SEER AKADEMY
Linux Basics – Lecture 2

Hello everyone again I will come out of this session continuing our discussion on the Linux see the Linux basics lecture 2 before I start the lecture I want to recap give you a little bit of recap as what we have done in the past lecture.

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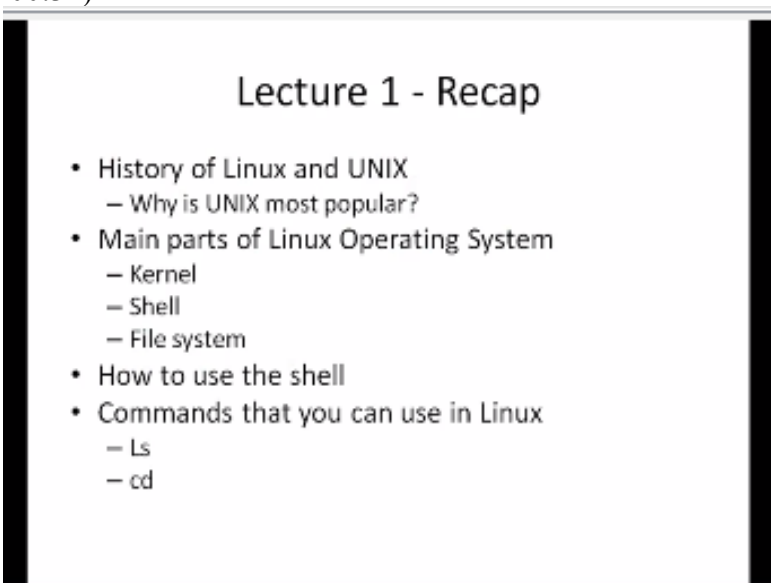

So we covered the history of Linux from UNIX mainly it has about 50 years of history at this point started somewhere in 1960s UNIX the people started working on UNIX with the mini computers then around 1991 the Linux came into being the main person who invented Linux - four - four walls we also looked at why UNIX is very popular operating system and then while in it for of the popular offering system the main reason why UNIX is Pablo because UNIX provides excellent security features and it also allows multi you go multitasking and multi city processor capabilities.

We actually saw and we define all those terms what it means and then Linux actually provides more features on top of that first of all Linux is an open system. So you get the source code along with the Linux operating system and then we also saw how it also has very solid they gained teachers it is globally verified so to speak because there are so many users using Linux and going through all the programs all the features of Linux verifying them everything so more than 30 years of verification experience England.

And then it is an open platform and the companies also use some of the commercial aspects of it and then we also saw the main parts of the Linux operating system the kernel the shell and the file system we defined each one of them as to how they interact with the user as we saw the kernel is the lowest level which mainly like provides the interface to the hardware systems so it

manages the resources for the resources for being so units and then also the memory when all those different parts are managed the shell actually sits on top of the tunnel and then that provides interface power from the user to the hardware.
So in between all these things is the file system which is essentially also defined what the file system is how the files are structured inside the Linux operating system and one key thing that we notice was all the devices are represented as files so if you want to actually put something in the at the determinable we simply write to a file and if you want to read from keyboard we simply read a file so that facilitates all kinds of interaction much more easy compared to say even windows operating system where you have to actually start a process and then basically use the process to communicate to your higher devices.
We also saw how to use the shell the what exactly is shell is form it is essentially am an interpreter so basically the new invoke a shell it comes up with the prompt the prompt could be shaped like a dollar percentage a greater than sign in click that and each one represents various shell and we saw a couple of shelves like the sea shell the Bourne shell or the bee-ash and with the Bourne-again shell with vase or - the both official is also notice it is called the TC shell which provides an additional capability on top of the original habilitation then we have got some basic introduction to the commands.
The commands like LS is the list command we also saw the command structure inside the Linux operating system which is command followed by options followed by arguments and then we saw a couple of commands unless on CD unless is the list command which lists all the files in a given directory then these are like the in boxing lessons equitable l LS x a l s- t LS names are based options that we saw and then also like on CD is the change directory which allows us to go from one directory to another and this is essentially.
When you go again it has many options and also like arguments it needs the one argument minimum which is well I would not say like it in each one you can also like give it no arguments and do you see that I mean I want you to see what happens then you know just a city with no arguments where is it go we are very to take you try that experiment is very rich it a fun extent otherwise.
You need one argument which is the destination deduction if you do not stick to any destination what happens so that is something that you can do when you get to play with one will Linux platform so I also have a couple of activities for you based on the lecture one.
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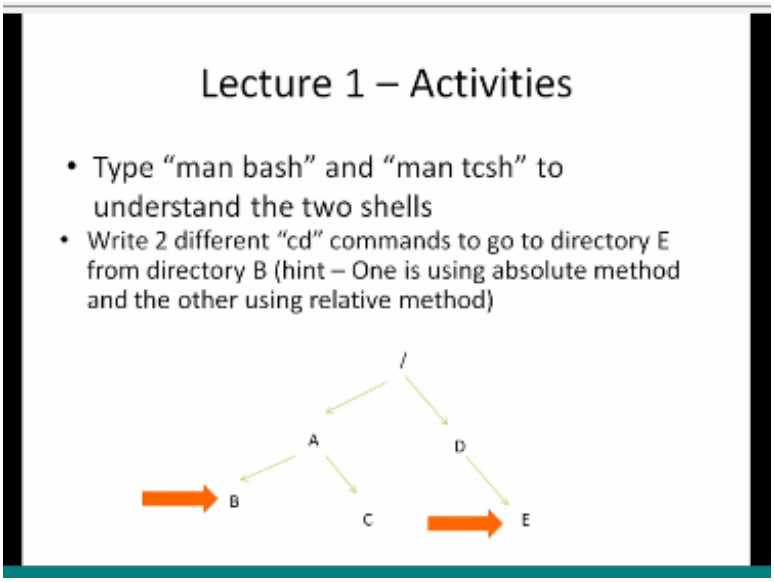

This is something that you can try talk I am going to get a chance to play on the Linux platform number one is you can type man we also saw this man command with the manual to get details about any romance so man bash is okay with the shell see what happens whether it is man brash and bold man PC usage these are two shells so you can get more information about the shell of shell a lot of options again the shell also follows the very similar command rules that we talked we know all about already it is all by the options and then the arguments for try it out see what happens.

I also ask you to do this other activity it is you have a pile structure so you know the slash represents the loop and then there is a B the directory a and then under the directory o P and C and then under root we have also under the directive of be under that you have directly e so I want you to write to CD commands to go from B.

To basically one will be an absolute command the other one is a relative will become an means using there you are and then there you want to go that is the relative command and then the absolute command is this follow from the route whatever these absolute paths so try it out I think it is a fun exercise this gives you some more understanding of how the city can work so with that we will start today's lecture I am going to cover more of the commands themselves we will look at various commands and the oh we can make use of them.

