Foundations of R Software
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Lecture - 04
Command Line and Data Editor

Hello friends, welcome to the course Foundations of R Software and in this lecture, we are going to talk about the Command Line and the Data Editors. Actually, in this lecture and in the next lecture we will continue with the same topic. So, first let me give you a brief idea what are we going to do in this lecture. First of all, introduce you with the basic terminologies although I already have done it in the past.

But just for the sake of completeness, I will formally introduce it and after that I will try to show you that how are we going to work in the R software. So, when we are working in the R software, we have two options. First option is that we try to work inside the R software and we don't take the help of any other external software. Second option is that we try to take the help of some external software.

These external software are like the friends of R software. What is the friend? Means as an individual human being I can do everything what others can do, but in case if I have a friend and if or if somebody gives me a helping hand like a friend, then my job becomes easier. So, similarly in the R software also, some friendly software's have been developed which help us working in the R software.

And there are couple of software and these software remain popular for some time. For example, in the last two decades I have seen a couple of such software and at this moment, one of the popular software is RStudio, beside there are many other software. So, remember one thing I am not trying to do a marketing of RStudio. But that is one of the software where I want to show you that if you try to take the help of some external software, how the things are going to be helpful, that is my sole objective. So, in this lecture I will try to introduce you with the R software, but how to work on the R software that I will try to discuss in the next lecture in detail. So, let us begin our lecture and we try to understand the basic functionalities of the R software, ok.

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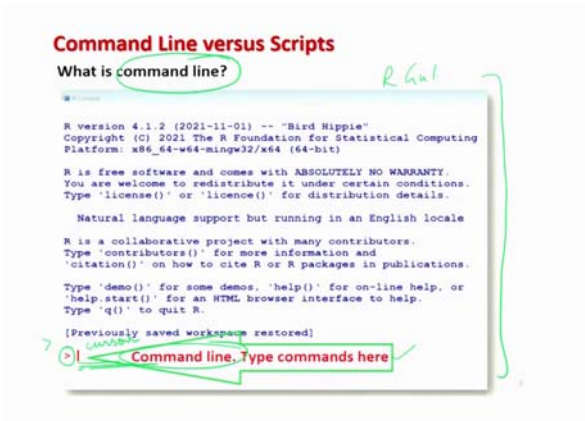

So, now, once you start the software, you know that what are you going to get that we already have done. So, I will try to show you here only the screenshot of the same thing which you now very much familiar. So, when we start the R software, then we get here this type of window that we had called as RGui window, that is R Graphic User Interface window.

And in this place here you can see a sign which is like a greater than sign and this is actually the prompt sign and after this there is here a vertical line, vertical line is actually this is a sort of cursor right; it will give you the position where you have to type. So, this line actually, this is called as command line and we try to type our, command, syntax, functions, whatever you want we always type at this place. So, this is called command line, right.

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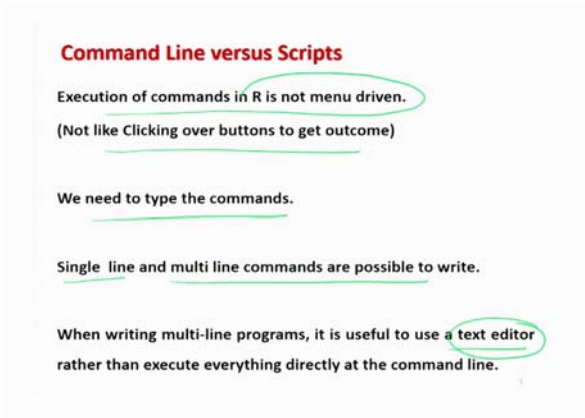

And then, now as we are quite familiar with the R software we know that the execution of the commands in the R software is not really 100 percent menu driven. Yeah, some commands are there because in the RGui window, you have some file packages etc., but not all. So, it is not like clicking over buttons and then getting the outcome, but we need to type the commands.

So, in R when you are trying to work, then both the options are there that you can type your commands in single line or in multi lines both are possible. So, as long as you are working on one line function, one line syntax there is no issue, but when you are trying to work on a command, which takes more than one line, then instead of typing it on the R console directly, it is a better option that you try to use a text editor.

