System Analysis and Design
Prof. V. Rajaraman
Department of Super Computer Education and Research
Indian Institute of Technology, Bangalore

Lecture - 29

Last time, we talked about speech output devices and the reason we need speech output devices. This time, we will start talking about the design of outputs. We have, first time we look at the objectives of the design of outputs.

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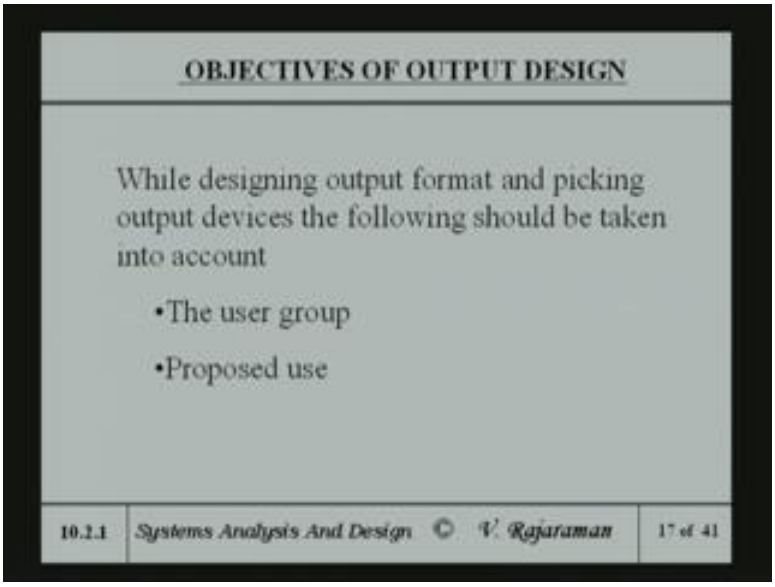

While designing the outputs and picking the output devices, will take into account, the user group and the proposed use. And obvious, when we talked about speech output devices, that the user group where people who did not have their hands free or eyes free. And they are diverted the attention and a speech a slightly gave them the signal, while they are doing something else.

And so in that case, the user group are somewhat like, might say pilots who where piloting a plane, or a driver who is driving a car. So that, otherwise is eyes are occupied. So, we have look at some method of getting their attention. So, the user group is and the proposed use, these are important obviously.

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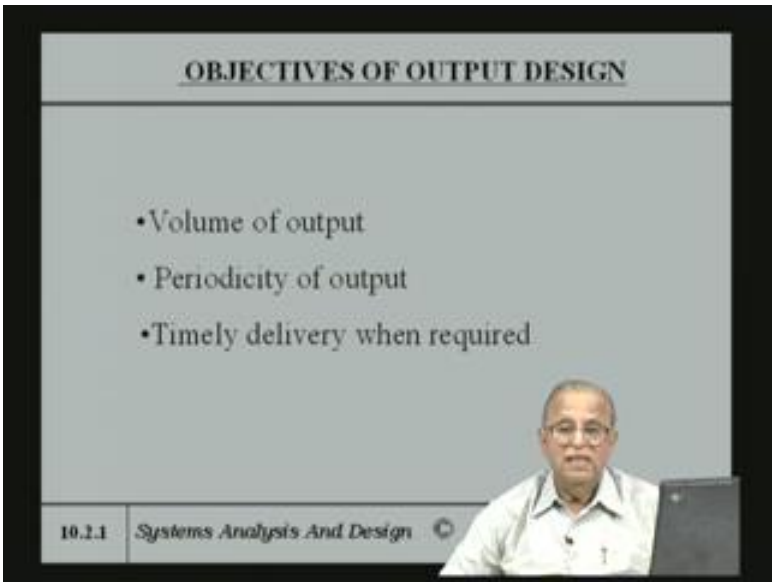

And also in the case of particularly printed outputs, which are the major amount, major type of output, which are used in data processing. For many information systems and large companies and so on. For instance, if you looked at examination processing, then the volume of output is very large. So, one has to look at the volume of output. Whereas, we are just printing an E-mail letter, the volume is just one or two pages.

And so the design in that case is obviously, not very important. Whereas, design is important, if it is very large volume. As also it is important, if it is for a specific user group or for a purpose. Periodicity, how often should the output be printed out. And at what times the output should be delivered, timely delivery when required; whenever the user requires it.

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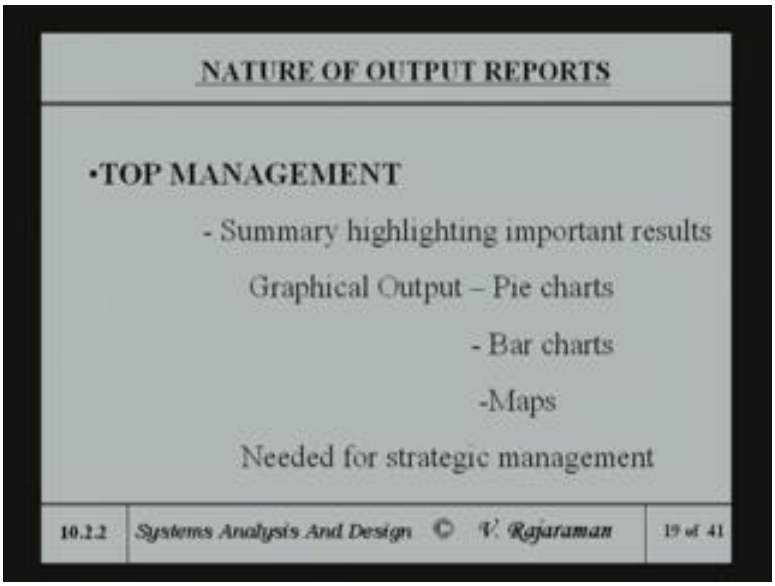

For top management, obviously top management has too many other things to do. They are primary job in organization is strategic planning. And they are not concerned about day to day operations. So, for strategic planning, you have to present them summary, highlighting important results. So that, it bring into their attention. And do not gave them all kinds of detail. The higher up in the organization, they smaller is the amount of information you present to them. And also in a form which is easily digestible.