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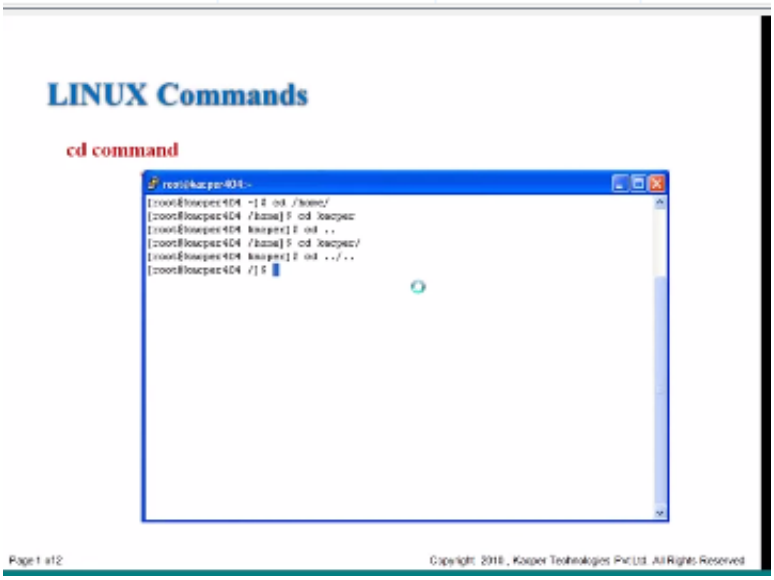

So I am going to start from there we left off this is the last I just wanted to again reinforce on goal recommend couple of things we did not talk about some of this stuff we talked about the tilde to represent the home directory you can also type CD is slash home slash which takes us to the slash home it may not be your home directory your home may be like slash home slash for your username in this case let us say like the account in here is easily so it goes there now you can also type in like a humble home KDC a CPR and that takes you to the next level.

And then from there like I mean we know that the dot actually moves back one level up so if you do a CD dot it takes us back to the slash home and then if you do like CD dot slash dot from the home from your a CPR then it takes you to the root connection so you can see like I mean how to navigate and now go from one directed another and as I said like the if you just do the previous exercise that will give you like a good grounding as to how to navigate using simple let us go on the next command that we are going to talk about,

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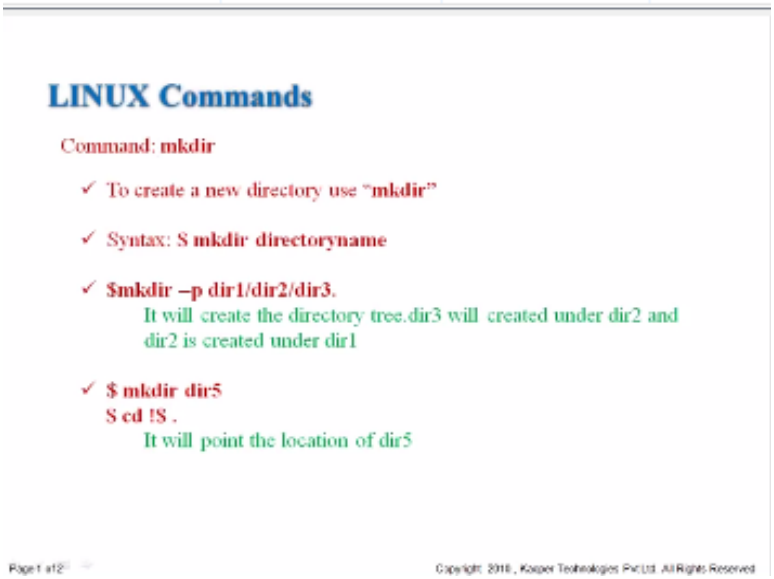

Is the mkdir or in short we just say make so make the command allows us to create new directories and the new directories can be created under the current directory or if you give like an absolute part it will also create wherever you want it to be created so here essentially the syntax is make-do followed by the direction so again here egg there is a command and the directly name is the argument you can also use certain option for example the - P let me create the directory three directory the three essentially like a minute it creates this whole tree which is the one followed by up to four.

Vedas thing meaning the one is the top level under that you have the two and then under that you have the and then you can also do make the der five which is this creating a new directory called the time and then we say CD pound / $ so the pound dollar has a meaning here the pound $ means the argument the last argument of the previous command so anytime you start with a bang it has basically like the bang denotes so the command so we will see some of the shortcuts until they go even though I will I will tell some of the structures.

As they go along but this bang followed by the dollar the dollar denotes the last argument from the previous owner so when we say like CD and dollar that Bank dollar is a shortcut or verify so then you say like city bank dollar basically it moves from the move the cursor from the current directly to their file because we already created the design this is a very useful socket I think like them in many others form use this pretty often the other shortcut is also like dank bang if you do the bang that that is shortcut for the previous command.

And then you can also say like bang however like I mean put an negative integer and that takes you back so many nerve system for example bang -2 is the command that got executed prior to the previous amount so bang minus 1 is the same as that one and then similarly that you can go

progressively behind how many our commands without that and we will see some more commands which allows you to get these kind of shortcuts and then more in kind of that navigation so the next one that we will talk about is the user for semicolon.
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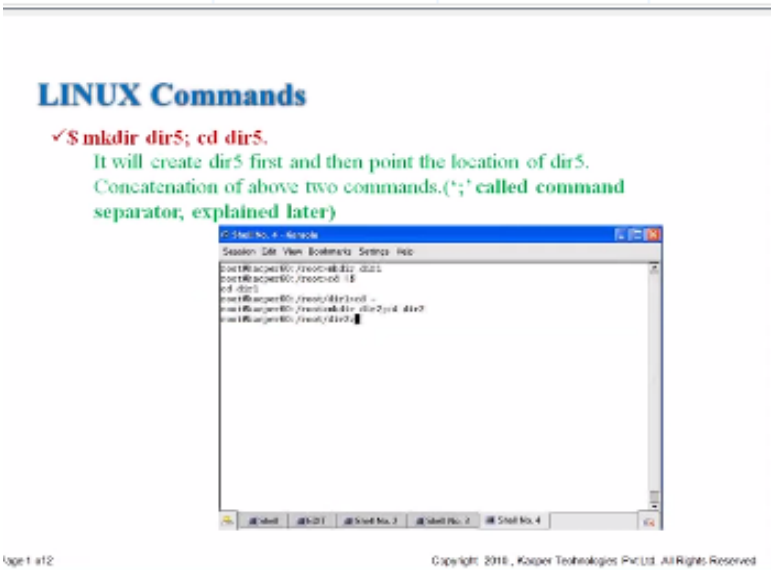

Semicolon is the usually a command operator so this allows us to actually contact Nate multiple commands using the line so in this one for example then say make the 5 semicolon then CD to the 5 there is no period actually so once you do that for example is shown here it creates the directory and then moves the per set to that benefit so now you can say the prompt actually here it is actually this very end time that is actually now in this route slash there too so and then here also like. I mean we already learned about this the CD - which is essentially going back to the previous command or previous directly.
Where it came from this is not that it is going up on level but whichever directly that was their biggest for example I can say like I am in the I can gain like the route slash select the one then already had created a under the root there is a good the route slash the two and then if I say like for example CD - / root / the - under one and then if I say CD - it actually takes me back to door 1 not 2 / 4 so this is the important distinction.
That I want you to keep in mind something that you note notice in this particular even bigger is shelves. On this in this particular window with various tabs so you can actually click and go to those thing again this is all like the features of the multitasking that they already know about when we learn to the beam of nature um the all the next command that we will learn is cat.
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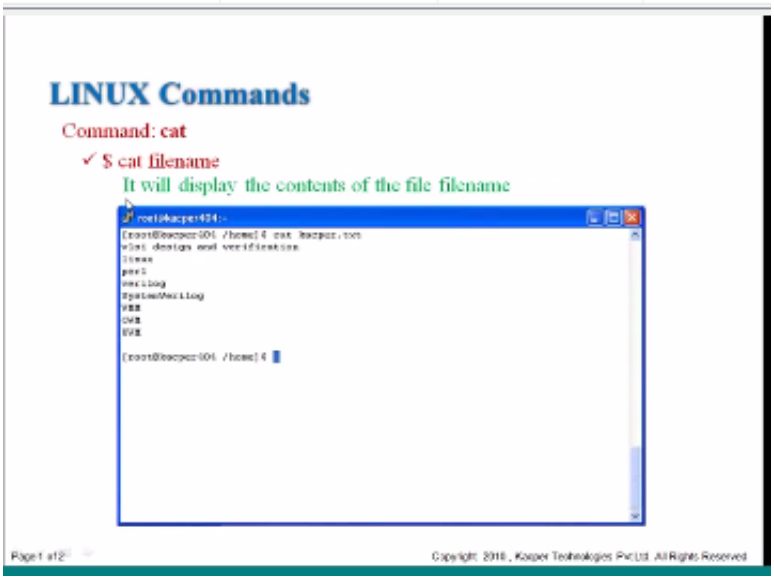

Is the short form for detonate or detonation essentially like I mean when you say cat and the argument is a filename once you give the file name the command interpreter just open that file and displays each line and until the end of the line then it being puts it back put the prompt back so this is like I mean you cannot do any edits or anything but if you only like displace the contents of the file so for example like I mean there is this text file a CPR dot text that we have and then you say like cat a CPR it just rolls through that all the lines and it displays line.

