Data Science for Engineers
Prof. Raghunathan Rengaswamy
Department of Computer Science and Engineering
Indian Institute of Technology, Madras

Lecture – 03
Introduction to R

Welcome to the lecture 2 in the R model of the course Data science for Engineers. In the previous lecture we have given a brief introduction about R and R studio and we have seen how to create an R file write some codes in R file and how to execute an R file.

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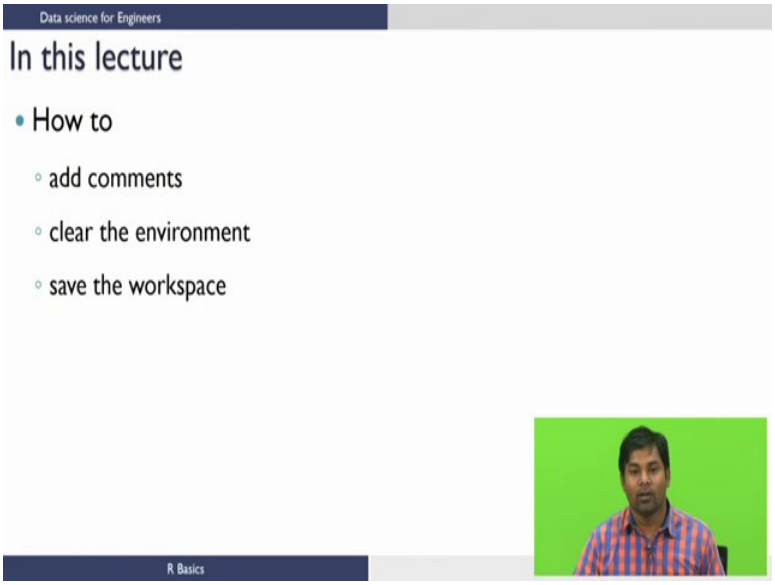

In this lecture we are going to show how to add comments to the R file, how to clear the environment and how to save the workspace of R now let us first look at how to add comments to the R file.

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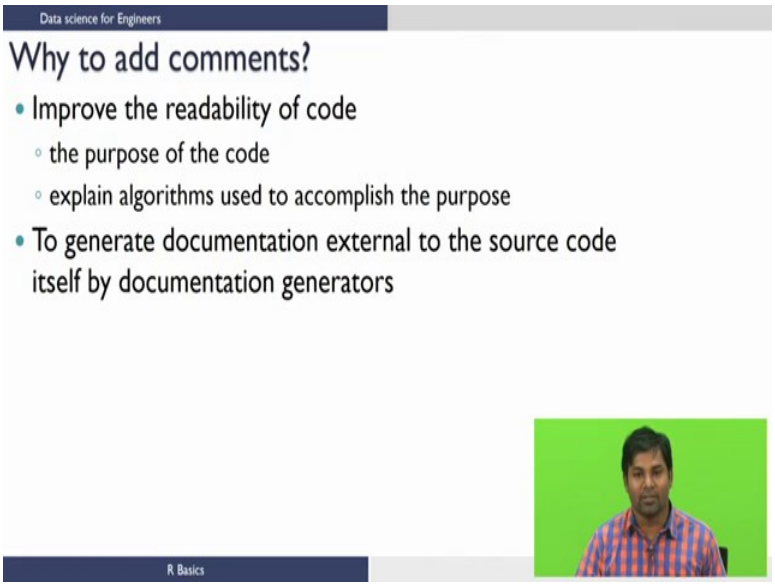

Before that let us ask this question: why do you add comments to your codes? Adding comments improve the readability of your code for example, you can explain the purpose of the code you are writing in the comments or you can explain what an algorithm is doing to accomplish the purpose which you are attempting at. Writing comments also help us to generate documentation which is external to the source code itself by documentation generators.