So, graphical outputs like, pie charts, bar charts and maps, are very lot more useful for top management. We will see later on, what these charts are. And when these charts are being will be used. But, the more than printed output, a graphical output is lot more appropriate, for the top management. Because, for decision making, very quick decision making. You requires something which can bring out the significance of the results, or the output. So, significance can be perceived by the management, it will help them.

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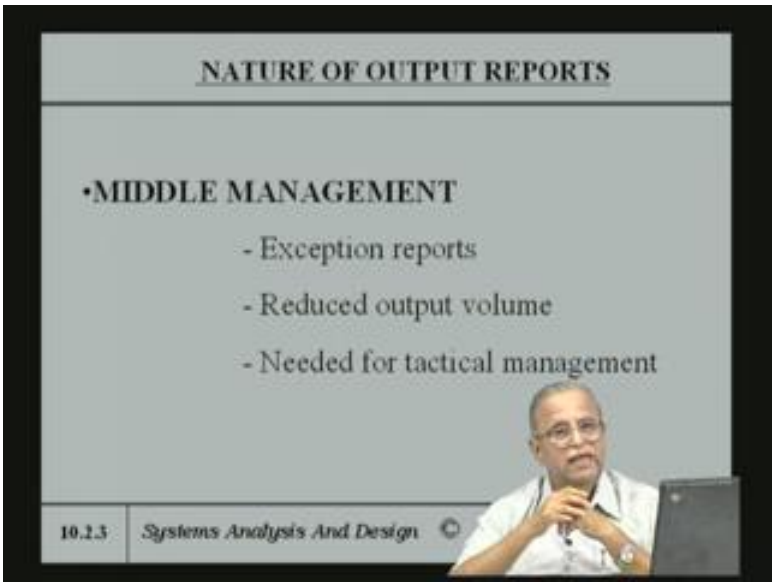

Middle management, you gave a little more outputs to them. So, you gave exception reports and whatever reports are required for tactical management. Because, there primary job is tactical management as we saw. And so the output volume, should be reduced, it could be little bit larger than for strategic management. Then, it should not be great amount of detail, which you gave to operational management.

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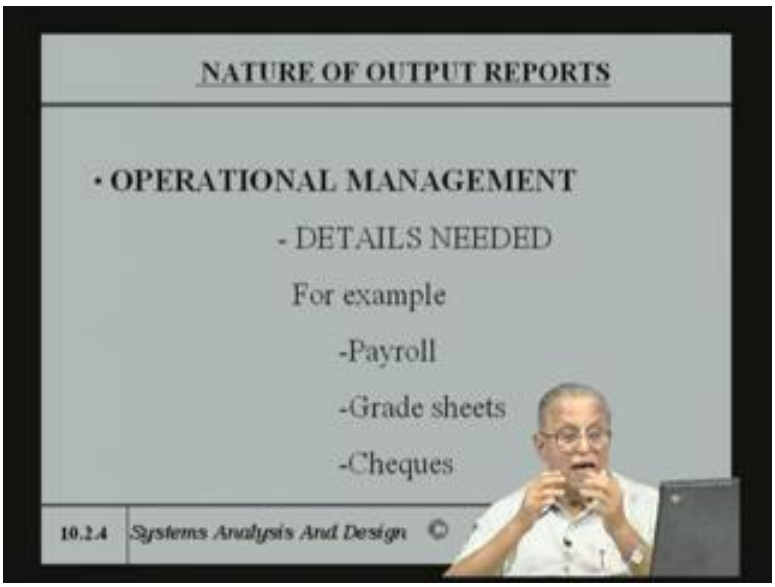

Operational management, that is day to day working complete details are needed. Suppose, you are actually a person, who is looking at details of inventory. Then, the

entire inventory detail, should be available to you, which along with some analysis of the inventory. And for middle management, the more important thing would be the status of very high value inventory. These are too much of high value of inventory, or in some inventory going out of stock and so on.

Because, tactical management has to take a decision and when to order and stuffs like that. And then, top management would be interested in value of the inventory. And how much inventory is there, and different categories. And so how to reduce that inventory, would be his primary goal. So, to help him, we have to provide the appropriate type of a an output. So, examples apart from the inventory details, are things like payroll.

Payroll is the, pay slips have to be clearer for every individual, in the organization. And the operational management, would operate the system, should actually dispatch the pay slips to each individual in the organization. Grade sheets in a examination, cheques to be printed to be sent out to people. So, particularly cheques are important, because they are obviously, monitoring. Anything to be with money, responsibility is higher.

So, the management, the operational management has to make sure, that the cheques are, the right number of cheques have been printed. And the right names are there and so on.

