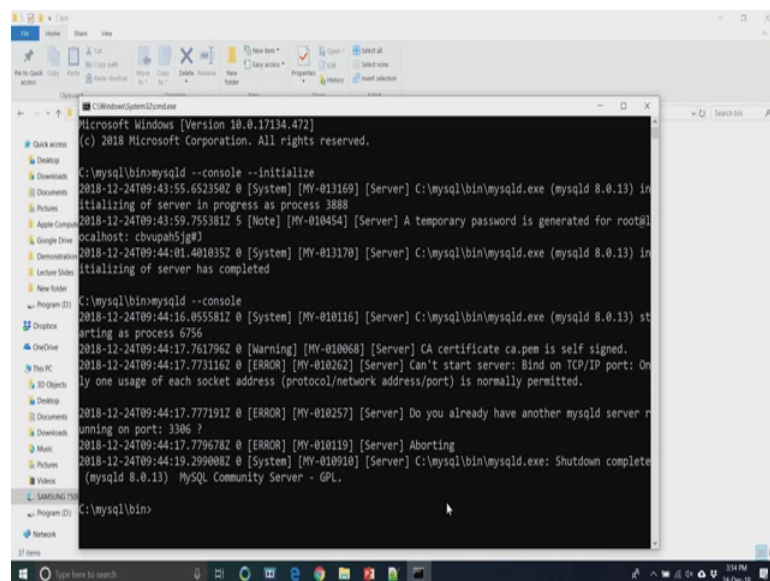
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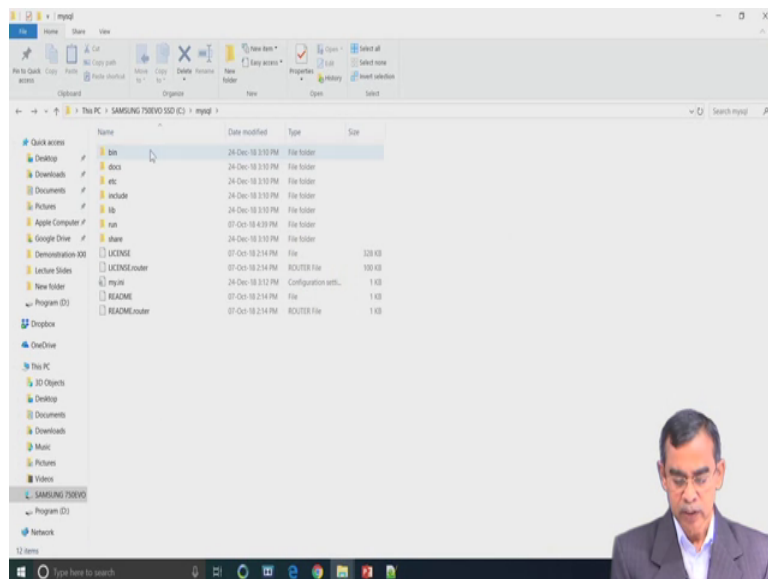
And there is in a C diver so, you see in the mysql directory the data file is there, this folder should be removed. So, we are removing this folder from here.