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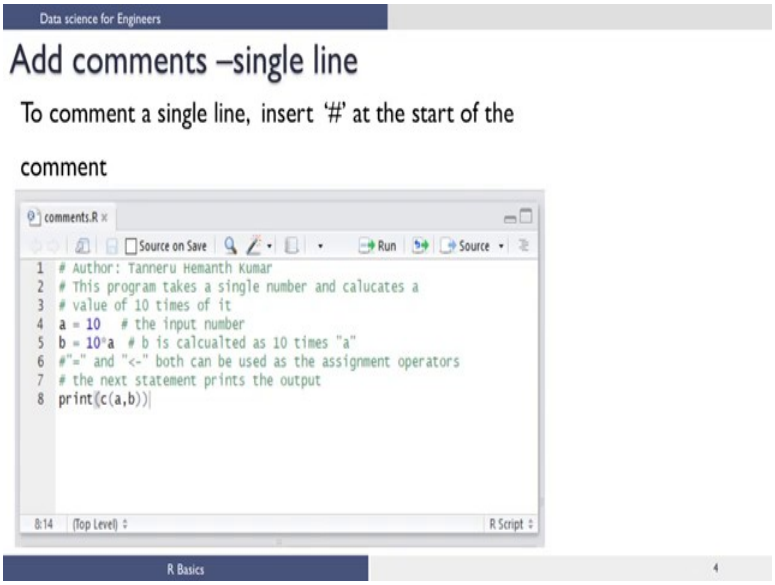

Let us look how to add comments to a single line in R script first you can comment a single line R by using hash key at the start of the comment if you see in this example I have commented this first comment by a hash key which turns this command green and if you notice these commands are describing what this program is doing, what it is doing is it is taking a single number and then calculating a value which is 10 times of it.

So, you can see here I am defining a variable a = 10 which I am commenting it out as the input number and now I am explaining this operation which is being happened here which is b is calculated as 10 times a and if you would have remembered in the previous lecture we have used this symbol for assigning a value to a variable you can also use = in R studio that is been demonstrated here. Now you can see how commenting makes your script file more readable.

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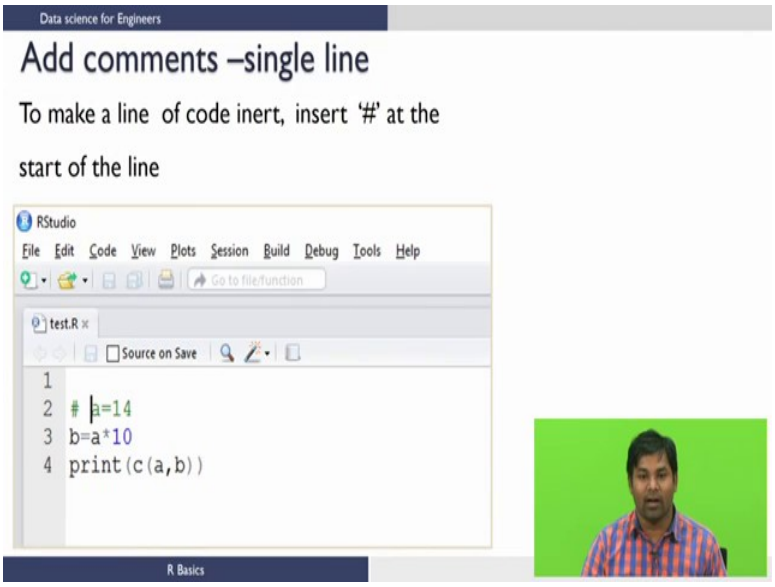

Comments can also be used to make certain lines of code in at you can do that by inserting a hash key at the beginning of the line like here you can see I want to comment this line which says a = 14 if I wish to do so, I can comment it by keeping a hash key in front of it. Now we will see how to add comments to multiple lines at once in R.

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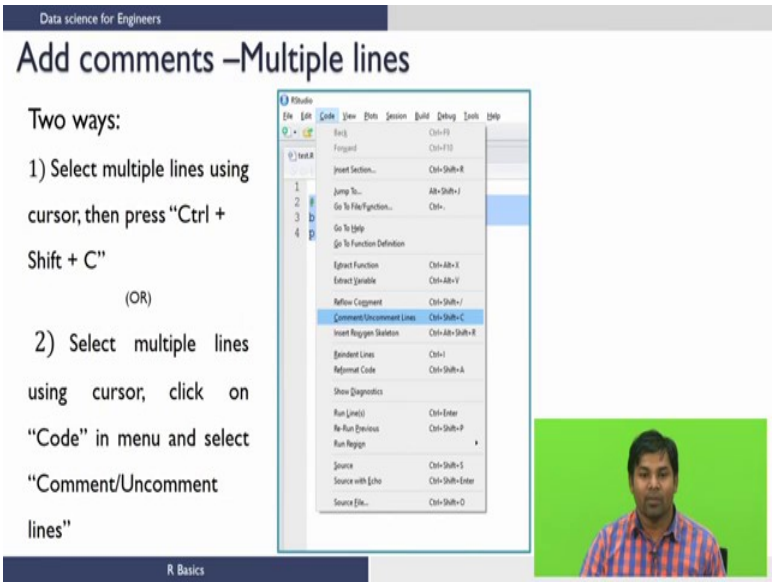

There are 2 ways first we used to select the multiple lines which you want to comment using the cursor and then use the key combination control + shift + C to comment or uncomment the selected lines.

the other way is to use the GUI, select the lines which you want to comment by using cursor and in the code menu if you click on the code menu a pop up window pops out in which we need to select comment or uncomment lines which appropriately comments or uncomment the lines which you have selected. In some cases when you run the codes using source and source with echo your console will become messy.

