Introduction to Research
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Lecture - 07
Literature Survey Using Web of Science ™

We will be discussing how to do literature survey using two tools: one is Web of Science and the other one is Scopus. And the first module will be on Web of Science.

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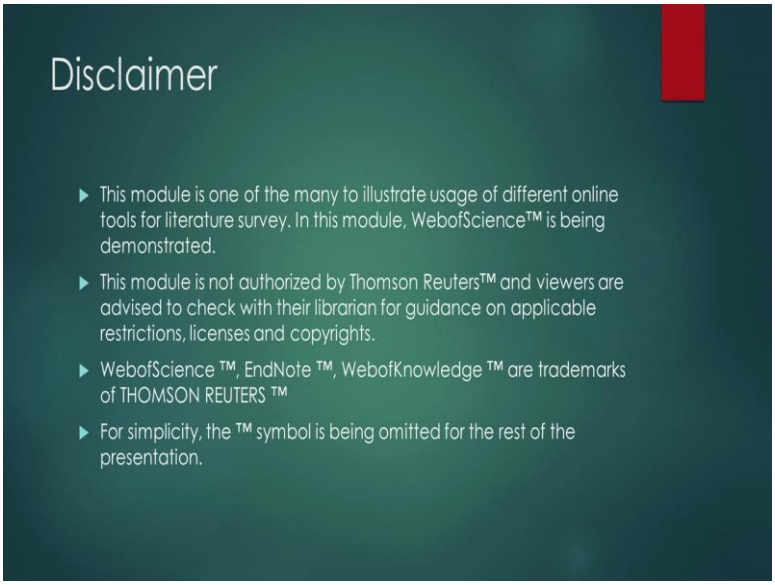

See there is a disclaimer that we need to provide before we proceed further.

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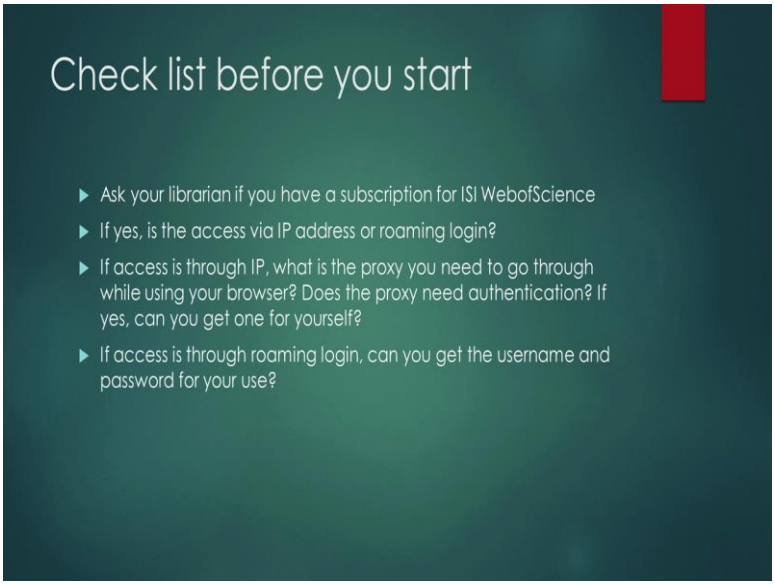

So, before we start the literature survey, it is very important for us to know from our librarian whether we have subscription for these tools. So, please do ask your librarian whether your institute has a subscription for ISI Web of Science, and if they do have, then what kind of a subscription they have. The subscription comes often in a two modes - either by an IP address from where all connections will be honored for content or through a roaming login where the user name and password will be provided by the librarian. And, in case the access is through IP address, then we also need to know from the institute whether we need to use a proxy, and which means that whether you have a login and password for the proxy server from your institute. So, this information must be available before your start with literature survey using this tool.

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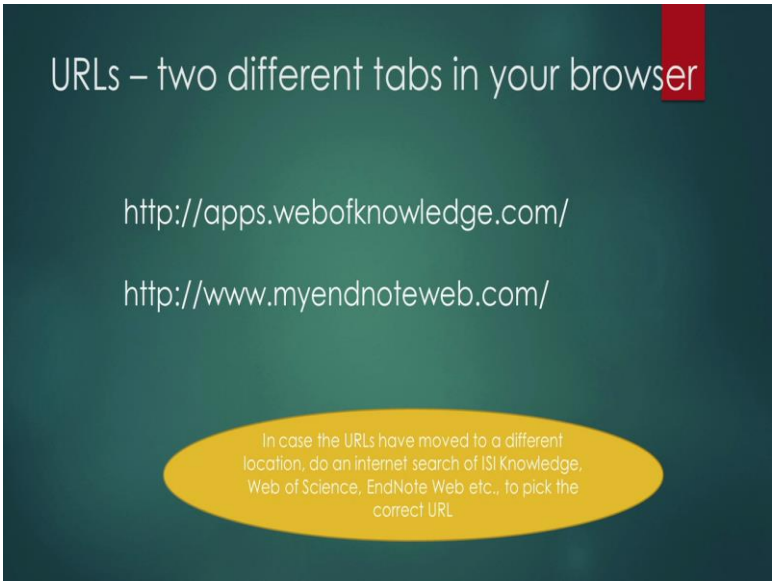

The two URLs that we will require to access while we do the literature survey using Web of Science are given here: Web of Knowledge and End Note Web. And these two URLs should be opened simultaneously in two different tabs in your browser, because we will be logging into both the portals and we will need the information to be seen simultaneously in both the portals. And if the URLs are changed by the vendor at any point of time from now, then you need to identify the correct URLs using a web search engine and you could that yourself at a later point.

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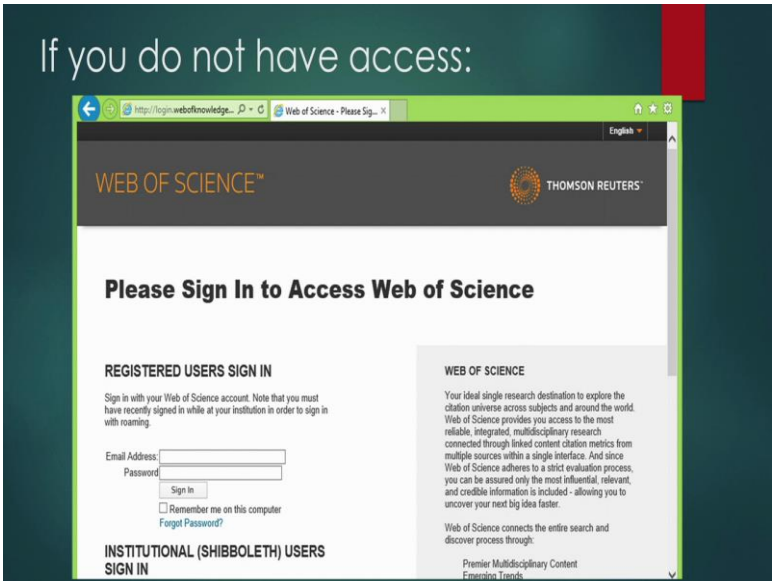

In case you do not have a access for any reason, then when you open the Web of Science portal, then this is how it looks like. This portal is going to ask you to login and there will be no option for you to search anything on this portal. When you see this kind of a screen, please note that you need to approach your librarian and ask whether you have a subscription, and if yes, then what is the methodology by which you can access that particular site.