Belong so VLSI design verification or verilock system a log all this V M M and OB M and another on so all these are displayed and then and then even there is an empty line this side you notice the end and then it brings back to the prompt so this is again another useful command to see what is inside particular so now the question is how do we use it I mean death by displaying a file I can through all the lines does not seem that useful correct but there are many ways that we can use it for example you can copy a file into another file and that you can use a list tap command to do it. So how do I do it let us look at that but here.

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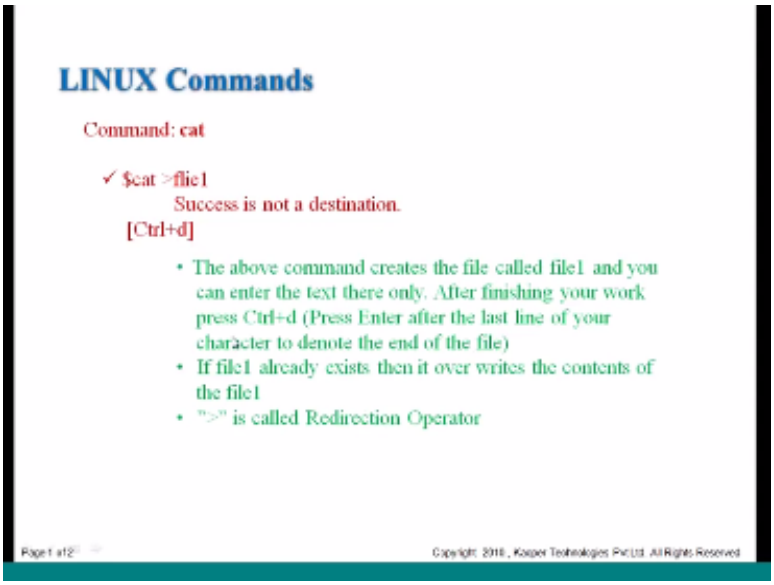

There is a special character another character which is the greater than sign so when we say like cat to a file so in this one actually like I mean we can keep typing whatever we type in that goes into this file called sly one and then when we do the ctrl D it comes back so this is one way to enter or edit a file not really like useful in the sense that we cannot go back and change things around or move things around this is like this line by line it is for input so say like I mean if you want to type in like some notes into just a file you can just do this cat and redirect to a file.
And then they start typing your notes and then it will just create it to move it is a useful in some sense basically I mean you can also say like an inspector at PI one and then redirect to file - that actually lets you copy that file so you will now have two files PI 1 and PI 2 both same information so this is the this is where I am actually you are using two things one is the cat command also the great direction operator which is the greater than some so in this case um when you say like one greater than time it creates this new file and essentially Lange in right.
Into that file and if the final one is our fly one is already there then it will not usually right into that it will say hey this file is there I cannot overwrite it in some shells it also allows the writing of the content so here actually if the final one is already exists then it overrides identify one it is true but sometimes some shells actually within will not do that and then it comes back with an arrow so it depends on like the kind of shell movie but you can again this is one of the features of Linux if you go customization that people talk about so now let us see like I mean how we can use this one so the next slide is to give you an example of,
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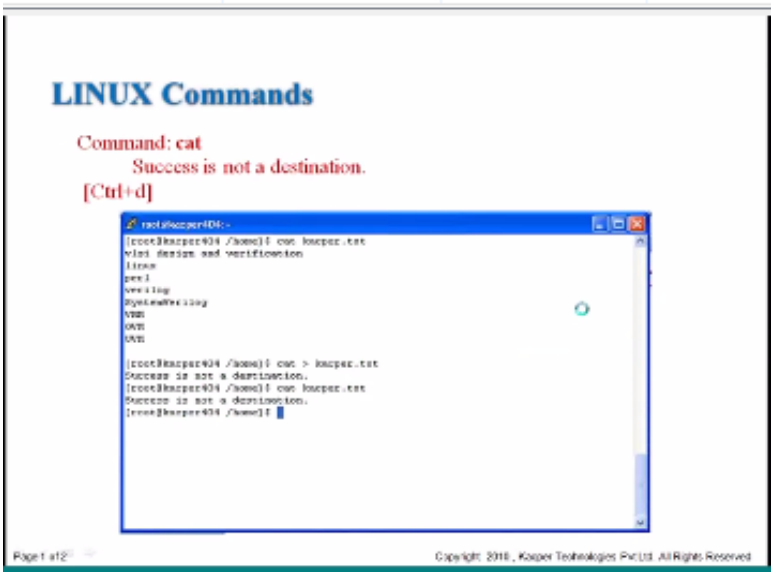

Where it is getting over within here we display the mission to tap cat cortex that displays the content this we already saw but now when we do the cat greater than tech prepare text and then you start typing this in such as is not this ignition and then we do a control D and then now when you issue the same cat command the previous command we see actually the file is changed and we get on with this again try this out try various combinations of this and I think you understand it better that way now let us the water.

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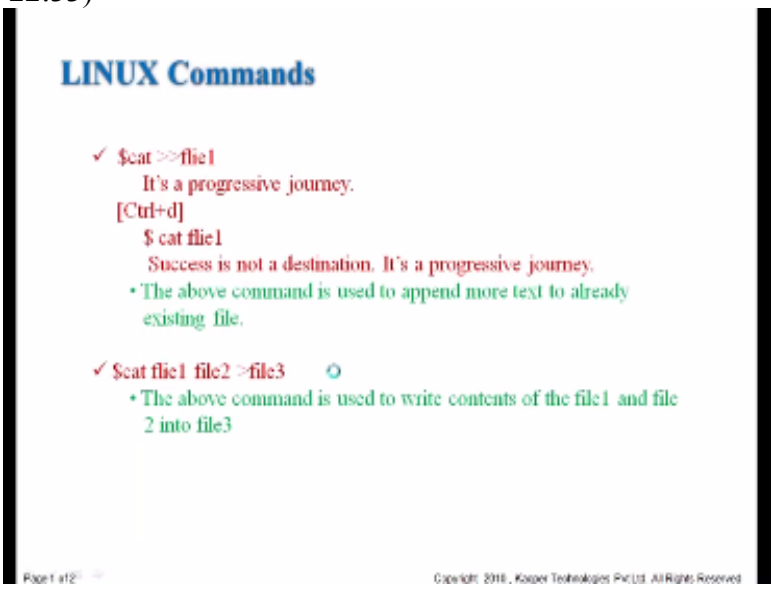

The next one which is a little bit more interesting it is the double greater-than so it is two arrows see here what is this actually is slightly different than a single arrow this the two greater than signs actually lets you to append to a file what that means is the fly one in the period example.