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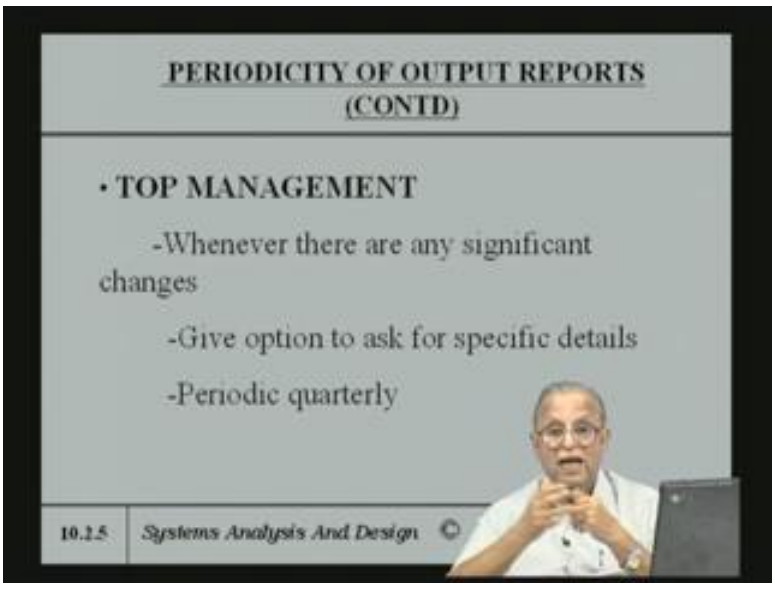

The periodicity of the reports. The top management whenever there are significant, any significant changes, you inform the top management. And you do not have to really send

it in a normally. The period may be once a quarter. And that is there is once in 3 months or so. Towards the time and they have to kind of review, their operations. So, once in 3 months you send reports.

But, whenever there are any significant changes in the operations, which you will not bring to the notice the top management; you have to do that. So, give option to ask at any given time, where you give a summary, if the person wants to get details. Then, option to provide it, to get details. This is it periodicity important, normally.

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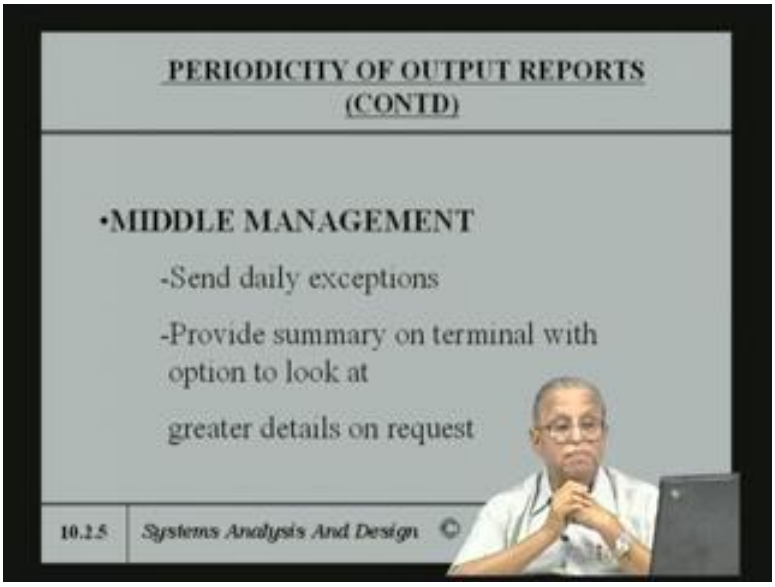

Middle management, send daily exception reports. Everyday anything, which is exceptional. Like for instance, if we had a large number of absentees in a particular day. Then, that has got to go to the middle management. So, they should kind of take a decision, why there is a huge absentees on the particular day. So, there are situations when there is a, for instance suddenly there is an increase in the total inventory value, on a particular day.

Or suddenly some item has gone out of stock, which was very critical. Those kinds of exceptions, had you brought to attention of the middle management. Provide summary on terminal with option to look at, very greater details on request. So, normally nowadays, machines are all on a network. And so you gave on the terminal itself. Some freedom for the individual to ask for details on required.

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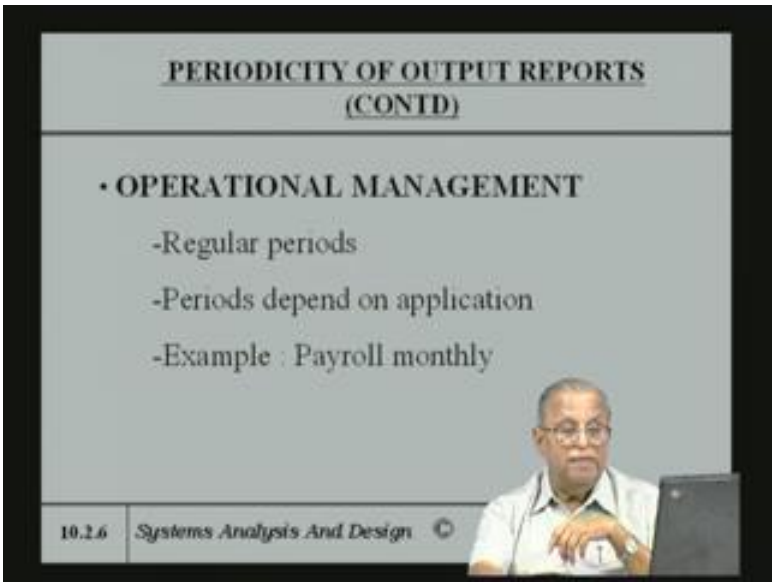

And operational management is regular periods. If it is a payroll once a month, if it is grade sheets may be once a semester. And so periodic depends on the application.