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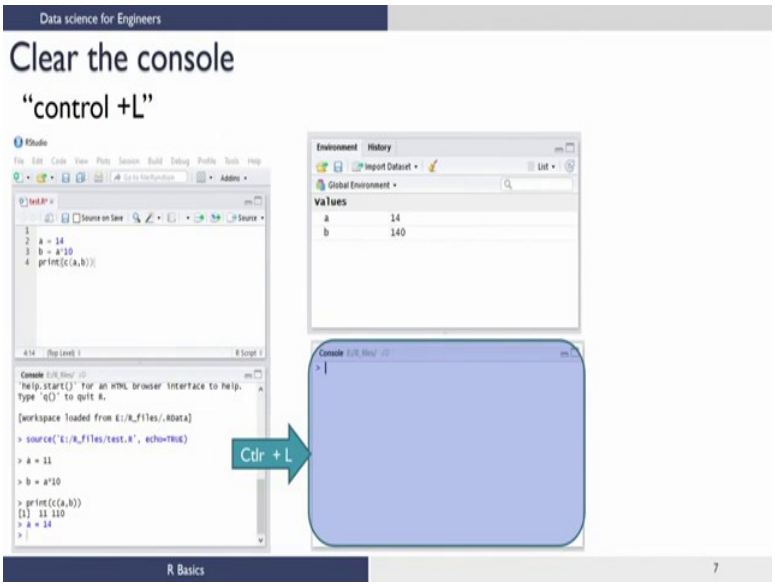

And it is needed to clear the console let us now look at how to clear the console. The console can be cleared using the shortcut key control + L, let us look at an example, in this code I have defined a and calculated b and printed a comma b, when I execute this code using source with echo all the commands will get printed here. Now, let us say suppose I want to clear this console what I have to do is I have to click here and I have to enter the key combination control + L. Once I do this you can see that the console will get cleared remember clearing console will not delete the variables that are there in the workspace you can see that even though we have cleared the console in the workspace we still have the variables that are created earlier.

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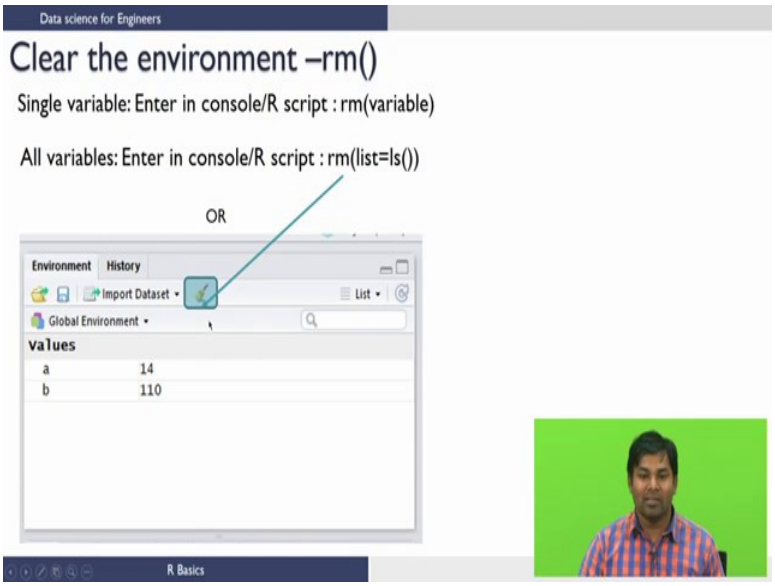

Now, let us see how to clear the variables from the R environment you can clear the variables on the R environment using rm command, when you want to clear a single variable from the R environment you can use the rm function has shown here rm followed by the variable you want to remove. If you want to delete all the variables that are there in the environment what you can do is you can use the rm with an argument list = ls followed by parenthesis or you can clear all the variables in the environment using the GUI in the environment history pane you see this brush button, when you press the brush button it will pop up