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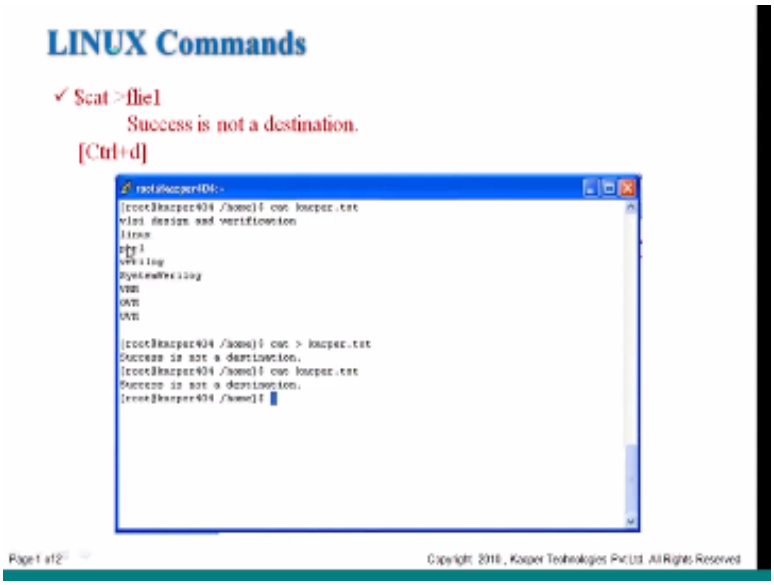

Saw that contained all these things now if you take at two great events and then take that word or text and then when you type in the sector is not addressing is in control D it will contain all these things and the next line after this empty line will be this one so that is the big difference between the signature is a number two so again now why how can you use it so here there is a one way to use it which is sly one apply one file to and then you are saying greater than PI what happens into this one is actually contact needs both these files and write it into the fine.

Now the question is how do you append Fire fly 1 into pile to the simple thing is like eliminate this file thing and then you can say at apply one double arrow by two and then whatever the content in file two will be will have fly1 appended to it at the end if you want the reverse one like the pile to go to go after the π of π 1 then you need to reverse all click Add by to append to fly one and then that is appended to so again another one command to pave it I encourage you to actually try this out and try it out multiple times and various combinations to just understand how this network you. So here is an example again.

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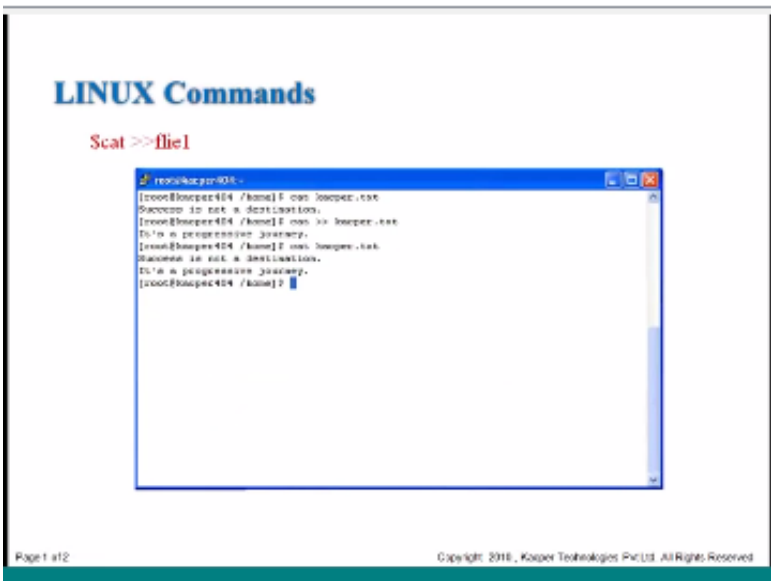

We first typed in whatever the capital text and success is not a destination and then followed by control D to break this man now the next one is cat and two arrows and capital texts and then it's a progressive journey and then now with an tech product X we get those two lines that they enter so this is another way to enter a data into a file but you know is still we are we know like now how to create a file.

How to actually work with the file but it is still not very clear as to how we can write some programs and how to navigate through a pipe we will talk about some of the commands so later on in this course but let us go on with this knowledge now the next one is now we know that how to copy using the app but Linux also supports a regular copy function.

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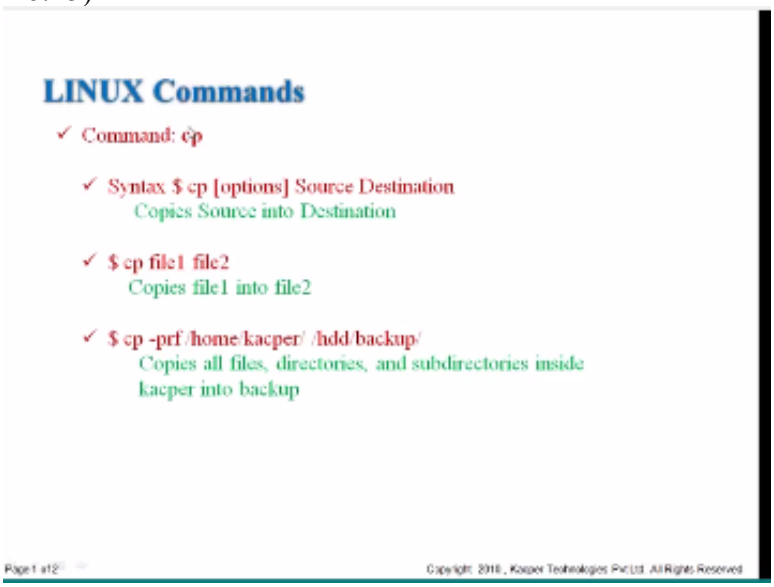

Which is the command is CT and CP also has again a number of options but it has few main arguments source file and the destination pile so if we without any options we say a p-51 file into it copies the content of file one into the content of file into point two so this is another this is a very useful term and we use this a lot of times actually in the real life and the Linux also allows you to actually copy many files to a destination and you can also specify a directory here instead of the file and then it will create the file one exact copy of a file one and call it also as file one under this particular collection.
So here we can say T p- PRF again all these things are having a meaning and then we will see what they mean then it takes this the files and directories and subdirectory from this cat fur area from pepper into the HDD backup table and it fades exactly like all the files into them so here you see that actually it is not the arguments of other files working to insert they are the directors so that is why I like I mean it is left as vaguely as it is the source and destination.
The source could be the filename or a directory destination could be a file name or a direction and they are directory then you need some options to make sure that which files are getting puffy and even liked in source you can use for wild cards which is something we will learn for example the star denotes so star you know some all the possible files and then you can also like filter them by specific characters and name so now let's look at why we specify these four options the P R and F what do they mean.
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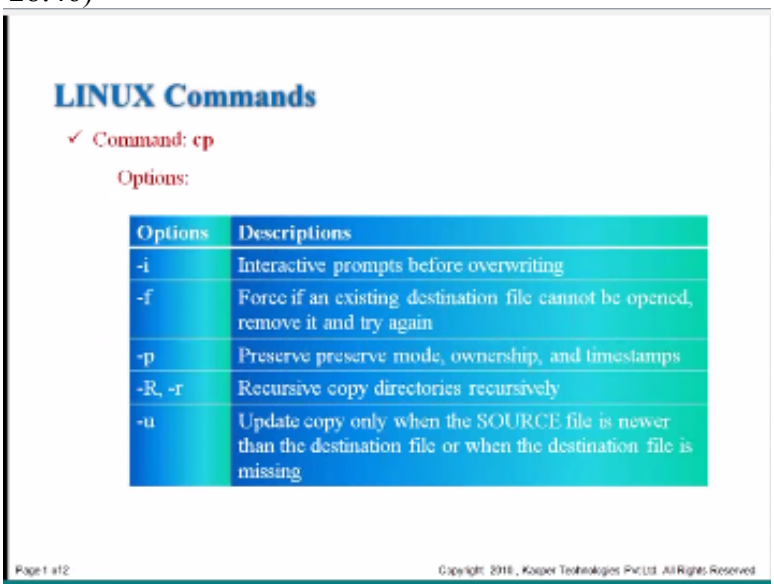