The advantage is that in case if you are trying to type the multi-line program inside the R console and if you make any mistake at any line, the R software will exit and then you will have to type everything fresh. Whereas, when you are trying to type your command inside that text editor and then you are trying to execute it from there. So, in case if you have made a typographical mistake in typing the commands, you will have an option to go back to your editor and make the correction and then come back to the R software for the execution.

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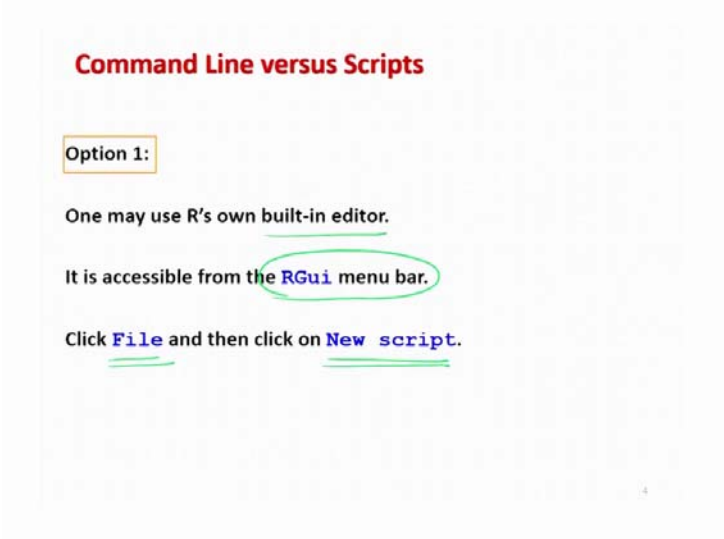

So, that is why a couple of a text editors are possible and I will try to show you here two option. The first option that how you can use the built in editor which is built in inside the R software and second is through some external software. So, the built-in editor in the R software can be accessed from this RGui menu bar, I will try to show you on the R console also. So, in this case you simply have to click on file and then you have to click on the new script. What does this mean?

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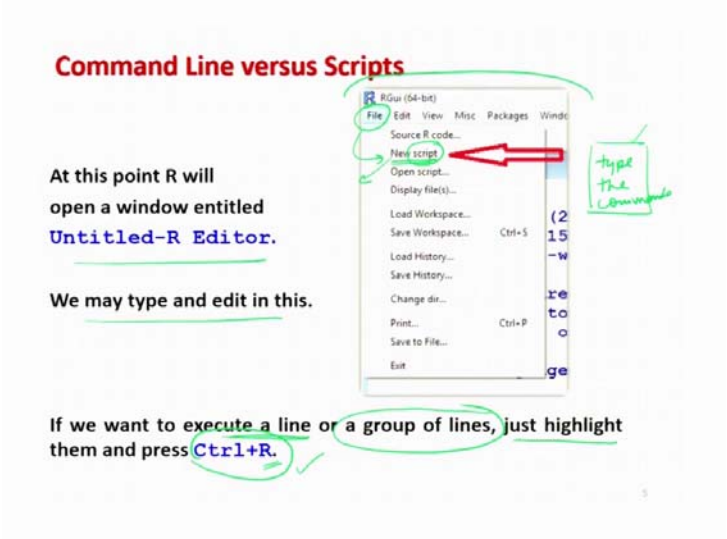

I can show you first here with the help of screenshot and then I will show you on the R console also. So, as soon as you begin the R software, you will have here this type of RGui window. Then you can come here on the file and then you can see here new script. Now, as soon as you click on the new script a new window will open here and where you can type the commands and from this window also you can means execute them in a particular way, I will try to show you and you can also save this window means you can save it as a R script file.

So, if you try to see here, I am trying to use here a new terminology script, script is something like program. Means in the in most of the languages for example, if you are using C language, Fortran etc. anything you always try to write down the program and that is called here as a script. So, at this moment as soon as you click on the new script file, it will open a sort of new file whose name will be untitled R editor.

And then you can type your command inside this file, you can edit it and then in case if you want to execute a function or a command from this file then you have both the option. Both the options means, in case if you want to execute only one line that also you can do, in case if you want to do more than one line or the entire program you can also do it in a single step.