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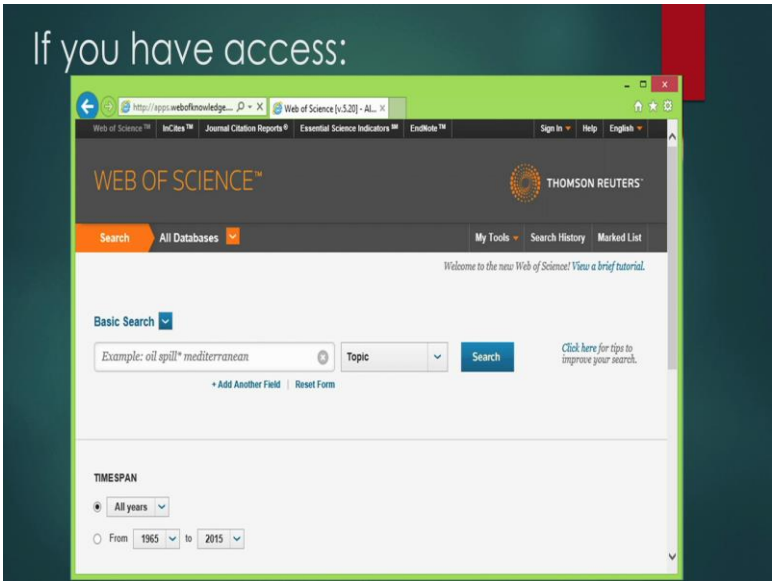

In case you do have access, then when you open this portal on your browser, in your desktop, then this is how it looks like; you do have immediately a search possibility, a box that will let you type in the keywords, and then a search button there. So, which means that you are ready to start your literature survey.

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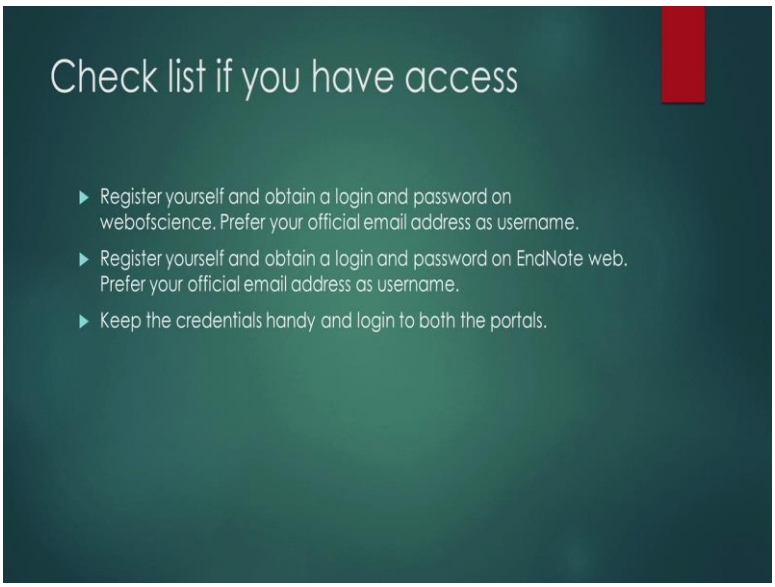

And there is a check list that we must clear before we proceed further. It's important for us to have a login access to both these portals. The reason being that the literature survey that we are doing should be stored in a profile that only we are able to access, so that we can come back to the work where we left earlier; and therefore, you need to register your user name and password with both these portals. It is often recommended to use your official e-mail address, because the authentication sometimes will honor you to use that address for access to the content, sometimes even when you are accessing from out side your campus location. So, you may want to check about these possibilities from the vendor, but its very important for us to register and create a login on both the portals. And we must be able to login at the time we are doing the literature survey, which means that we must have the user name and password handy before we start the literature survey.

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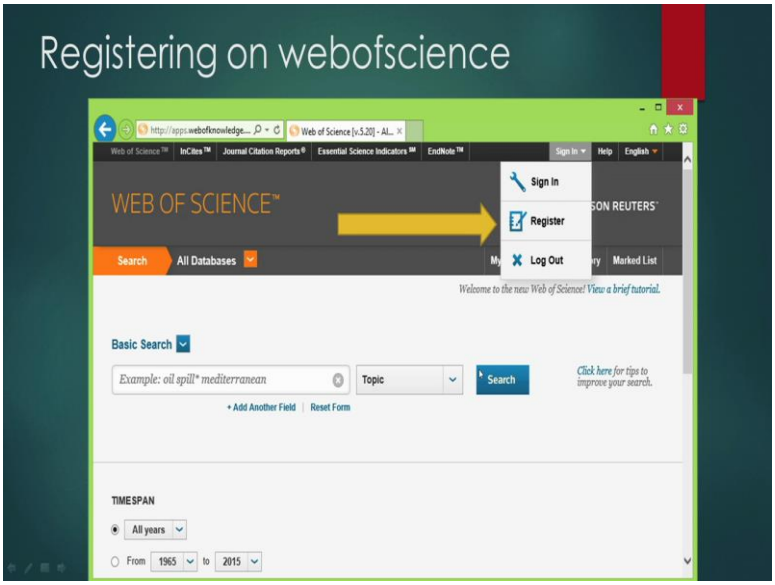

So, the registration is very simple, when you open the Web of Science portal on the right hand side top there is a menu, under Sign In, and when you click on that there are three tabs that will open. The middle one - Register - is what you must click to register your details.

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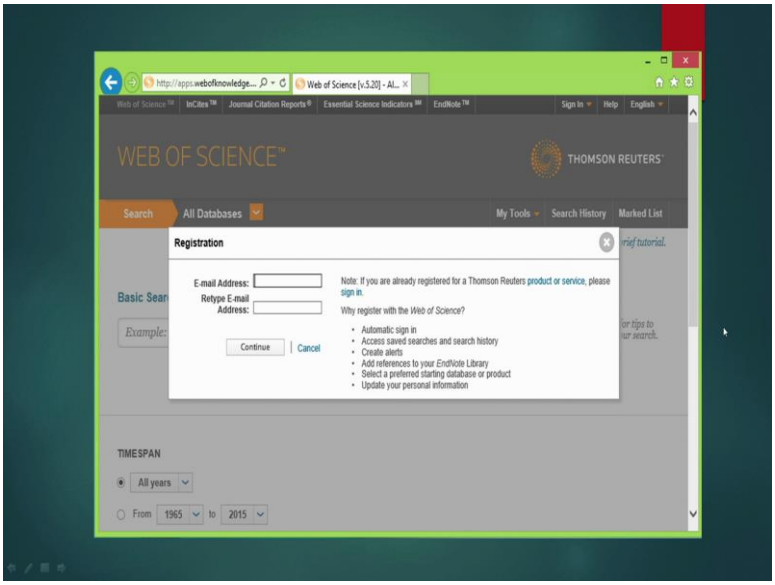

And the registration form is very simple. Initially, you will be asked to provide your e-mail address, and once give your e-mail address, then there will be an e-mail confirmation, following which you will be able to set your password. The user name is your e-mail itself and the password is what you can set. And why is it that we need to have registration? You are already listed by Web of Science here under several possibilities that we can do with our login account.