So here is a brief look into the options on the - I is an interactive and it prompts before over writing so if I like this symbol base station directory and you're trying to overwrite it will ask you hey we want to overwrite you want happen you want to cancel this or skip this file so then

you can even use that particular option to either copy it or to skip it or which is one that you want to do - F is the fourth option which is essentially does not matter whether I like this whether it is um it is preserved.
Whatever it is it basically forces it into the filters remove it and then it will try again - P is the pressure mode where all the ownership the timestamps of all the things are preserved and we will see like what that means like because there is a special section on what this file ownership what kind of things that you can do and also like what are the modes that you can work on a file and then the - R is a recursive ball it is a recursive copy which means that it goes and finds all the sub directories and subdirectories of the directory then it copies everything so a copy - RF is a pores and recursive which is one moves many times.
Dash you is the update copy only them before styling from newer than the distance in front or if the destination file is missing so here essentially if you already have something new and if you are trying to overwrite the previous version it will prevent copying from copy previous
Version so very useful feature so the CP - RF is as I said local you for more than what you can imagine in day-to-day operations.
Now if you want more details - in Harrogate it you get more details on so there are two is we talked about this earlier one is the man CP by that out see what you get and also like city - help it should give you all these options. And what are the fifth Nag in said short was more than the man will give you like more details so now let us move on to the next command.
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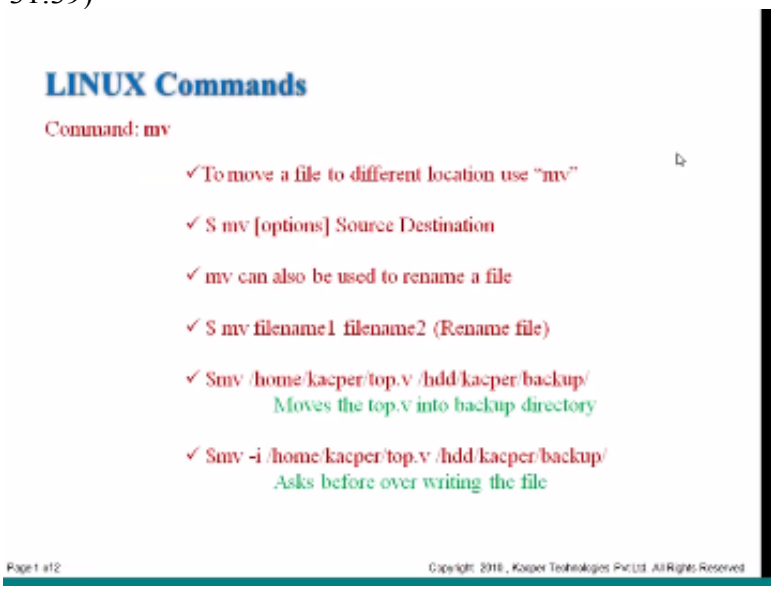

It is MV is just call it move the more command is different from me because more command basically takes the pile and then moves it over to the new distribution so in the windows world analog is to cut and paste whereas the CP command is more like a copy and paste so again the

arguments here are the source and the destination and you can also rename a file which means that the destination could be specified as of filing rather than directly named if you specify the direction in the name that preserved and if this it moves over to the new directory.
But at the same time if you specify a new file name as a destination then it moves it and also changes and rename a file to the name that you wanted that you selected you and there are many options here there is one across and one there is mentioned this is the - is interactive which is you see it is trying to overwrite a new file it basically asked you to conform so you really want to do it or not again another nifty feature and for getting more help on this command I want you to type in the man move to get more.
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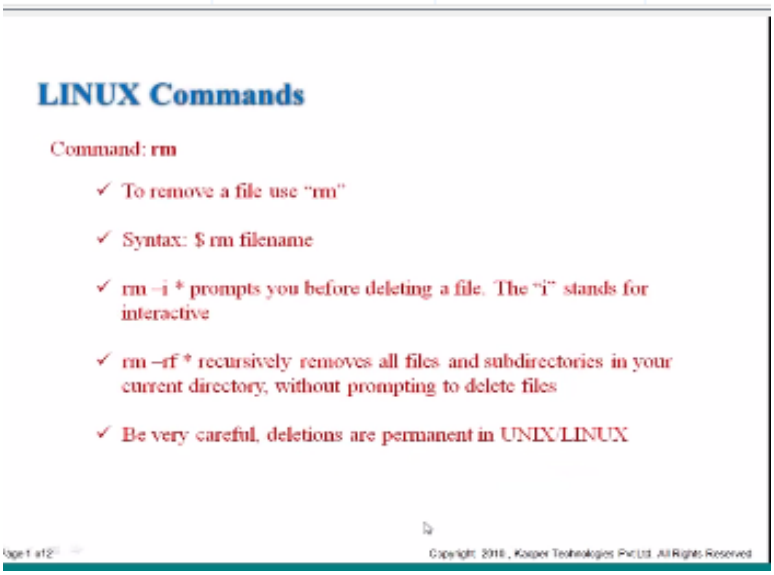

So let us go to the next one the next one is the RM command R M stands for remove so essentially let you use RM to remove any button again you have to use it is it extremely carefully unless you want to do it go do it because the deletions are permanent in then ascending so once you delete a file it goes to the heap and essentially dependents are lost forever the government should use this the country is in you your thumbs to anyway so RM by limb that is the command and it has many options RM - I basically interactive.
Where it pumps you before deleting a file it asks you a we really want to delete this file and thumbs that and then we are a minus RF is the recursive and force as you as we saw so it basically goes and recursively delete all the files from sub directory the directory is from under any of the source or the argument that you suspect and our - our RF also does not prompt when it tries to delete the fun so it is really a dangerous command record the root and then they say like Armand power boom everything gone.

So do not try to do this and then here actually like in like our manpower let us start the little star here this means all the files and in fact you can also see the starter tab it also mean poo the same thing whether this character or not I mean there is a file it just is it this is the most powerful command I will say in any of the Linux platforms so don't ever do this one hour - adder style if you do it from your home directory the entire home directory is gone we do it the root directory the root is more so I mean there are several bishops that happen because of you symbols our lines are a star on the other lines are at startups. so now let us look at the next command .
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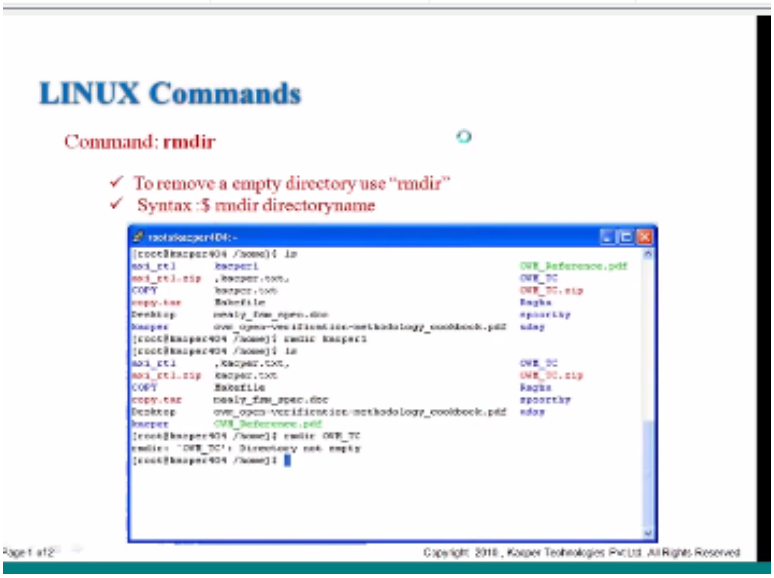