For that what you have to do? Suppose you want to execute a particular line, for that you simply have to highlight it, means in order to highlight it either you can use your mouse or you can bring your cursor to that point and then using the shift key and arrow key, you can highlight it. And once you highlight it you have to press control R; that means, there is a key on your keyboard Ctrl that is called as control key.

And you have to choose the key of the R alphabet and you have to press control and R together, as soon as you try to do it and the execution will be happening on the R console. Now, in case if you want to execute more than one lines also that is also possible, same process you simply try to highlight those group of lines which you want to execute. And just press control R and the execution will be done on the RGui window on the command line, ok.

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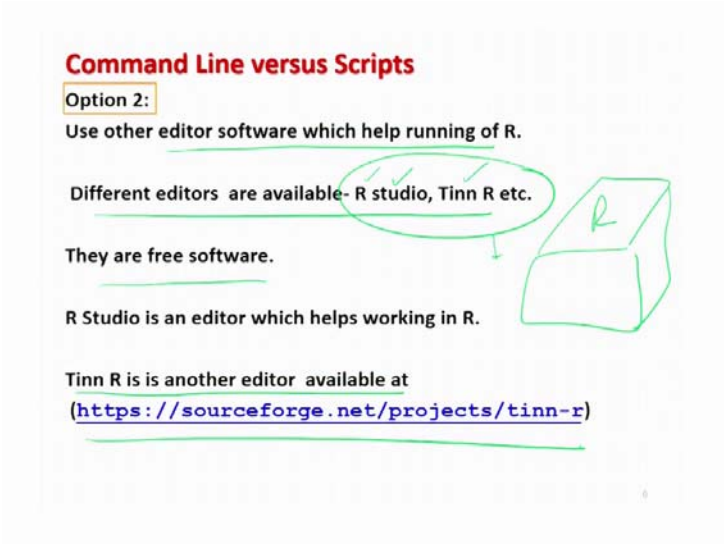

So, let me try to show you this on the R console.

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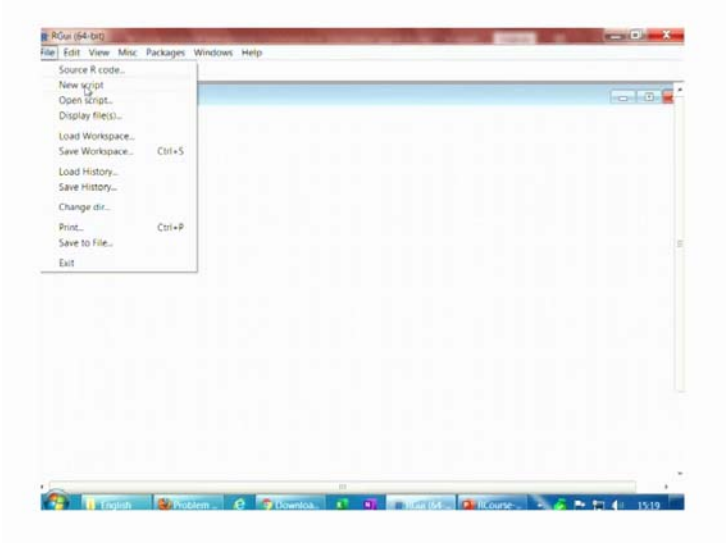

And then I will try to show you that how other options can be worked upon. For example, if you try to see here this is the RGui window, I try to come here file and then I come here with the new script right.

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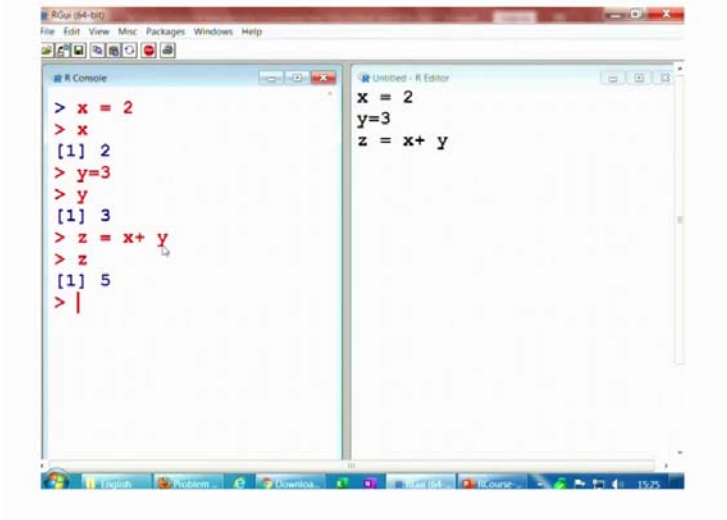

I can show you here, I can make the size of this window small so, that you can see all the things together right. You can see here with these operations I am trying to show you that

it is possible to manage these different windows in the R software also. So, you can see here this is your here untitled R Editor. Now, suppose I try to make here very simple commands, although I have not told you the commands, but I believe that ok if I take very simple thing you will understand them very easily.