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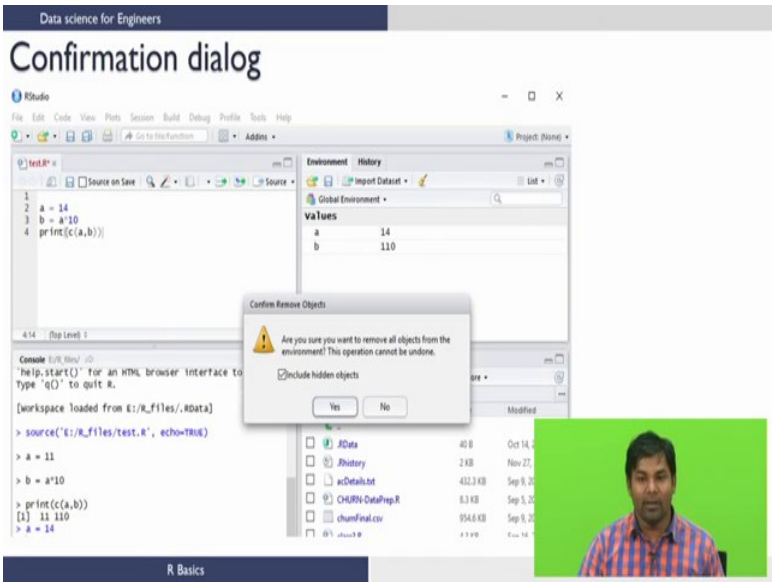

a window saying we want to clear all the objects that are available in environment if you say yes it will clear all the variables.

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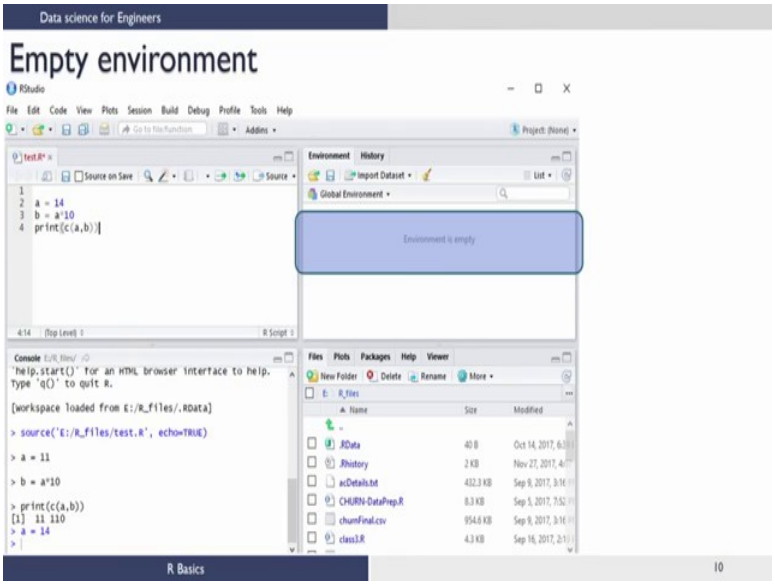

Which is shown there and you can see the environment is empty now. Now, let us see how to save.

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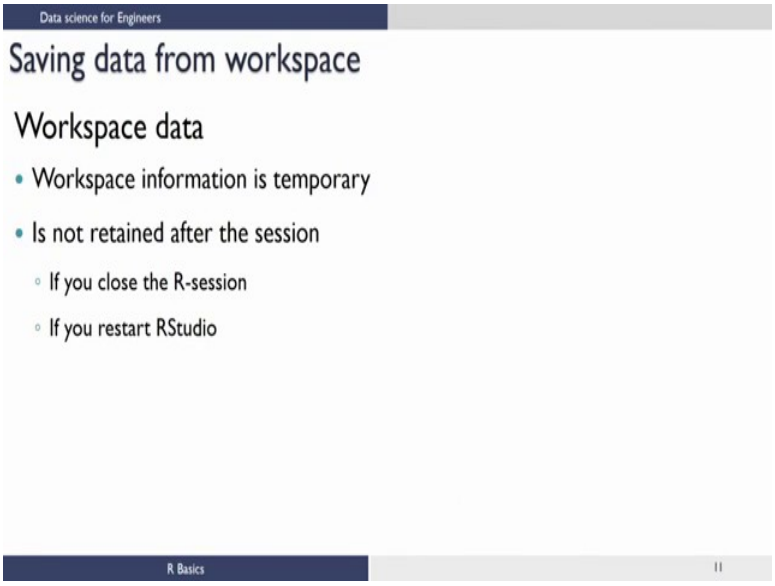

The data from the workspace in R I have already mentioned that the information that is saved in the environment of R is temporary and it is not retain when you close the R

session or restart the R Studio it is sometimes needed to save the data which is already there in the current session.