This are under again are under is used to remove any directories so as you know garlic Adam just the simple remove command is typically used to remove pie even though I like that mean if you use the Ottoman all the associated directories can also remove but are under specifically removes Adam tree so you are in this example you do an LS of the home directory and see we call these files ax I appear exact there copy of your ATAR all those things No that is okay.
Cat purr and you Rector one so see the color differences right so this ovum reference is green all these TC ragu a sporty copy and all these things are do and then you have red and then there are black ones so typically the black ones are the ASCII files the red ones here are the binary files and then you get the blue ones which are mainly directories and then the green one is some other type that it cannot detect oh it basically say it is a PDF we move on actually so it is tagged as being so this is one of the things that some of the shelves provide it is kind of color it is the various files based on extensions.
So it is very easy to see that okay how many directories are all okay I have a crossed directory check for one is it directly x I r Taylors a directory or VM TT is a directory and then rebel day of

inches so now I can go and actually remove it they are in the back for one which is this particular directive and then if you do an LS command that particular thing is missing and here you can also say like the ovum TC but then it comes back with a comma with the palm saying that a you are trying to remove a directory which has content in it which other which has some files in it.
So I cannot do this so that is that this message that they represent so if you want to do it there are two ways of doing it on it you can say like RM o V M TP / star and then first remove all the files then you should wanna go that is one way to it or the other way in any one guess it's the RM minus RF recursively go and remove and that also removes this particular action so in the next actually provides the good features to actually work on this to for all the commands so that you don't have this one way with multiple ways you can be very creative in your approach so now let us go to the next one the next command.
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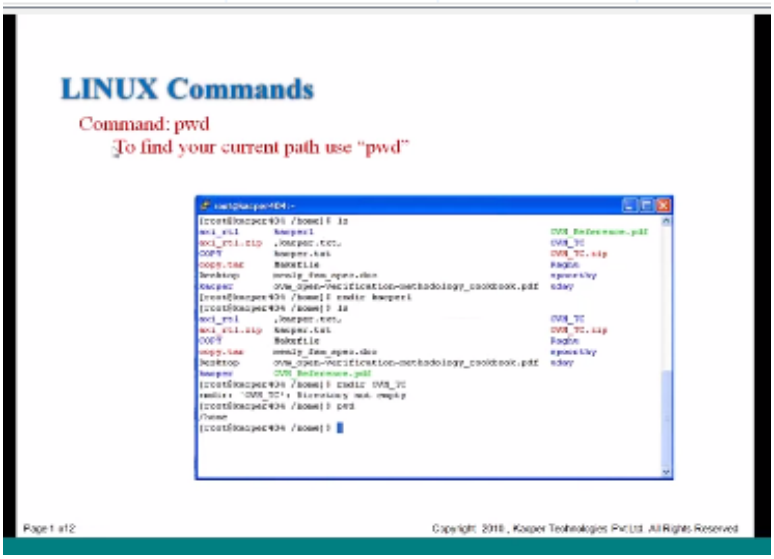

That we will learn is the PWD stands for present working directory so what does that mean so this is their prompt is it is almost saying that this is today and what is today is there you are right at this point of time then so essentially the PWD venue and you say it gives you which directory that you are currently working on or where your prompt is so again you are in now - home we know that actually from first one and then you have various files needed an LS command so one thing that you notice is also like.
I mean before 404 this could be a machine name currently like I am in that so it looks for some shells also display the amount number so if you are running the first command then it will say 1 2 3 4 in this case it looks like this machine after or 4 so the kappa 404 you go into the home directory you have removed the chapter 1 lead another LS and then the OB MTC that is this is all

like the previous commands basically there you could remove that and then said we should be exactly what NP I can over move now you assure the PWD command basically it comes up with. What where it is today that it is currently this is the slash phone that is a - 1 here and then it continues on so this is again a very useful command because sometimes the directories can be like very long like you can be under a size because it being free flash being size means like a it can go all the way up to like say three and then the prompt it only displays probably like this V so now you want to understand what is my present working direction.
So the PWD will give you the exactly where you want okay so this is something like a DTS so now PWD gives you there you are but still you have to know where you want to go and then based on that you can do like CD command LS things like that form so this again very useful command anymore so now the next command.
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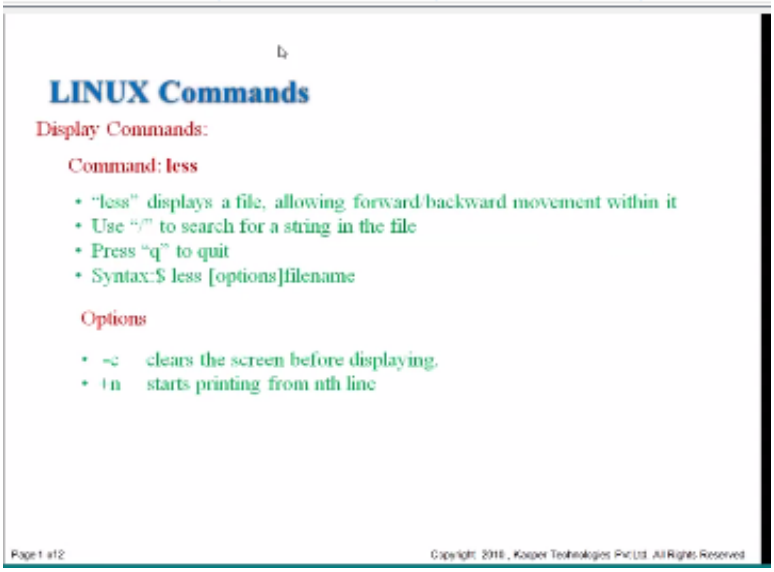

That we will study is the less event so we are already the command cat so les is very similar to the cat comment in fact we should start with more and then you can feel like less but more and less are pretty much more or less the same similar type of comments the only difference
Between the cat and the less is unless actually displays the file but it does not go back to the prompt so it stays within that file and then so it lets you go up and down the file and the interface is similar to an editor interface even though you cannot edit the file.
But you can navigate inside the phone so if I used to be then it first displays only portion of it doesn't display the whole thing like all the cat does basically it runs through the thing and then it comes back the pump instead of that the less command actually displays the file one page at a time and then it lets you navigate usually then go forward by this pressing the spacebar or you can go back by this typing be expressing be and then need to be will go back one page there are

some other additional stuff one is the use of slash to search within the file. So you can say slash and then followed by a particular string and then that is the command will search for that particular string inside the file to see whether it is present where it is present inside that and then for fitting the less you just simply type Q and then there are additional commands inside of less this one is the percentage for man personally it is G which takes you to which this place.
Where what is the current percentage or the current line how much percentage of file is powered by the Sun at an angle there exactly the current banks in the file the lowercase G and I forget D actually they take you to the first character of the file and then the last character first line of the file in the last name.
So uppercase G takes you to the last line and Lotus D will take people personal so again this is the letter command is mainly used for inspection and you can also specify like the condition often like - they will clear the screen before displaying so if there is any residual stuff and it's small file it you will still like see from the top of the terminal all this is done and then plus n is there n denotes the number of line so say like + 10 it starts printing only from the tenth line so this is again another thing to inspect files so you want to actually look at a file without actually editing it touching it.
Then the less is your command to do that again touching is another thing then when you open a file or reading alone you are not changing the timestamp you do not want to say that hey I edited the form it is only read reading if you want to edit the file then as soon as you edit the timestamp changes and then this new times pan will be put in based on when you read the file or when you started reading by the right option also so we will talk about some of those things in the last section where we will talk about the file system and how to interact the file system. You now here is an example of less command.
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So in this one it is a very top five for basically display this in the entire screen and then just a end so now if you if you type into then this is this little bit you can actually navigate using the D and magazine my ID enough is a that I mentioned and in this file is too small so watch but if the file goes into multiple pages then it takes in the first at the last after perfecting here actually even the prompt is missing because then I can get this big whole page and when basically once you do the Q then it will be thing go back to the font here it does not look that interesting but in reality if you have a net list for example.