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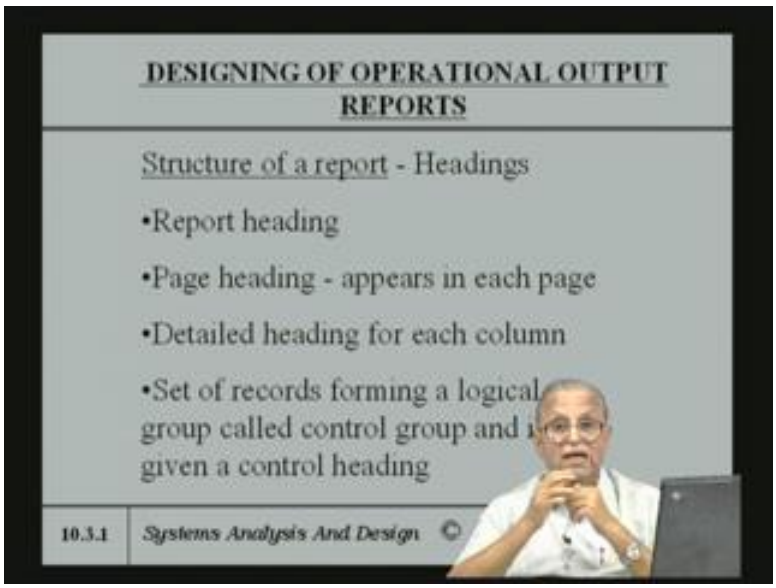

The structure of a report, particularly designing the operational reports is what is, one on the more critical things, in the organization. Because, operational reports are important, for day to day running. And computer are very good, had giving you prompt information, for day to day running of the organization. So, the structure of the report is important, to

be able to get the attention of the operational management. And very often, the report design, takes up a fair amount of time of the systems analyst.

Because, the report layout and the design, is of closure interest through operational management. And they insist on certain types of layouts, which they like. And layouts change from organization to organization to organization. Because, some extent the way in which it is laid out is subjective. It is not always very objective, some people like certain way of reporting and so on.

So, you must have some flexibility, in reporting. Or creating and output report. So that, normally all reports have a report heading. What is all this report about. And every page must have a heading, as because the pages if you are... And also every page should be paginated. Suppose, if there is misplacement of pages and so on. You need to be able to put that in the proper order. And detailed heading for each column.

If there are multiple columns, normally payrolls it will be the ID number. The name of the individual, the gross pay various deductions and various heads and the net pay. So, all these are columns and each column must have some title. And detail the heading for each column, set of records forming a logical group is called a control group. And is given a control heading. In other words, in order to be able to track any errors and so on.

What should do is make it a batch, smaller batch or something like say 40 or maybe 1 or 2 pages. At the end of it, you give a summary of whatever is there in that previous set. So, that you can track down, if there is any error using the control, you can get to that particular batch, where the error occurred.

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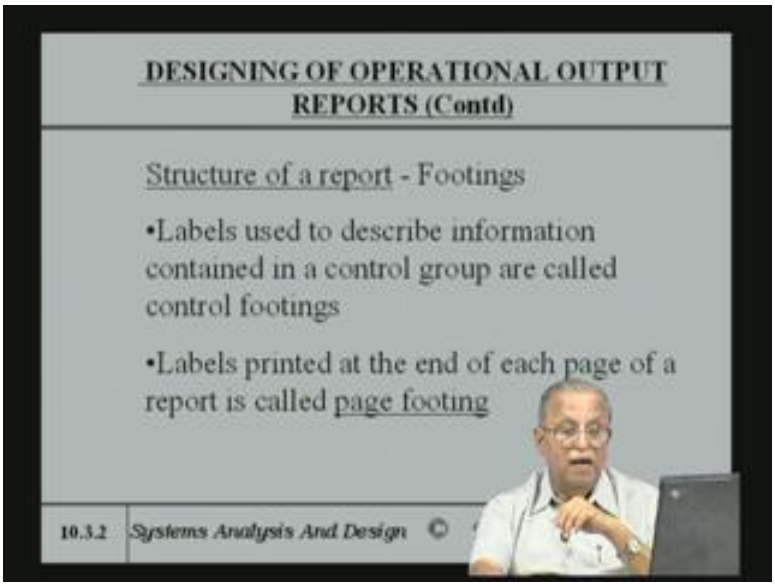

So, there is also a footing, or at the end of the in the report; the labels are used to describe information contained in the control group, are called control footings. There is control footings are normally, they come at the bottom of the page. That is why, it is called a footing. So, contained information called control footings. Labels printed at the end of the each page of a report is called the page footing.

See the control footing need not be always at the end of a page. It can be in the middle of the page. Whereas, at the end of the page, some summary of the page is normally given. And it is a page footing.