Suppose, if I try to take here say x equal to 2 and then next line y is equal to say 3 and then, I try to say here z is equal to x plus y, well these are very simple operations which you understand. So, now, suppose I want to execute x. I will just highlight it either using my mouse or using the shift key and arrow key and now I am pressing here control and R together.

So, I will press here control and then R and then you have to observe what really happens in the R console. So, I will see here the control R. Now you can see here some operation has been done on the R console window. Now, if you try to see here what is the value of here x on the R console, you will see this is here x, right. Then similarly, if you try to highlight here y equal to 3 and then you press here control R, y equal to 3 is executed on the R console or and you can see here this is y is coming out to be here 3.

Now, if you try to and then I try to highlight here z is equal to x plus y and I press here control R and you can see here, now this here is z like this and if you try to see here the value of your z is coming out to be 5. Well ok, now, I have shown you these operations line by line, I try to now show you that how I can execute them in the group.

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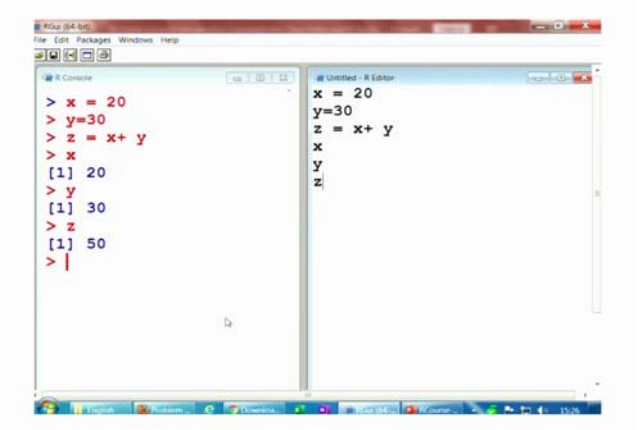

So, I clear this screen and just for the sake of understanding, I try to change this value, I make it x equal to 20, y equal to 30 and now I highlight all the 3 lines together and I press here control R. So, you can see here that all these operations have been done and if you want to see what are the values of x y and z. So, you can also do from here this window, I will type here the values of x, y and z and I press here control R, you can see here x equal to 20, y equal to 30 and z is equal to 50, right.

So, this is how you can make such operations. Now, in case if you come back to your this slide, then I would like to introduce you here that this is the way by which I have shown you that the execution of the commands can be done on the R software. Other option is that, we can use some other external editor software which helps us in running of the R commands.

So, actually different editors are available and most of them are actually free. So, for example, one editor is RStudio and then another address is Tinn R Ti double n Tinn R. So, earlier long time back, when I was learning this R at that time, Tinn R was very popular, nowadays RStudio is very popular. So, they are the free software.

So, I would like to just give you an idea that how this software work and sometimes when you are working in the software either R Studio, Tinn R or any other software the working become fast and more efficient. That is the only thing, but please remember the calculation and the analysis inside the R software when you are trying to do in the R Studio or Tinn R that is still being done inside the R software only, but RStudio and Tinn R will give you only a face something like. The face is there, but R software is behind the screen, right. So, we are going to understand here a brief functioning through the RStudio software, but my objective here is to teach you the R software and I would not like you to be dependent on any particular type of such software.

So, I will try to give you an idea, but then after that I will come back to the R console only and I will be executing all the commands only inside the R console only. So, that is what you have to keep in mind. So, in case if you want to download the Tinn R software you can go to this website and then you can download it, this is a free software.

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Similarly, if you want to have the RStudio software, then you can go to this website www rstudio dot com. And this software is all is written in the C++ sprogramming language and it is a free and open source integrated development environment for R. So, well when you try to go to the website of RStudio they have some versions which are paid and some version which are free. So, I am talking here only of the free version right.