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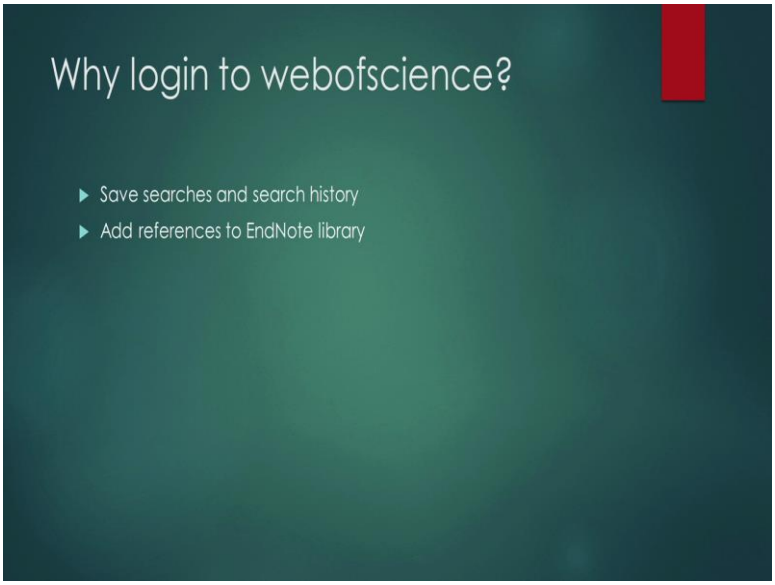

But for our reference what we need to do is listed here; we want to save the searches that we are performing and we also want to save the search history so that we can continue from where we left off last time we did the literature survey. And most important, we need the login to Web of Science because we want to be able to add the references which we collect from Web of Science into End Note Library - which is also one of the products of Thomson Reuters - and its important for us to have a login because that is where the references will be entered, and only after that we can take them out in the format called BibTeX which I will be illustrating shortly.

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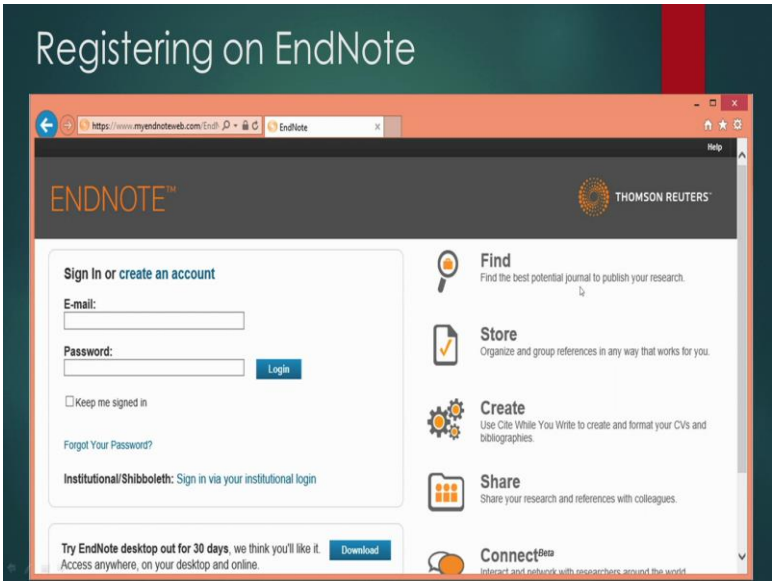

Registering at the End Note portal is also quite straight forward. You initially login to endnote.com, and the website will then get redirected itself to myendnoteweb.com where you will be able to create your account or if you already have created then you can sign in. It is a advisable that you need to sign into both portals in two different browser tabs and keep it ready.

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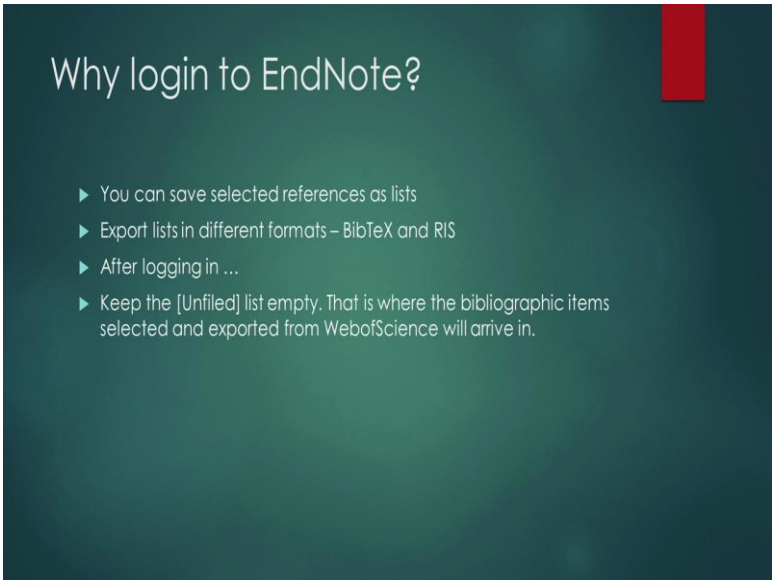

And the reason why we want to login to End Note is because we want to save the selected references as lists and we want to export those lists in different formats particularly BibTeX and RIS formats. And then, after logging in, we must also pay attention to one aspect - the lists are all named with some heading which we can pick to be meaningful for the set of references that we collect. And what those lists have is also an item - an empty container - called unfiled, which when we first time login it will be empty, but as you keep doing literature survey this list will kept populated by various items. It is very important to keep it empty whenever we want to collect references, so that we can avoid mixing up two different literature surveys that we are doing simultaneously at two different topics.