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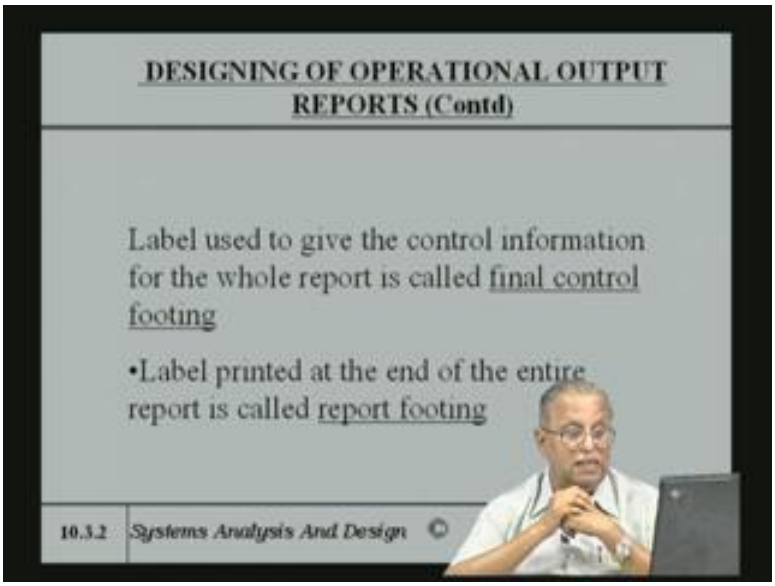

Because, the last page may be some odd numbers any case. Labels are used to give control information, for the whole report, called final control footing. There is a end of the report, you have final control, which consists of a entire data, which has been printed. And label printed at the end of the entire report, is called report footing. These are kinds of terminologies, which have been used for many years, from the day data processing started.

See, there is the page heading, the column headings, these are all common sense really. And control footings, wherever you have control totals taken. And then, the page footing and then, report footing. At the end of the report some report, some summary has to be presented.

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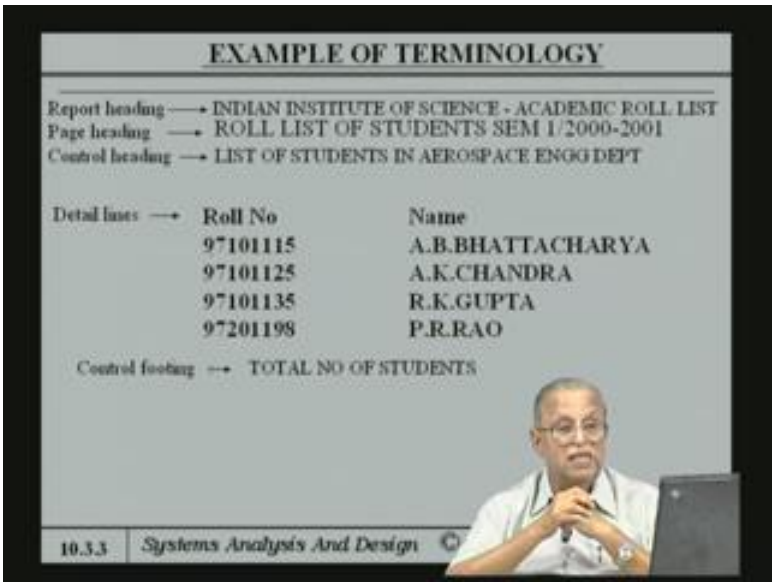

The example are given here. Report heading, Indian institute of science, academic roll list. There is the report, the heading of the report. Page heading, where list of students in semester 1 of 2000, 2001. And control heading, normally we do it for each department. So, list of students in Aerospace Engineering Department. And detailed lines, roll number, name, there will be other information. Because, if the limitation of the space in the screen, have given only two columns.

Normally have a many more columns address and so on, that is not relevant. The point is that, there is something like a control heading. And there are detailed lines and they have column heading. See each lines, contains information about one record, in the particular set. And then, control footing say total number of students in Aerospace Engineering is so and so on. In this case, it would say four, of course that looks very small. Again because, limitation in the screen size.

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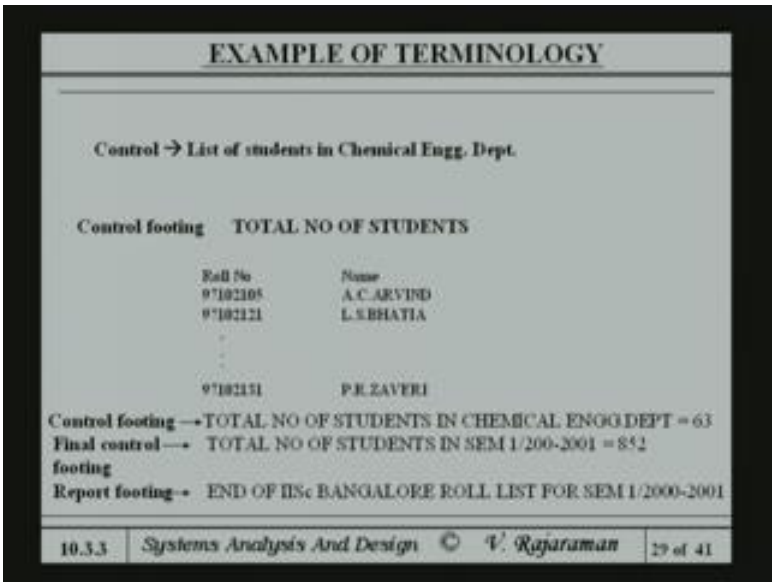

So, control list of students in Chemical Engineering. That is, if suppose after the Aero chemical comes, then the chemical engineering students are listed. And list of students Chemical Engineering Department and the total number, it will say. Total number of students control footing, for that Chemical Engineering Department. Is total number of students Chemical Engineering Department is 63. And final control footing with total number of students, whose information is appeared in this report; is total number of students in semester 1 is 852.

So, we add up all those. And report footing end of IISc, Bangalore roll list for semester 1, 2000-2001. So, those kind of various which we did, we talked about. And normally a pen chart with appropriate number of columns and squares for each column, are designed by the output designer. It is called print chart.