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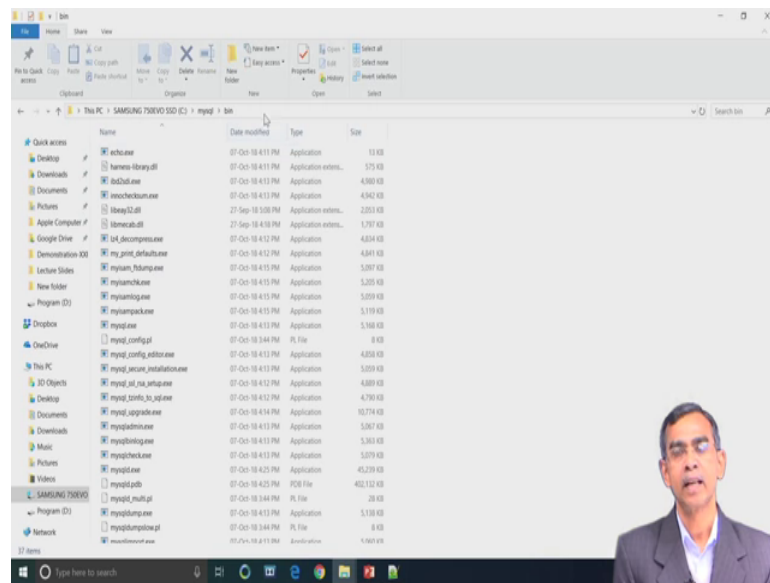
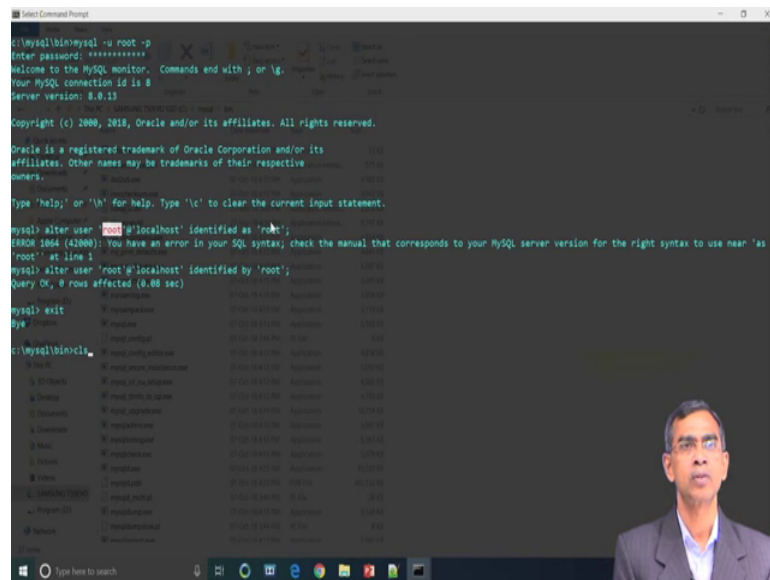Now so, this completes exactly the storing the files there.

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Now, you have to run the program and to run this program you have to go to command prompt. And in command prompt mysql go to the bin directory and there you type mysql d and then dash dash then console. These are command already you have mentioned there console datas initial is right initialize right ok. So, once we face it so, your system will take care about this installation of these program.

So, installation is going on and then as you return to the command prompt and you have return it to this and localhost that basically the this machine is the host machine in this mysql server is there. So, we have completed the installation here ok. So, it is now installed, now our next task is basically to change the password.

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So, we can do this thing again from command mode. So, mysql minus u root and then minus p. So, basically user is root and then password it is basically asking the password. So, in this local machine and then you have to enter the password you can type any password. So, in this case you are setting the password as the root password right ok. So, this is the localhost password is basically as it is mentioned. So, this you have to give the password at the beginning; so, we are copying it and then pasting.

So, you are giving the password; however, we can change the password also for these things, we can write the command alter. So, we are just changing the user id login for this as alter user give this root, we are giving the user name as root at the local host. So, this is the step that you should follow user root and percent localhost. So, this is a command identified as root. So, this is basically root is the user id in this case enter. So, there is some syntax error ok.

So, now so this is the correct syntax that you should follow in order to give the proper name of the user here, you should note it this is very important and then once the user is there we have to set the password also. So, you should set the password here ok. So, here

you see alter user command. So, this is the user at the rate of localhost identified as this is basically the password. So, we set for this mysql server at the moment user id as root and password is also root. So, this is the login and password for this one.