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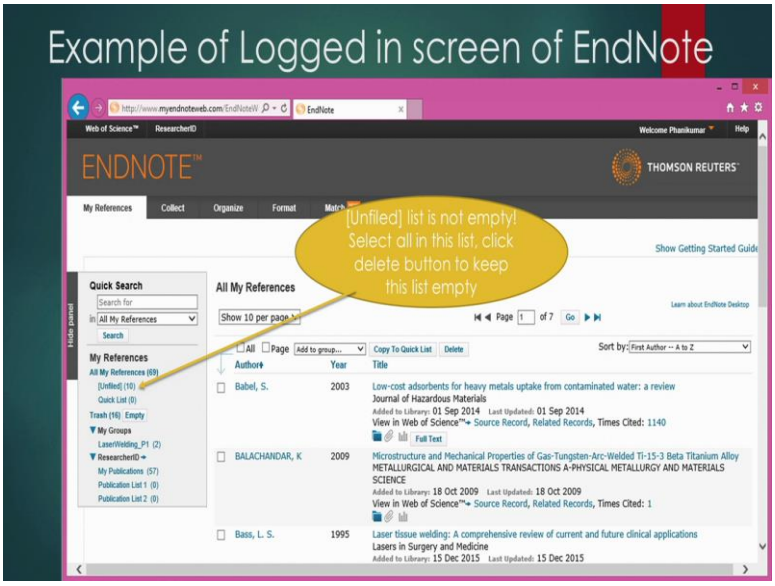

This is how the logged in screen of End Note would look like. This is what I was alerting it to you - on the left hand side bar there is an item called unfiled with a bracket; it just shows you how many bibliographic items are there which are not categorized as any list and those must be emptied. So, what we need to do is select all of them using the All button here, and click on the button Delete, so that to that particular list becomes empty.

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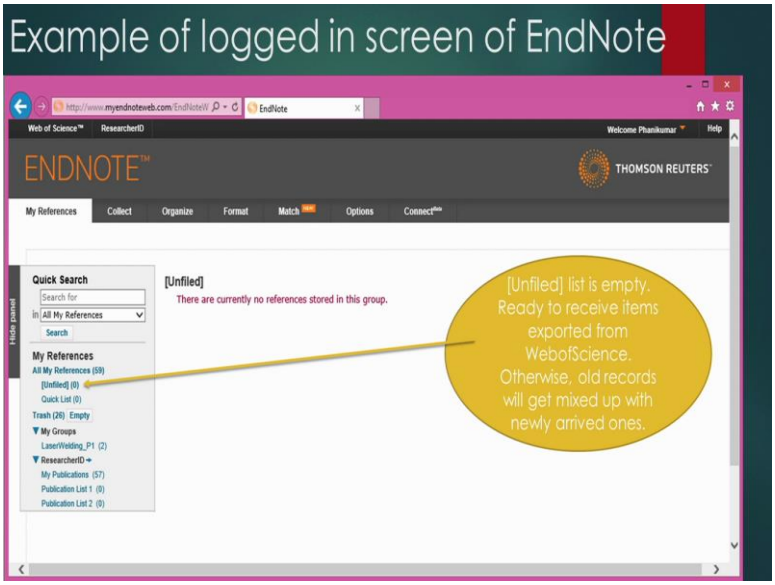

So when it is empty it looks like this. Beside unfiled you have 0 and the list is looking empty. Which means that we are now ready with our folder to pick the literature survey items that are coming from Web of Science into End Note, following which we can then export in the format that we like.

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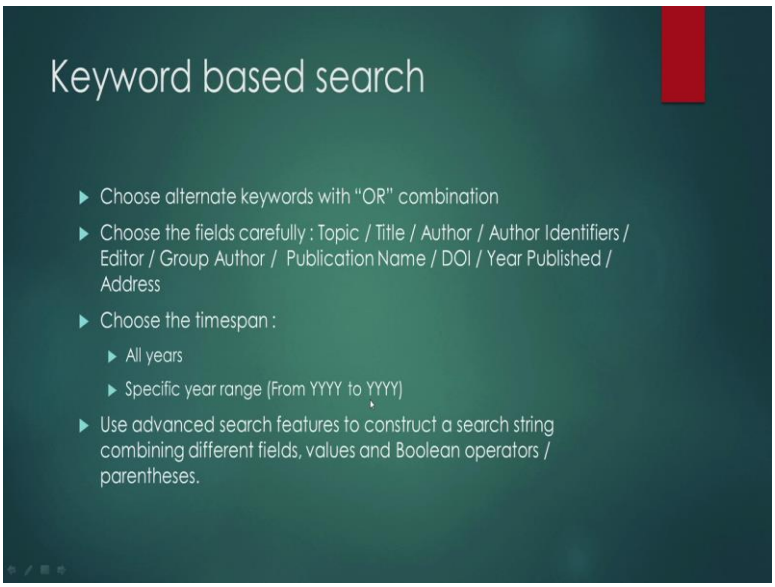

So, first demonstration will be on a Keyword based search. What we mean by a Keyword based search is that we choose a set of words which describe the research area that we want to search for. As an example, in my case, I am going to do the literature survey on a topic called Melt Spinning. A very often Melt Spinning is also referred to as Rapid Solidification, because during Melt Spinning, Rapid Solidification phenomenon takes place. Therefore, its very important to find out what are all the alternative keywords, so that we can use them with OR combination, so that we can get a union of all the results that will match the set of keywords that we have combined.

Its very important to also choose the fields. It is possible for us to choose the fields like Topic, Title, Author, Author Identifiers, Editor, Group Author, Publication Name, DOI link, Year of Publication, Address etcetera, so that we can search for articles pertaining to the respective field. Some times when you pick the wrong field but the right keyword, then you may not get the number of publication hits that you are expecting.

Also important to look at the time span over which the search has to be performed. For a first time search, it is important to have the search done for all the years where the data is available, but then as you move on, if you have done rigorous search, for example, this year, then next year you can do the search only for one year and continue from there on. So, its very important to pay attention to the time span over which you are doing the literature survey.

And if you are already an experienced programmer or user of data bases, then you will be able to configure search queries using different fields, and Boolean operators, and parentheses that will combine, so that you can perhaps get the right literature item within just one query.

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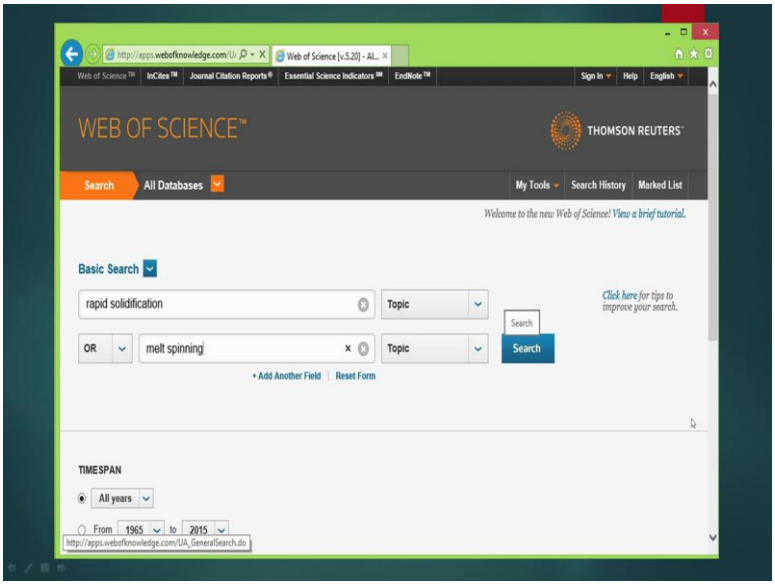

We are just now going to try out this kind of a keyword based search, and as you can see from the screen, I have typed in two sets of words; one is rapid solidification and the other is melt spinning, and I am combining them here with, you know, OR Boolean operator, which means that we will get a union of the results that are combined from both these searches. You can actually add large number of such phrases by clicking on this item - Add Another Field, and you can mix and match OR, and to make a combination. You can change the type of field here on the right-hand side, click on this button to change it from Topic to, say, Author Name or Year of Publication etcetera. Once you are done with writing here, you can then click on the button Search, and then the search will be performed.