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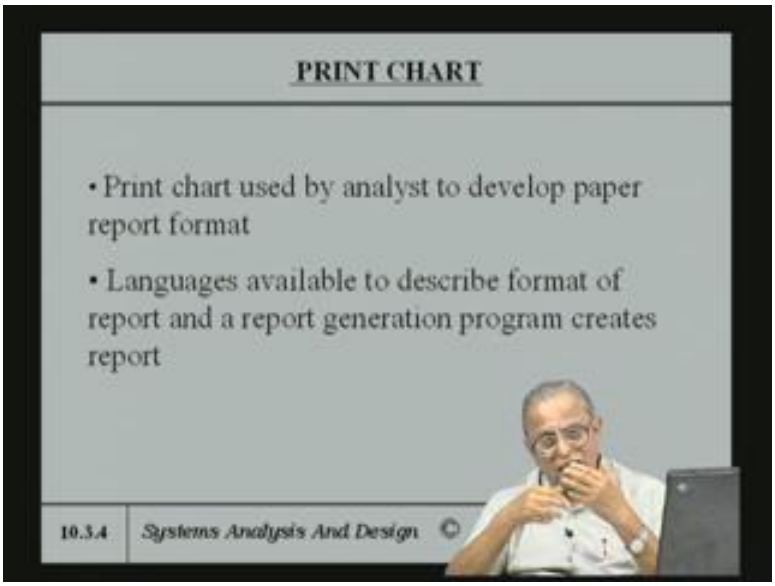

To develop the proper kind of report format. So that, before you have given you machine, you can do that. Of course, nowadays you can do the interactively. Languages available to describe formats of reports. And report generation programs exist, to create a report. In other words, lot of advanced now. In the very olden days, one have to sit down and write out and do all that. Now, in the days of terminal and keyboards and good video, screens and so on.

There are report generation programs, called crystal reports. And other types of many many report generation programs, which are available. They known language, it is like a high level language. In that language, you can describe a report. And you have to learn that language, it is fairly straight forward language. And use to be called report generator programs. So, once you write this program; and you gave the appropriate information that program.

Then, automatically, it will generate the appropriate headings, footings, control footings, all that very nicely. So, you do not and also the formats, you can describe. Like for instance, in C programs and so on. You can describe, how many columns it will be resolve and stuff like that. So, same way you can effectively define, the reports in terms of a language. And that is called a report program generator.

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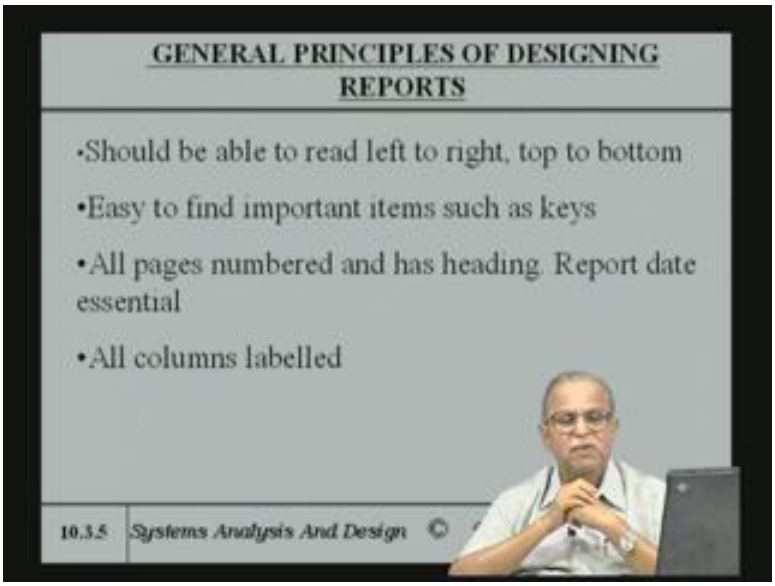

General principles for designing reports is that, any report you should be able to, these are all common sense ideas. It is not very something, which one has to spend a long time about. One should be able to read from left to right, because that is the way you normally read. Except if it is in Urdu you read from right to left, English we read from left to right and then, from top to bottom. And easy to find important informations, which has keys.

They should be available with a proper heading. All pages should be numbered and must have a heading. Report date is essential. And the date of 1 month that report is been generated, that becomes very important. Particularly for archival purposes; and all columns should be labeled.

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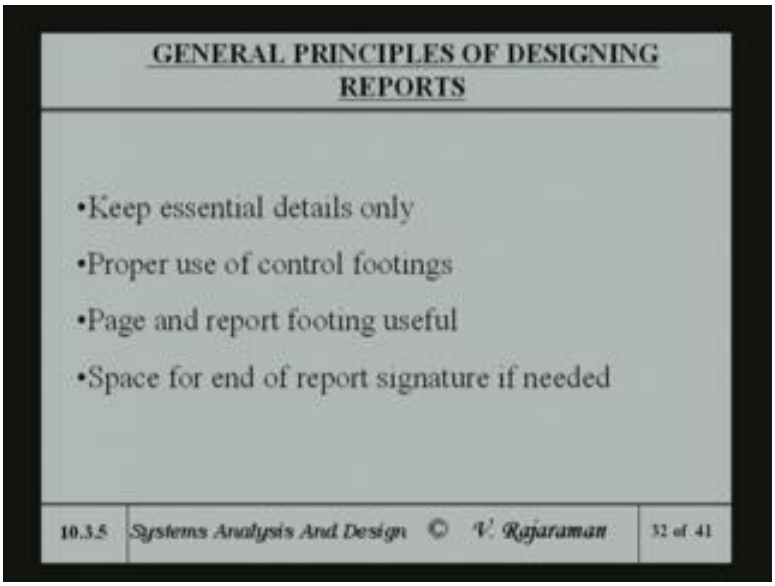

And keep only essential details, do not put all kinds of unnecessary details. Proper use of control footings. So that, you can do an audit trial, page and report footing are very useful. Space for end of report signature, if needed. Very often, suppose you are printed a whole set of cheques. Somebody who is responsible for that printing and distributing the cheques, has to authenticate at the end. And there will be an operational management person, who has to sign at the end of these things.