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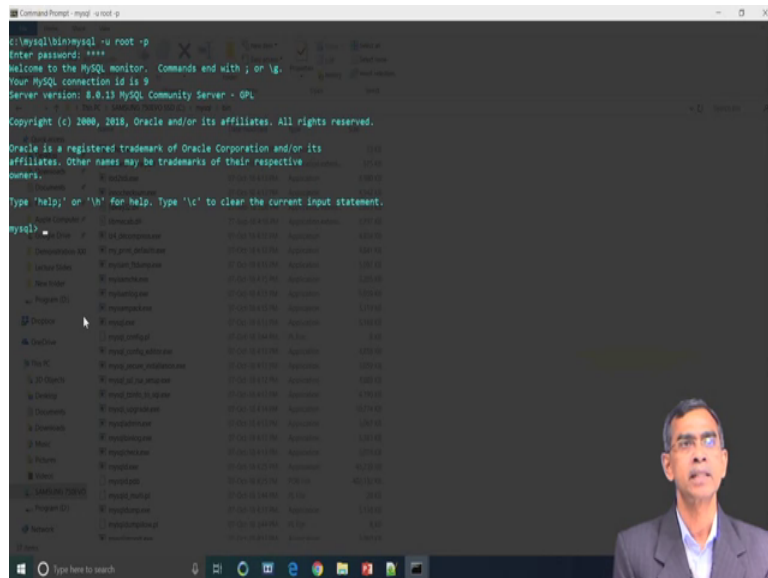
And now our mysql server is ready, we can type exit command and to exit from this setting.
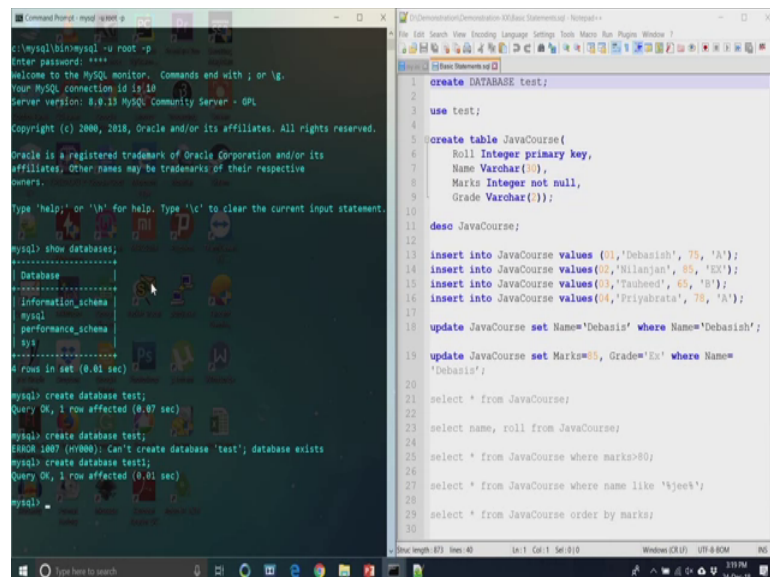
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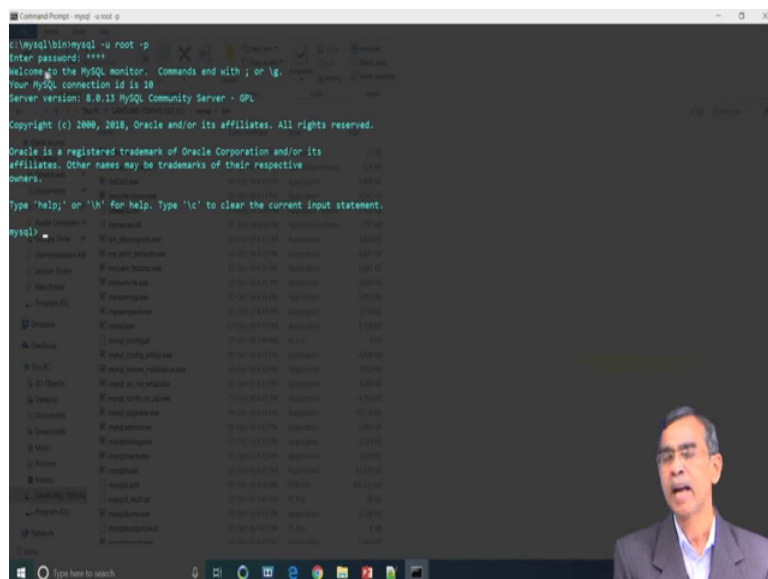
Then we will go for the class per checking or not now. So, we have done it and then we can change the password, this is the changing the password of.

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So now, we are now our server is ready and now we are going to log into the server. So, for this login we have type the command in the mysql prompt you have to go mysql minus u root minus p is basically ask for the password to be entered. So, the root is the password and it is case sensitivity. So, in the small letter you type root. So, it is there and then system has accepted this authorization check is passes. Now, one thing authorization check is passed; that means, MySQL server is now allow you to execute any statement whichever you want to run it right ok.

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Now, we are going to first our step is that initially the server is prepared; however, there is no database there is no table under this database. So, we should see exactly if there is any database at the moment in the server or not under your categories. So, absolutely is not there; so, you first create this is the default database is there, but we have to create our own.

So, now we are going to create one database of our own. So, clear let it be test database test now so, database test is created. Now, again if we try to create database test it will give an error because, it will not allow to duplicate the test 1. So, it is there now, if you can again create database test 1 this is quite possible test 1. So, it is you can delete also if you want to remove these.

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So, databases if you see it will give you all the databases that is here. So, right now test and test 1 these 2 databases have been created.