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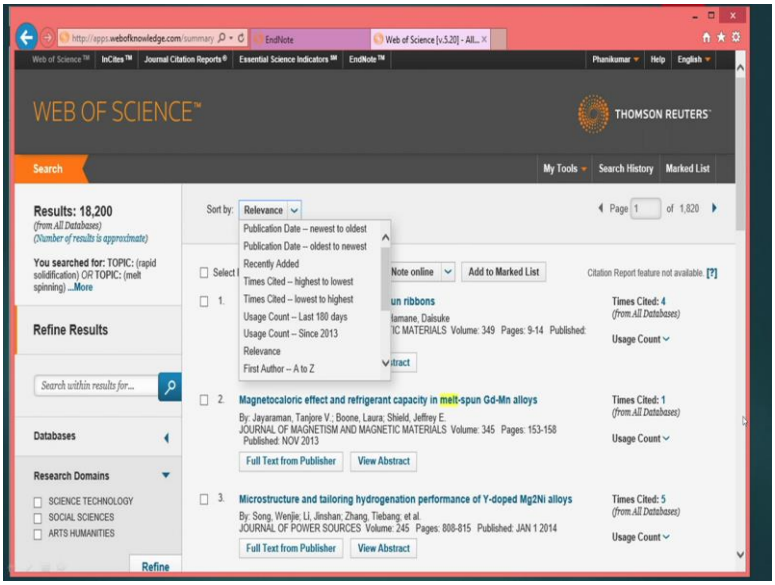

Usually, a an established area is going to give a lot of search results. In this case, for example, melt spinning or rapid solidification being fairly established area of research in the metallurgical and materials engineering domain, you do have a large number of hits - namely about 18000 hits. So, naturally, for a beginner among the researchers, its very difficult to go through all of these to get an over view of the subject. Its very important to pick only few that are very important. We must sort these results in a meaningful fashion, so that we can identify those results that we want to go over. There is a ability here, by the portal here, to sort by different types of fields. So you can see that you can sort by relevance, which means that those results that are very closely matching will be picked up and there are various other types of sorting also. So, just briefly, to summarize how these different sortings are important is given here.

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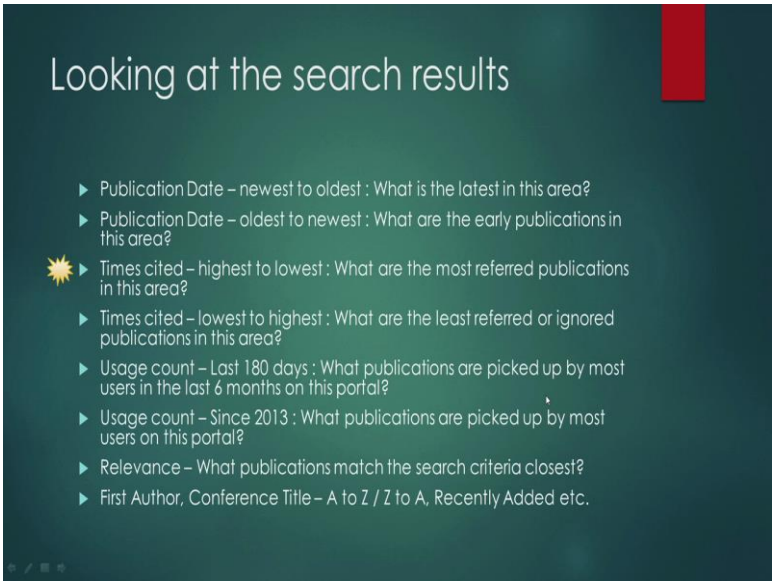

Its very important that all the sorting types must be explored by a novice in research. Publication date, starting from the newest at the top, is important because that is where you will see what is a latest publication that is coming in this area. And sorting by publication date, where the oldest is at the top, is important to see what are all the early or very old publications in this area, so that you can see how this particular research area has started. And you can also sort the publications by the number of citations, and you can cite them from the highest level to the lowest level; highest being at the top. This is important because you may want to know what are all the most refereed publications in this area, what are the so-called citation classics in this particular research area.

And you can also flip this sorting by making the lowest citations, namely zero, to be on the top, because that shows you what are the least referred or ignored publications. Its not necessary that all the ignored publications are important, but then, may be sometimes there are very important and useful publications that have some how evaded the attention of lot of researchers across the world. You can also use the search engine capabilities to see whether our peers who are also using this portal have something to convey to us. And the Web of Science portal keeps track of the number of users who have picked up your particular literature item by using the usage count. So you can look at what happens to the usage count of a particular item in the last six months and look at that number to

guide you to identify the kind of publication that you want to pick up from the portal.

You can also use it across the entire period over which this particular portal was running, so that you can actually see what are the publications that are picked up by most of the users on this portal. You can also pick them up by the First Author Name, Conference Title, A to Z or Z to A, and you know, recently added articles etcetera. So, there are lot of ways by which you can sort the results that come by searching for a set of keywords, and its important to explore all these types of sorting, so that we can pick the top few of each of these types, so that it gives us a overall picture of this particular research area.

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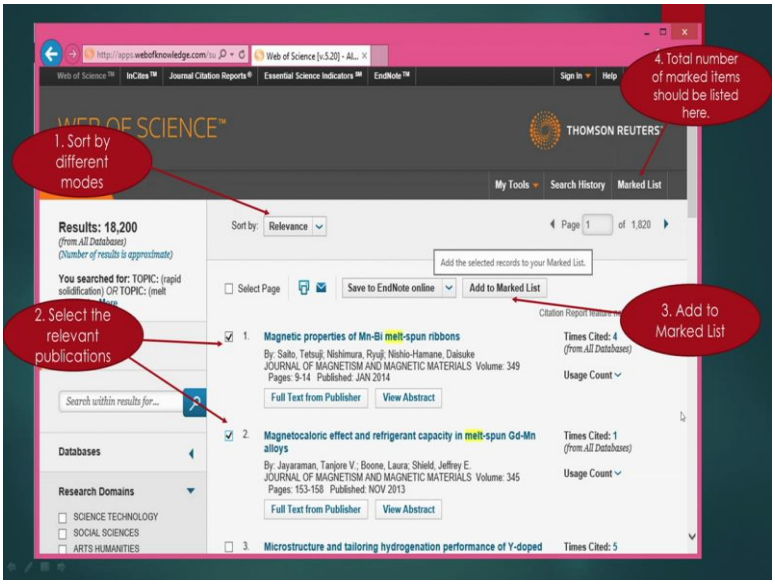

And here, I am just showing you now what's the next step. What we need to do is once we have sorted by the way that we want to sort, for each of the sorting types we need to first pick that type, and the moment you change the type here the page will refresh to sort the items by that particular type. And then, we use these check boxes to select items that we want to pick up ok. And then, after that, we can click on this button Add to Marked List, what it does is basically like a e-shopping website or like an electronic cart. It basically puts all these checked items into a basket and those items will be visible in this corner under the Marked List. And the number will keep going up as you perform more and more sorting and selection; and at some point of time you may say that you have had

enough of useful publications picked up, so that you can collect them on to your desktop.