You can search through the place to find a particular component you can also search through timing reports to understand where the maximum delay things like that so again the less demand has for large phone to days small program in terms of inspection mostly okay so let us go to the next one it is command.

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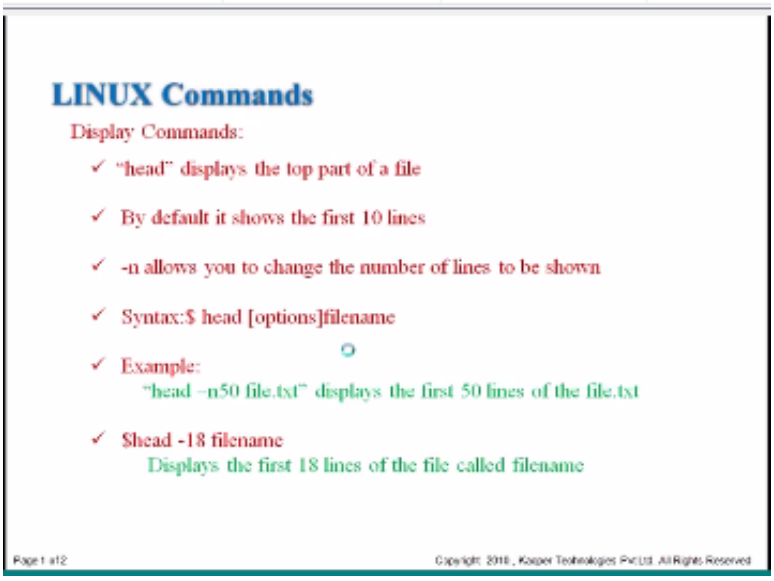

Which is the head the head displays top part of the file which is the starting point and then you can also make it display more lines but the default is 10 lines we use this a like head and then behind it displays the first 10 lines in that pipe and then the - end essentially allows you to change the number of lines to be shown so you can pay like - and for then it will display the first four lines if you can if you so the various options are there like the here the example is head - in 50 Philo text displays the first 50 lines of the Diagnostics ad - 18 I will name without the n also it also works the starting line for the power So why is this again important the reason is the head command.

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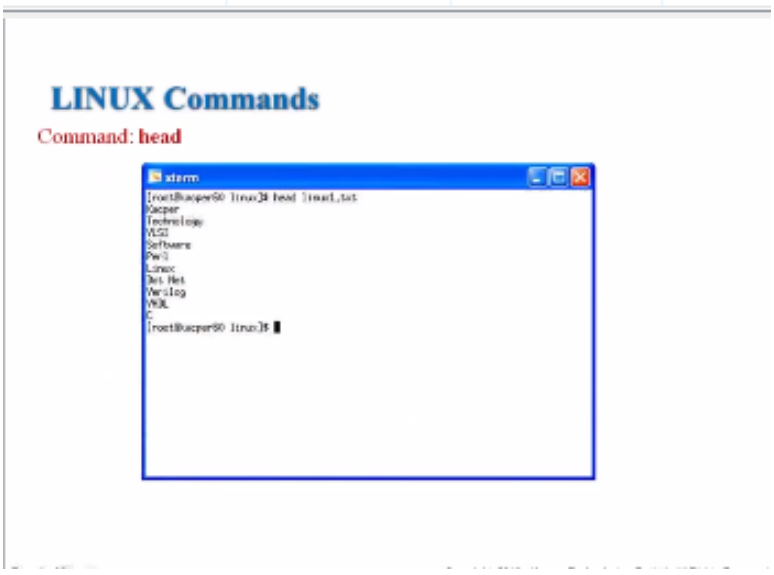

Is used in many places there you want to make sure that the file created and more the file has all the proper input again nice another one is if you know that there is a splash bar to denote a

particular program and you want to know like version from the program itself then you can do ahead of that program on the log file and then you know that okay. Bits Rogan is using the other base.

Are basically to display the first 50 probably that is where all the I use are all covered so you know exactly with Bubo what did I use in that I need it to run before you okay so we will see an example of head here the Linux context essentially display the first 10 lines of time oh seven eight nine ten so you can do this many people minutes and ways so now a complementary tool head is the tail command.

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We will also see this one a tail command.

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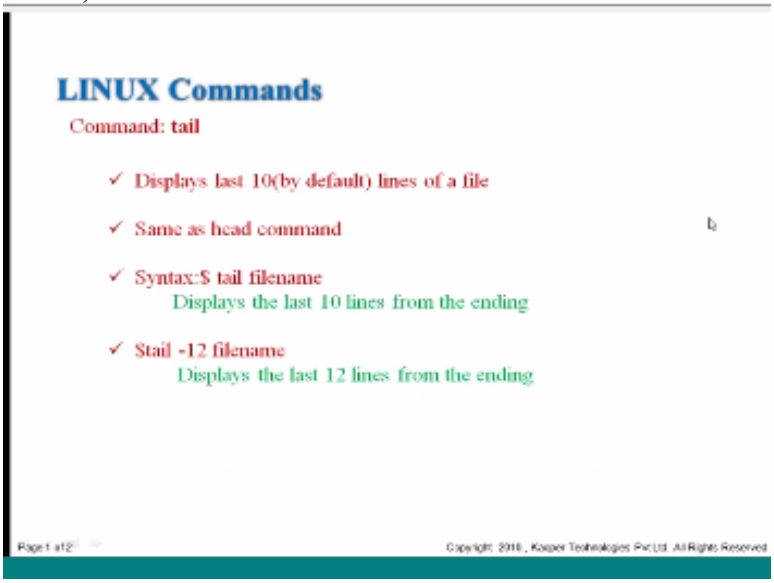