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Now, these 2 data bases under your own jurisdiction and inside these databases you can put as many table as you wish. Now, we are going to enter some table under the data base test 1. So, you have to make it active.

So, let us use the command use test. So, this basically make the data base currently active. So, this is now current active database test. Now, whatever the command that will

be you will be able to enter it now it will go to this test data base actually. Now, let us first create a table, we want to create one table the name of the table that we want to give a JavaCourse.

And then this table has four fields as we see Roll, Name, Marks and Grade, they are 4 columns actually. The first fill field Roll has the type Integer we have to give this syntax, the Name Varchar and then you can type in integer in capital letter or small letter absolutely no issue. You can do whatever it is there and then the second field is Name it is basically string of 30 characters, for this the syntax is Varchar. And then within brackets is 30 indicates the maximum 30 characters can be allowed to enter or; that means, this is the weight of the column. And then Marks is also the type Integer and then Grade is also a character, but is of 2 characters only.

And one more thing that you ensure that for the first field Roll we have declared the primary key. For every database table there should be one field as a primary key, there may be more than one field also primary key any way no issue. But, if it is a primary key then it should have all the entries are all null and entries in any rows should be unique. So, you cannot allow it based system not allowed to duplicate entries in 2 rows for this value primary key which is defined. And then other is also you see marks integer not null this indicates that these entry has to be there whenever you insert some record into it no null values is allowed.

And great is a second and at the moment there is no entry. So, it is basically default is no value is it is there. So, we have entered it now you can show the table that we have entered; so, table you see ok. So, this is the case right now we have created one table called the JavaCourse and this is the describe command short form desc if we type it, it will basically display all the structures there which is there.

So, as we see the 4 fields there type and then null key is primary default is null also and there is no exactly my field and there is a total structure composition so far the SQL server is concerned maintained this metadata in its own repository. Now so, the data is created now at the moment is javacourse table does not have any data.

So, if we add use the command select start this basically the command is to retrieve all the record that is stored there in this database in this table JavaCourse. At the moment as it gives that empty set there is no elements there. So, now let us see how the record can be inserted into the table the JavaCourse again which is under database test. So, there are commands like insert, insert command can be one at a time or four insert commands can be also placed in the same command also, now we are typing only one command first ok.

So, at the same time we have typed all commands on by one anyway so, it will execute. So, first insert into JavaCourse value 0 1 Debasish 75 A. So, 4 records has been inserted and you know all these record insertion will go into the appending mode. So, one by one it will be inserted; now if again if you see the show table or select star command and as you see the four records has been inserted.

Now, I am again issuing one more insert command here insert into data into javacourse value say 0 7 and then within quote name is Amit and then marks is 95. And then grade is EX within double quote all the string or varchar should be in the EX. Now, semi colon

should be there termination of the command enter, now it is successful; now, enter the data right.

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As we see we can enter it here roll number is the unique key, now let us see again insert command at the primary key should be unique. Now what we are going to be, we have to starting the insert and then 0 7 again insert value 0 7 Anand a n a n d Anand then 85 fine no problem. So, whatever it is there; now if we want to do because primary key should be a unique one, but here as we have given this so, it basically gives that error. So, it should be different ok.

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Now so, this you have added it and as we see at the moment there are 7 records entered into the table. The name of the table data database table is javacourse. So, this is the insertion command is there and also we have learnt about the select command select star. Now, select star has the different other nesting and then conditional base also. Now, here we want to execute the select command select name roll from JavaCourse.

So, basically not the entire table, but only 2 columns mainly name and roll number it will be there; as you see name is there roll is there. So, in order you will specify the field in that order it will basically get the data as we see the 5 records have been retrieved and there are 2 fields name and roll number has been there.

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So, again so, select star indicate all fields, but if you specify the name of fields so, explicitly only those fields will be selected and then so, again from select only the grades. So, if you see it will not display the name yes, select grade from JavaCourse as you see here right. So, it will only the particular field will be particular field; that means, column grade will be selected as you see. So, this one and this is basically the results that SQL server returns against command that you have given to it.

Now, our next command that we are going to exercise is basically conditional. So, select star from the JavaCourse with certain condition, here suppose the condition that we are going to give that marks is greater than 80. So, that mean it will basically retrieve those records whose marks is greater than 80. So, this is the command that you followed and note that command should be terminated by a semicolon. As we see out all the records these are the 2 records only satisfy this condition and therefore, has been retrieved. So, this is the select with condition, there are many other complex condition also can be fired.