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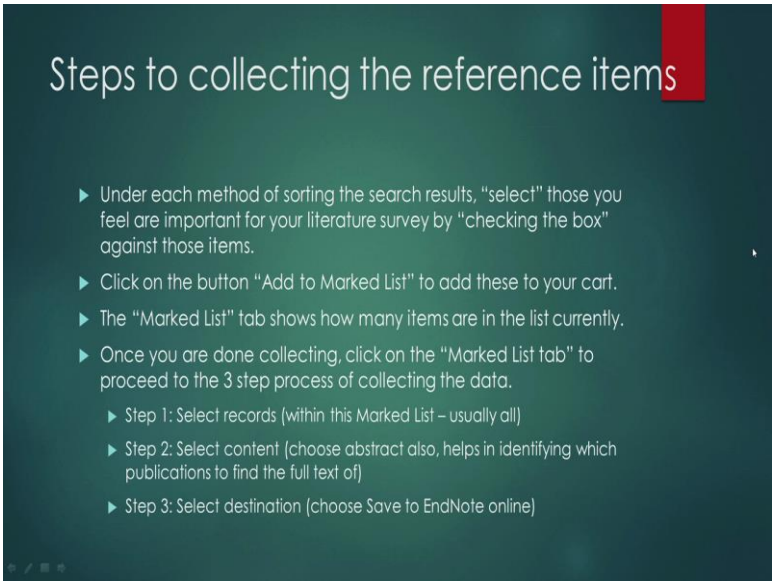

So, these are the steps that are to be performed while collecting the reference items or the journal publication items. Under each method of sorting the search results, select those that you feel are important for your literature survey by checking the box against the items. Click on the button Add to Marked List to add those to your cart. The Marked List cart then should show how many items are there in the list already, and then, once you are done collecting, click on the Marked List tab to proceed to the three step process of collecting the data. The three step process is illustrated in this screen shot.

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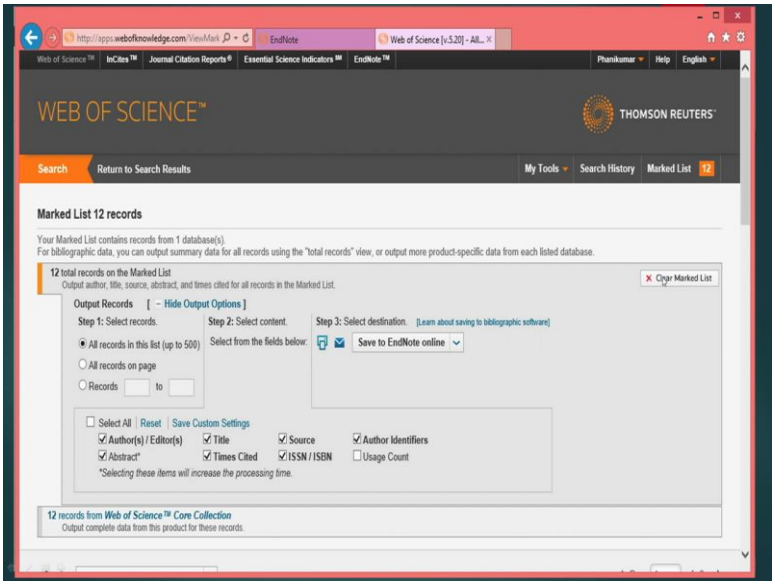

So, you should see this with the number of items that you have selected; in my case, I have selected only 12 items for illustration. The step one is to select the records among these 12; we are not selecting from the whole of search but among these 12; so, naturally, you have carefully selected 12, so you can select all of them.

And the step two is to select what is a content that we want to export. So, very often only the Author Titles, Source and Author Identifiers will be selected, and its very important to also select Abstract, because you may want to read the abstract to identify which ones among these 12 publications requires you to go through the full text of that particular article. It may not be necessary, for example, to select the time cited or usage count, because they are only of statistical importance after you have identified the important publications.

Step three is to select the destination - where do you want to take these 12 items to. So, unfortunately here, in this list, you don't have a methodology by which you can select the data of these 12 records as BibTeX format or RIS format directly. They will be available only after you go through the End Note portal which is again owned by Thomson Reuters. You have already performed the registration process for this portal, so you are now ready to save it to the End Note portal.

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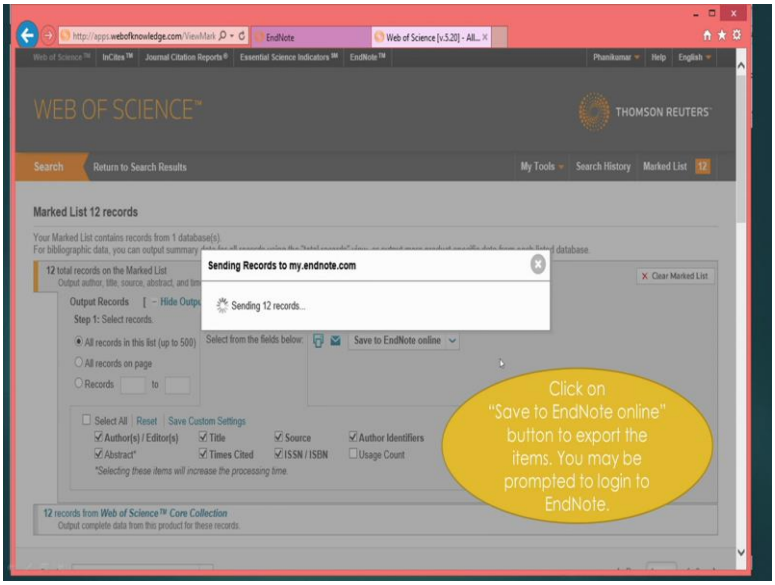

So, the moment you click on the End Note portal, then all these 12 items will be sent across, you would see a progress circle here rotating for few seconds while the data is being transferred from the Web of Science portal to the myendnote.com portal. Once that is done, then the search screen will come back, and then, you are ready to then explore the items in the End Note portal.