The reason being you would have done certain operations to get the data to this form and you do not want to repeat those actions and you need to start from the point where you want to leave now, in that cases you need to save the data from the R environment when you want to do that.

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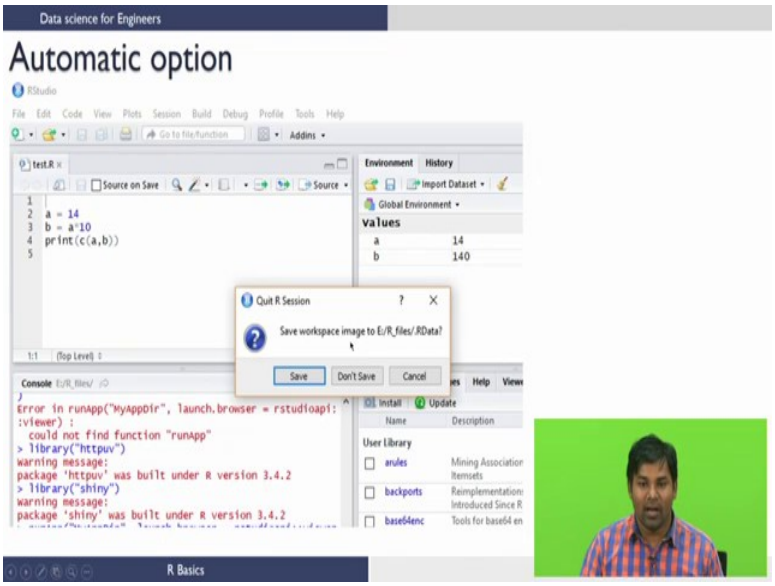

There are 2 ways the first one is the automatic option when you close the R Studio application it will ask you look do you want to save the workspace image if you say yes it will save all the variables that are there in the workspace, if you say do not save the R Studio will exit and the workspace information not be saved.

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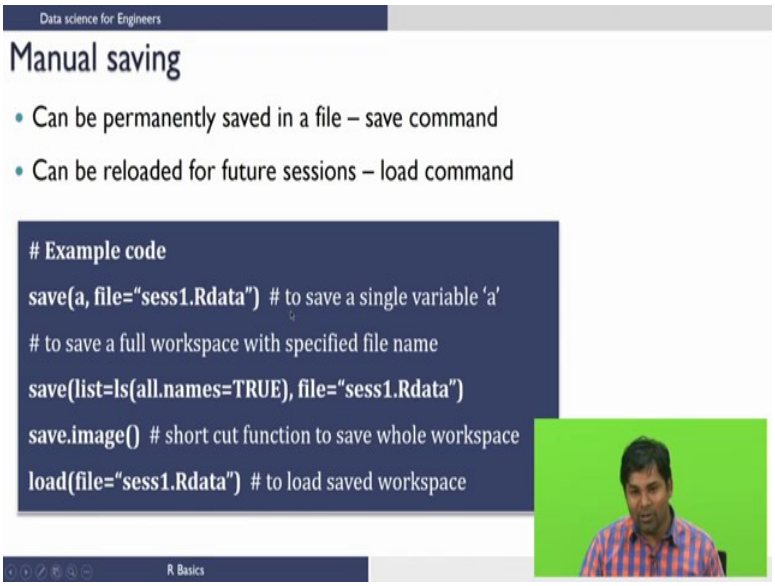

You can also save the workspace information using manual method where you can save the information to a file using the save command and the saved information can be reloaded for the future sessions using the load command let us see how to do that in R. Here is an example code the first line here shows how to save a variable that is there in the workspace into a file name sess1 dot R data.

So, in the comments you can see that this is the command which you can use to save a single variable a, if you are willing to say the full workspace you need to use this command save list = ls with argument all dot names = true and you can give the filename whatever you wish to and the shortcut key for this command which is given here is save dot image which saves the data in the environment into dot R data file in the current working directory. Once you do that you can load the workspace information at later point of time whenever you want using this command load you can specify the file = the file name which you save the data into.

So, in this lecture we have seen how to add comments to R file, how to clear the console and how to clear the R objects that are there in the environment and also we have seen how to save the variables that are available in the R environment for further use. In the next lecture we are going to introduce you to the basic data types of R.

Thank you.