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Now, let us see another conditions that we are going if this condition does not implies to any record so, then in that case it will return null. So, here is another select star from JavaCourse where name here this is the command name like something; that means, we want to have if any name is there for which any sub stream dot jee is there. So, this is the command that we are going to write yeah.

So, you see here within single quote there is a percentage je percentage je this means there should be any one name who substring is jee; as it does not have any such name in this current record entry. So, it should return n null actually. So, its empty set as its says that there is no record which matches with this condition therefore, it returns empty sets.
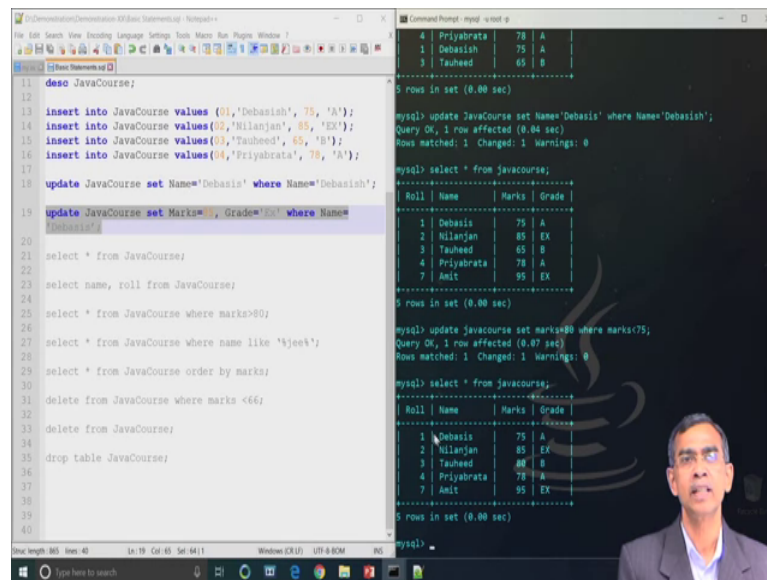
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Now, next our commands is basically we can also retrieve the order according to some ordering may ascending order or descending order based on the numeric field. As we see we have the two numeric field one is roll number and another is grade marks. So, let us see to retrieve the value of the field based on the ascending order of the number like. So, select star from JavaCourse order by marks. So; that means, the marks field will be order in an ascending order.

Now, the same thing also we can do in descending order; in this case the command little bit you have to change in order by descending order right; ordered by desc write desc after the by the desc right desc desc then marks. So, this is right so, we are facing some syntax error anyway. So, select start from JavaCourse order by marks descending. So, this is way you can see this display the record in the descending order of the results.
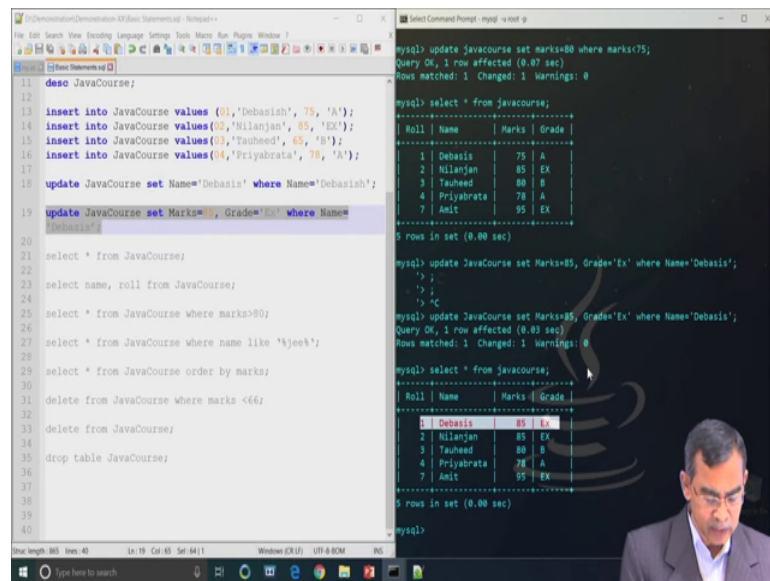
So, we have learn about the different compositions, there are many more select command is very complex also because, nested select is also possible here. Anyway that we do not want to discuss at the moment, let us proceed further. Now, we will exactly how a particular record we have learnt about how to insert a record, opposite to insertion operation is basically deletion we will see how a record can be deleted ok. So, have we have to first discuss update, let us see exactly how a record can be updated here. So, we will discuss about the update command.