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Ok So, this is a summary. Once a dialog to export items to the End Note online has completed, login to the endnote.com portal in a separate tab, and then click on the link unfiled, under all my references in the left-hand side bar, and then you should you seeing the same set of references here as you have exported from the Web of Science portal.

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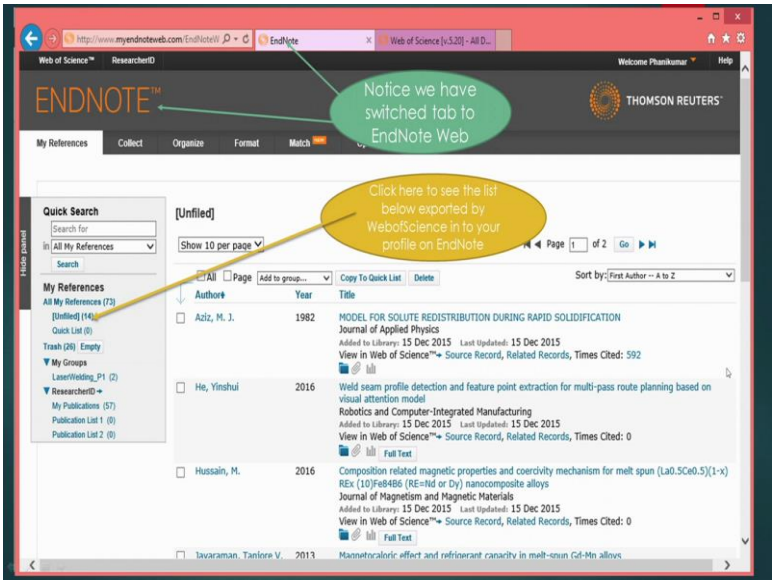

And I am now opening up the End Note portal here. You can note already that we have opened the second tab and the website name has changed here to End Note ok. And this is the unfiled link with a number of items that we have added and the items that we have selected are all listed here. Ok

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And what do we do these list of items? So this is a way to export the data. Click on the link unfiled to view all the items; click on the check box All to select all the items; and choose a New Group under the drop-down menu Add to Group, and give an appropriate name to this list. And this list will now appear under My Groups; click on the tab format to choose Export References; under Export References choose the new group of references you have just made; choose Export Style to BibTeX export, click on the Save button to have the data reach your desktop as a text file called exportlist.text. And because the format that you have chosen is BibTeX format, you should actually rename the file to be .bib file.

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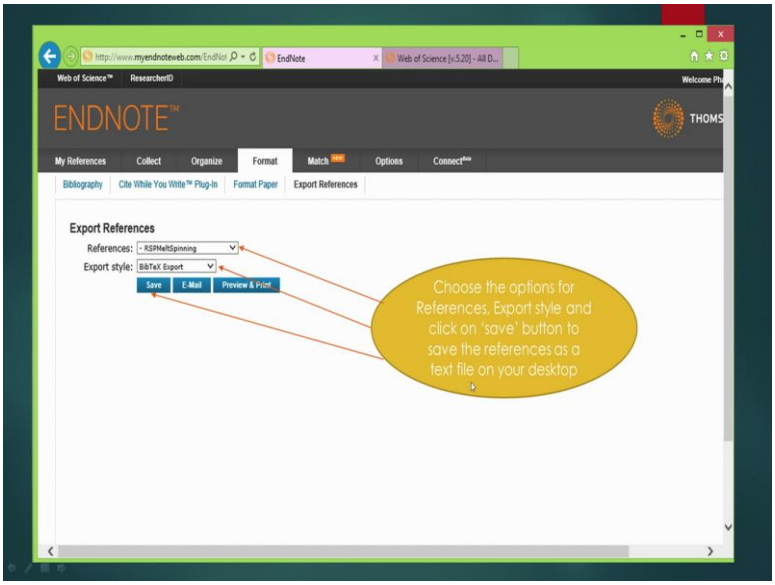

And here is a screen that does it. After we select all the items, click on the tab Format, and then, click on the References, choose the group that we have collected all these items under, choose the Export Style, and then, click on the Save button. The file will come on to your desktop as a bib file.

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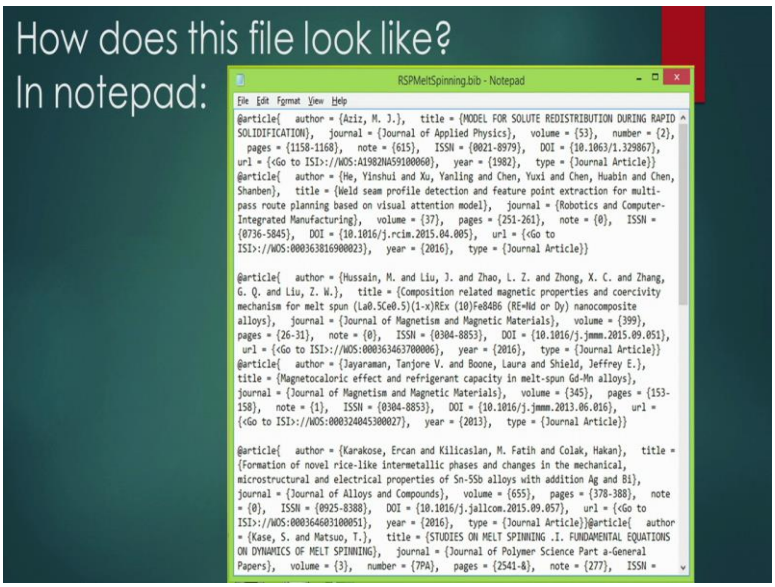

Now, how does this bib file look like? So here I have shown you some screen shots in Notepad. The bib file is actually a pure text file, that is human readable file, and it tells you what is the type of the article, and what are all the various fields that are bounded by the braces, and every new item is starting with an @ symbol followed by an article. And this format is such that you can mix and match the different reference items yourself; you can cut and paste to the items into a Notepad editor and join your literature survey across the different periods or you can split one literature survey into multiple parts.

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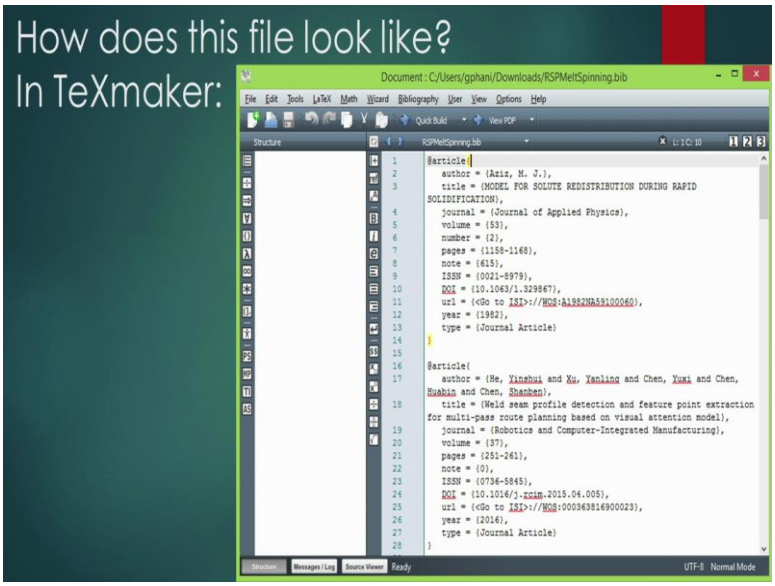

In an editor called TeXmaker, the same file would look like this, where it is neatly formatted and you will be able read it much better, because this editor freely available from the Internet called TeXmaker, is able to understand the format of LaTeX, and as I will illustrate later to you, you can use this bib file directly in your LaTeX documents to make references.