Similarly, at the end of the report which is the payroll, report or a grade report, somebody who is responsible, should sign at the end. So, that it is the responsibility can be fixed. So, very often people forget that signature is required. And they do not allow any space. And it is again common sense, you have to essentially even may be printout signature. And then, above that provide space for signature.

See now, lot of apart from print out forms and so on. See large scale print out forms are big forms, are use of payroll date sheets and so on. That is normally using a line printer. But, for many of the day to day work, particularly for strategic management, tactical management and so on; you provide reports on screens. There is screen of a video trimmer.

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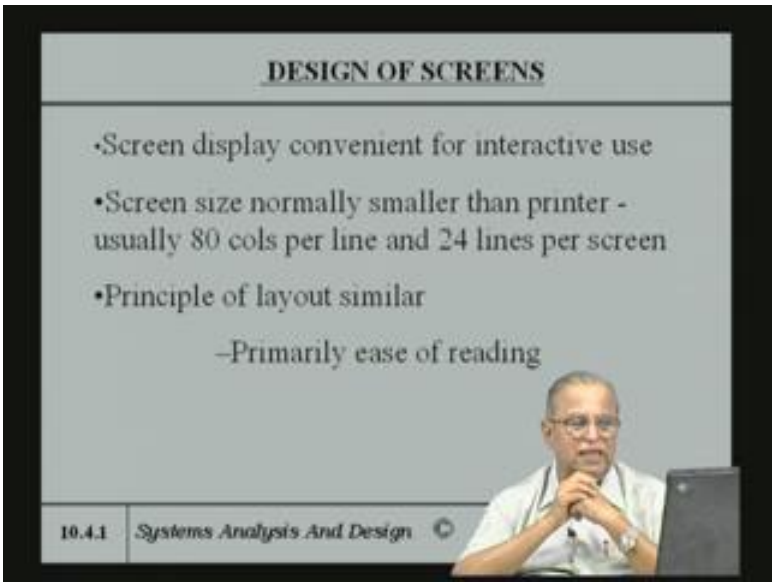

And it is screen display is convenient for interactive use. Because, you can actually mouse around and can apply something. And get down to some other page and things like that. And screen size normally smaller, something like 80 columns and 24 lines per screen. Principles of layout are similar, there is ease of reading is extremely important.

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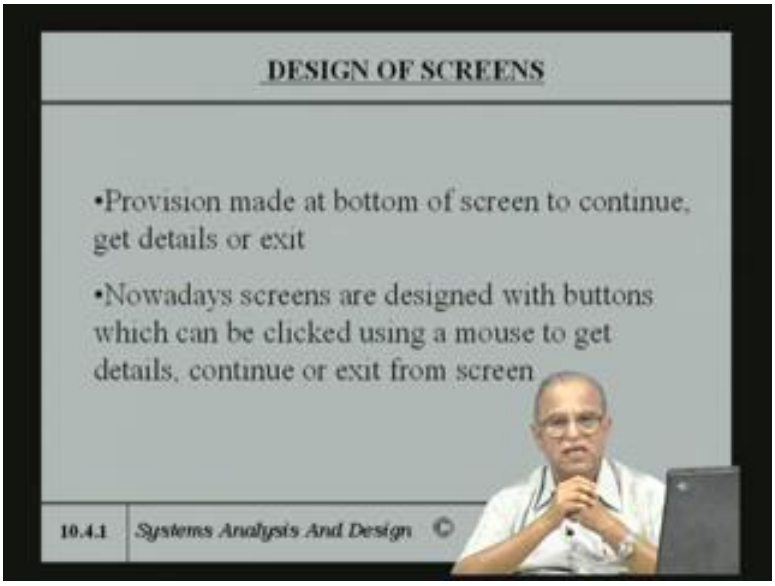

Provision should be made at the bottom of the screen to continue. So, there should be some place, some button which you go and click to continue. Now a days screens are

using buttons which can be clicked, using a mouse to get details. And also exit from the screen, exit continue or the normally the at the end.