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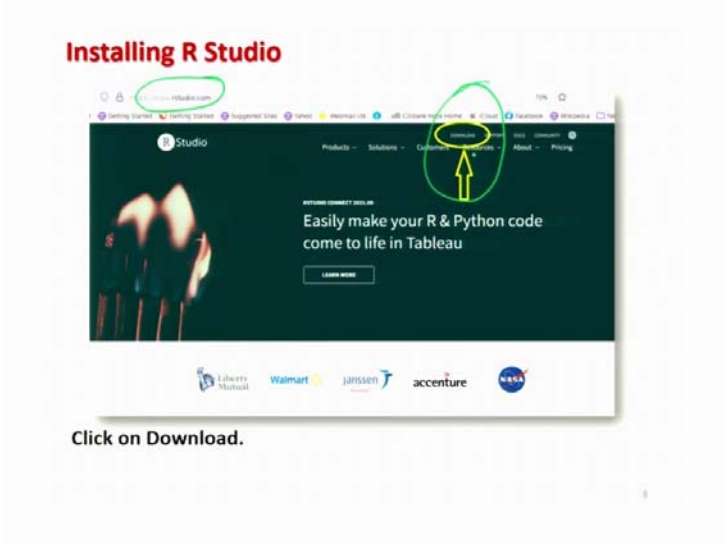

So, if you go to the website of www rstudio dot com. So, I have given you here a screenshot. Then you can see here there is download section here, you just try to click here, click on that download.

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And after the download you will come to this such a home page, where you can see here one of the option here is RStudio desktop free, right and others are there are different other versions.

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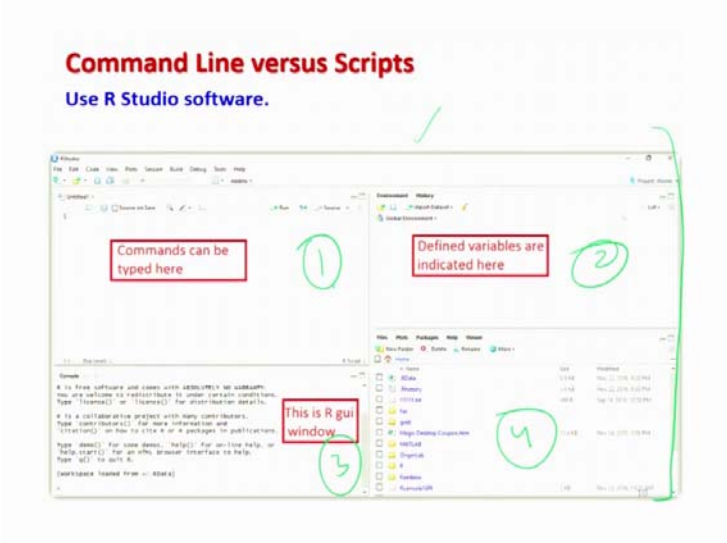

So, they are paid, but I am not talking of that, you simply try to download this RStudio desktop for free. And then you just click on this one, you will get a file over this, you simply try to click on the file, install it on your computer and if you double click on the icon of the RStudio software, you will get a screen like this one right. This will have here four screens, 1, 2 and here 3 and here 4 screen and they have their different types of functionalities, right.

So, anyway I am not going to take you further, I am not going to discuss about the utilities of these different four windows and, but I would stop here and then in the next turn I will try to show you that how you can work on the RStudio software. So, my starting point in the next lecture will be this slide, where I will be talking about the different types of functionalities with the respect to these four windows.

So, now I will stop here, but then my request to you will be at least you try to install this RStudio software on your computer and try to play with it, try to have a look, what is really happening in that software and how the windows are there, how do they look like. So, that will help me when I am trying to explain you about these intricacies in the next lecture, then at least you will be familiar with the face of the RStudio.

And then, I will try to give you a brief overview only. Well in case if I try to take up the RStudio also, possibly it will take a very long time to explain you all the functionalities of the RStudio. So, my objective is only to give you an idea that how these secondary software are going to help us in the working of the R software. So, you try to download this software and try to see how you can work in the RGui window, also with that text editor and I will see you in the next lecture till then, good bye.