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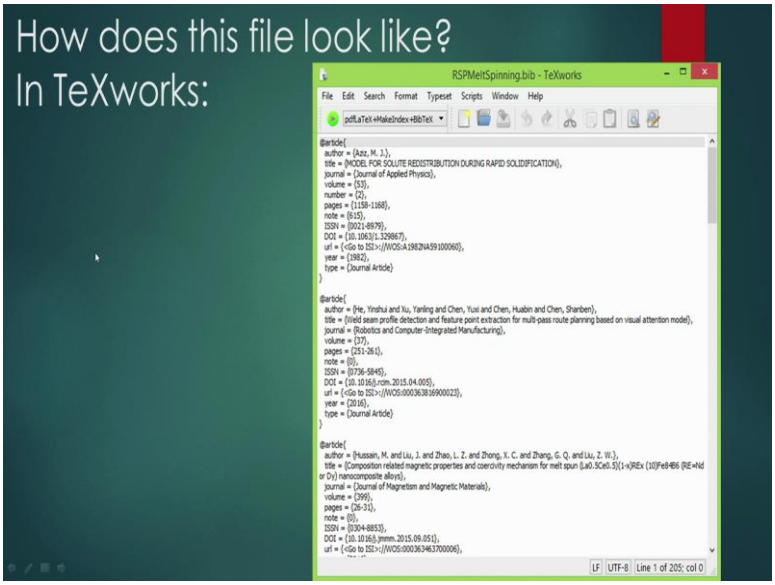

And if you install a software called MikTeX , which is a freely available software for LaTeX on windows, then it also installs a LaTeX works which is an editor for the Tex files and the bib file would look like this in the TeXworks. So, you can see that essentially our literature data is a very well organized data with difference fields and it can be combined because its a pure text format. However, we may need a Reference Manager to be able to mix and match these data, analyze them, have our notes written, etcetera. And that's were I would recommend you to use the software called JabRef.

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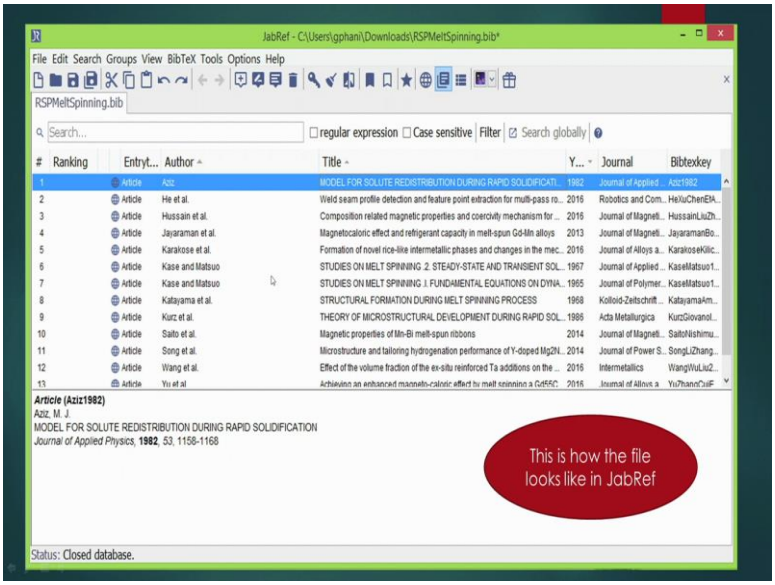

And I am using a screen shot here to illustrate to you how the same data would appear in JabRef software, which is freely available from the Internet Open Source software, java based which will run on any platform. So, if you open the same bib file in JabRef software, then it looks like something familiar to you like an Excel sheet or Open Office Calc spread sheet software, where each of the bibliographic item is appearing as rows and different fields as columns. You can search for data within this software, you can also sort them out, and you can write notes. You can double click on any of the items and add notes for your own reference later on.

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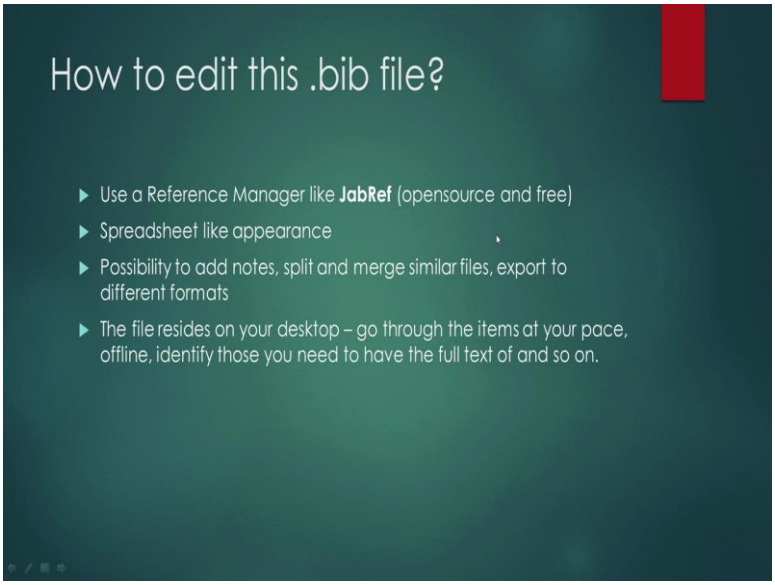

What are the other advantages of a using reference manager to manage your literature survey data? Essentially, because they normally give you a spread sheet like appearance. So, that it is very easy to work with different data. You should be able to add notes, you should be able to split and merge different files, should be able to export different formats. And most importantly, these files reside on your desktop, which means, that you can go through these items at your own pace, offline, and identify those who you want to read the full text of, and so on.

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And why do we need to export the data as a bib file? This is very important. The objective of this module is to pick up the literature survey items from some citation data bases such as Web of Science and then have them help you in writing an article. And as you can see, Web of Science is providing that data, but then, you need to go through the End Note Web, so that the data can come as a bib file. Now, once the data is available as a bib file, then you can use LaTex directly, and then, make those references in your article or you can use JabRef software to export the bib file to a XML format, and then, use that XML data in Microsoft Office, for example, to write your article. In other words, if you are planning to write an article or thesis, and you want to your literature data to come as a data file, then there is a procedure to adopt, and here I am showing you the data flow for that procedure.

Thank you