So, update is basically JavaCourse, we have to update the table and then to update it you have to give some condition that what is the basis of updation in which value needs to be updated. So, here is the command update JavaCourse set, we have to just change the value the field name and we have to change the value of this field by Debasis where Name is equals to Debasish. So, it will find if any entry for the field name is equal to Debasis it will change Debasish as a different spelling. So, this one enter now it is done.

Now, if you show if we show that it will select star. So, you will see in earlier case select star from write javacourse as you see the these things been changed. So, like this anythings for example, you want to change the marks who got 75 or more we want to make it as a 80 or (Refer Time: 23:38) like. So, here again we are going to change it update javacourse set marks equals to 80, where marks equals to 70 marks is greater than 75 that is all, marks is less than 75 rather.

So, you can understand what is the meaning so, all the marks will be right. So, it is changed one change has been done as you see those are the 75 above had been changed and this update is basically permanent; that means, one you do it so, it is basically permanent forever. So, this is the one another updation is set marks equals to 85 grade EX where, name equals to Debasish we want to change this yeah. So, we are just going to change it that.

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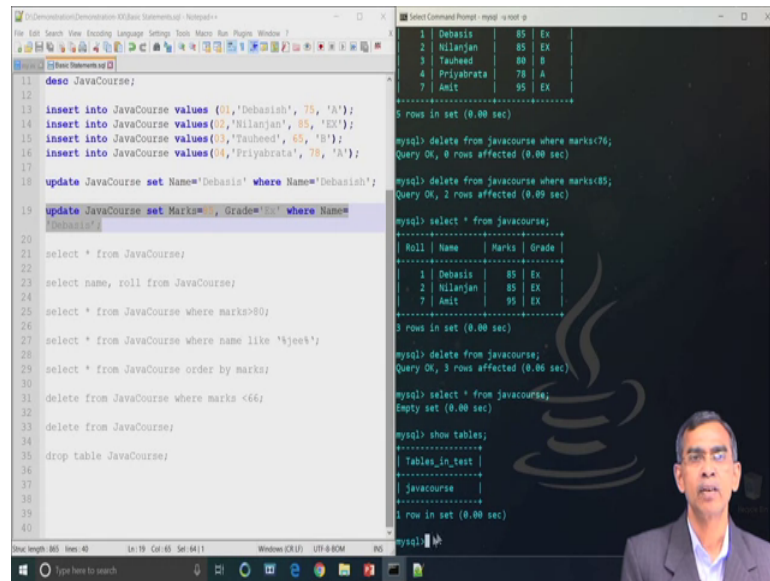
Another update command as you see we are using another update command update second update right yes. So, as you see here update JavaCourse set Marks equals to 85 Grade is equals to Ex; we are changing the 2 fields where Name is Debasis. Earlier, Debasis marks is 75 A, now after this updation you will see marks will be 85 grade is here grade right. As you see this has been updated. Now, fine so now so update is there, next our statement that we are going to discuss about delete operation.

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So, delete means basically if you want to delete a record, it is again physically deletion; that means, it will remove forever. Here we are issuing one command delete from javacourse where marks equals to marks is less than 75 fine. So, you are deleting the marks there is no entry which satisfy so, no deletion is there. Now, we are giving the command marks is less than 85 ok. So, here we can see 2 rows has been deleted; after deletion if we see the table entry we will be able to see that this is the table actually there which basically is there deletion.

And so, delete if we issue the delete from table the entire table will be deleted delete from javacourse. So, this means it is permanent 3 rows where the present it is there. So, it is deleted the set is empty, now we can permanently remove yeah show table; as you see only on table javacourse is there. Now, the entire table also can be deleted whether it contains data or not it absolutely does not matter; for these are command is drop table.

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So, here you have the command drop table the name of the table. So, this one basically completes this one. Now, if we show data then show tables as you see there is no tables in these database. Now, that database also can be deleted as you have current database test right it can be deleted no ok. Anyway so, as we see there are few some step SQL statement.

How they can be executed after the successful instalment of SQL server. Now, we have done about the SQL our SQL installation is ready. It may be here in the currently local machine, but the same can be installed in a remote machine also.

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If it is installed in a remote machine so, you have to note the IP address of the same machine and then using this concept you will be able to connect to this. But, this connection is through the JDBC driver. So, that will be discussed in our next session.

Thank you.