And should displace 10 lines of a file but it does not display the first line but the last ones so the same as head command but only thing is this displays the last 10 lines of a file again why is this important ok we'll see in a bit and so here also like you can give the same options the - end in the number or this - number this changes the number of lines differently and there are other options too one of the options that we always use is the - s option the - F option actually gives on a continuous basis the last 10 lines.
So it constantly updated it does not go back to the prompt so why is this important or why do you need this combo pair feature because the tail - F and then filename it could be a log file and then you can actually track how the program is working and how the log file is changing over time so now you can say like I mean how the program is actually progressing and then if you see anything wrong with that you can put a stop to it you can control C and in fact to break the tail - that you are easy difficulty to come off of it and the same thing.
Basically you can apply to the program itself if you see something wrong in the running of the program. You can put a stop it and this is it does not change the time stamp on the file name so if the file name is getting written out and we were walking around the time stamp you can you should not worry about it if you are using a tail mindset so now let us look at how the tail is used in the file.
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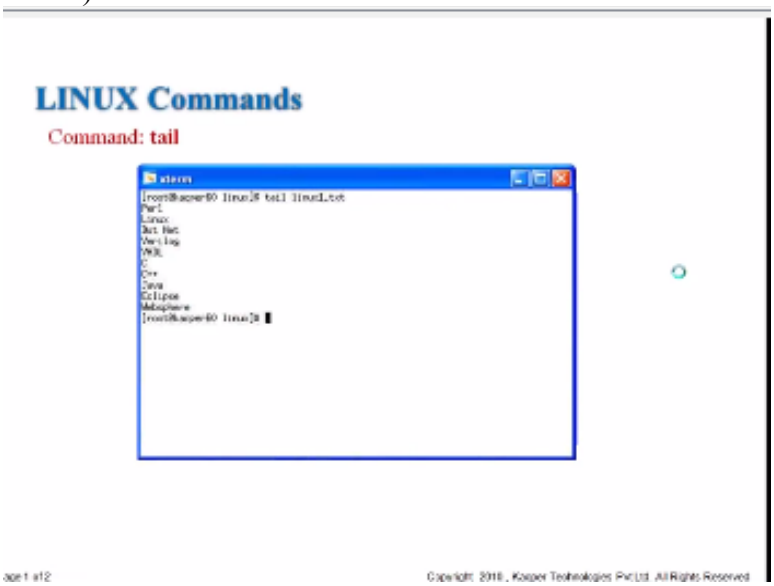

So here we specify tail - tail just a little text and it displays the content of the critical file with only the last 10 lines so if it has more than 10 lines those lines are already omitted in this example so I say as I said earlier when we talked about the less command the command that goes along with the less is what is called a more.

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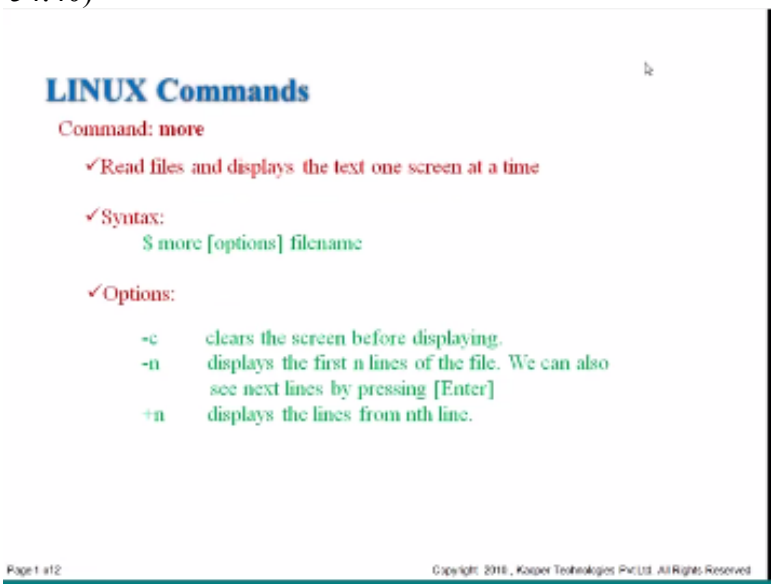

So again as very similar to go like that and again it has many options the - T clears the display before actually clear the screen deposit explain actual display and then - N and our display is the first n line perform and the + n displays the lines from that particular end and then you can also just see the next set of lines for next page full of lines which is passing enter the same concept basically in the less you we pressed the spacebar here. We press ENTER to advance to the next page you so one use of the more command is shown here.

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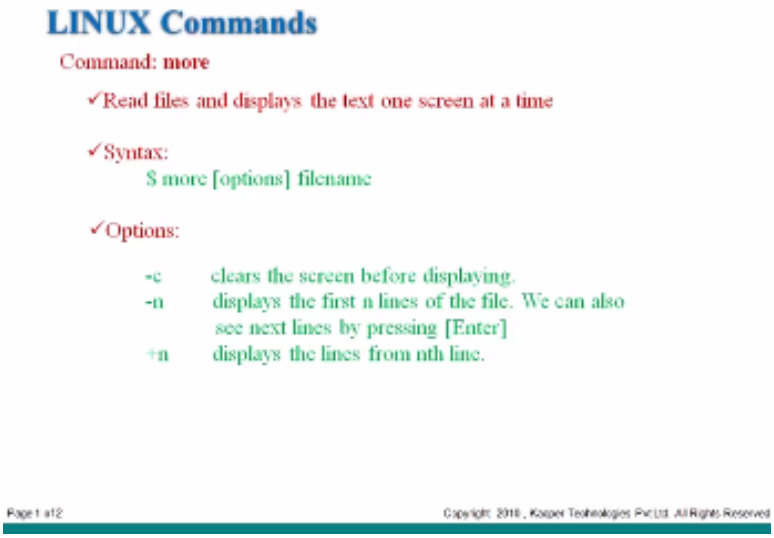

So we do a LS is the list command via mobile vault and then we know that - l a l stands for long calm and then is it being all the files which includes the dark patch so here you see like the auto FSK is the dark dot amount is the birthday you can see it also displays these files which is

missing and you just said LS all year in LS minus L so and then it also displays all these things over here there are a couple of things to note in this command on it the LS - la which we on the inaudible in the slash which is the root directory.
That we know about this is a special character which is the type we call it vitamin - actually a command and then the mode so the pipes and T's are something that we will learn later on these are the commands to change the command flow itself basically so here in this one what we are saying by using this pipe is do the LS - la on this particular directory and send that output to this problem and this program is more so it displays user directories page the page the first page has all these elements then it will say like more so if you press like enter then it will show the next page usually the more command.
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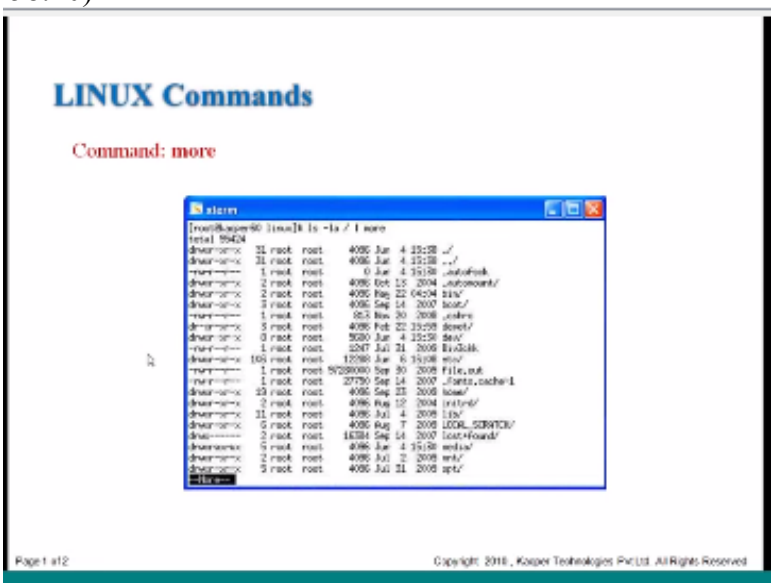

Exits out then it comes to the end similar to the tab essentially whereas the less will still be inside the pool so I think like that is one of the probably the difference between hormone unmoor and the less but I guess this gives you a very good understanding about additional commands we will take up from this point onwards the next time around we will go into more deeper into the Linux now that we understood pretty much the basics it will see what do all these characters mean.
What does this mean what does this mean then you are out in the date time your extra group are represented. Even like these things what do they mean? So we will learn about those things in the next session so again thank you very much thank you for listening again there is the next time I will again recap the this particular lecture and then we will from that point thanks for coming.