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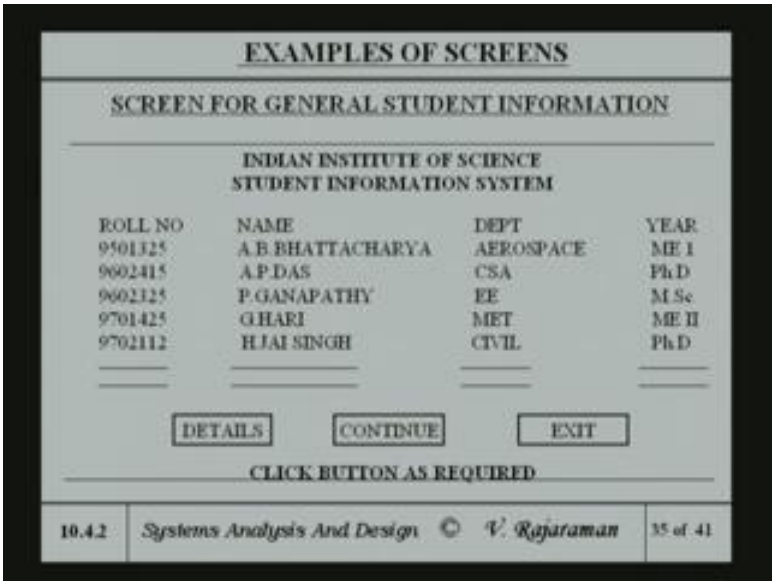

For instance, screen with general student information, Indian Institute of Science, total information report. And it would be available for the department, or the departmental offices or registers office, wherever is appropriate. Even in terms of enquiry areas, like public relations officer or hostels and stuff like that. And so this screen will have the names of students, in may be in some alphabetical order. Department, year in which person is studying.

And then, if you want to get a details, then you click details and you get to that details. Otherwise, you say continue go to the next page and exit, you want to exit the report.

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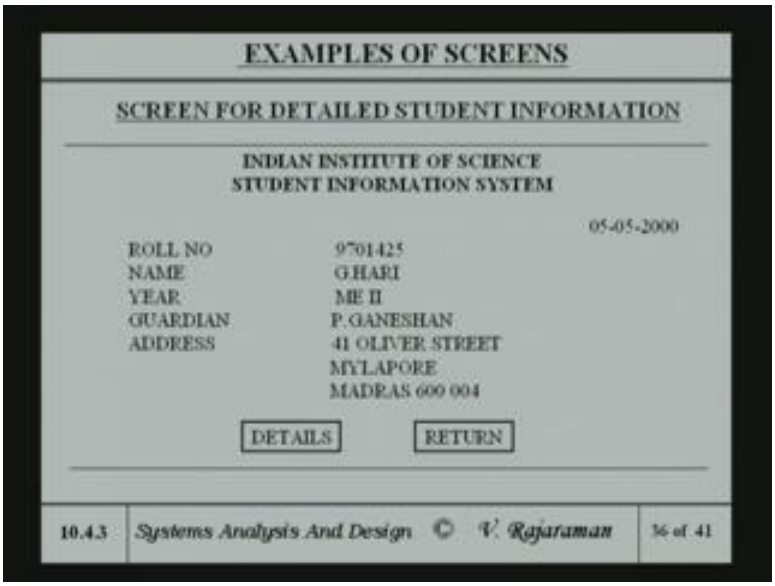

So, if you want details, if you click details, then it gives the further details, including the address and so on. If more details are available, then you again click details and give more details. Or if that is only the details, then it is just stay at that point. And you have to return. And then, go for some other person, you want to get the details, click that person go to details.

And this primarily the kind of reports, which are very often used. But, for both tactical and operational management. And graphics, these are more important for strategy information. Those information in pictorial form, it is easy to understand, I already said why you require picture. Because, it is brings out the very quickly, the significance of the output.

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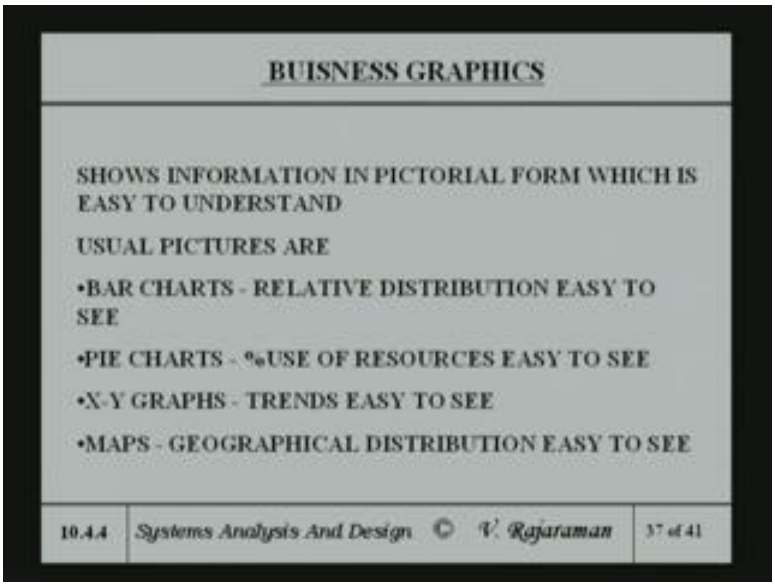

And in that you use different types of pictures, for different purposes. Bar charts, brings out the relative distribution, it is easy to see. Suppose, you have bar chart of marks of students in a class, bar chart will say how many out of 100 for a standard students. How many got above 95, how many got between 85 and 95 and so on. The chart will essentially tell you and how many got very low marks.

So, normally it will be a curve or where, it will be small at the very high marks. And small at very low marks. And maximum it will be in the middle range. Also will tell you, what kind of distribution it is, in terms of the class. And so relative distribution is easy to see. Pie charts are used for resources, percept of resources is for various purposes, is easy to see. Trends are easy to see in x y graphics, things are going like stock market prices, or the sales we guess and so on. They always show a graph.

So, that we can say the price are going up or going down. And if your sales are going up or going down. So, there is a bar the x y graph is very easy. If you want to show geographical distribution, there is we got many cities, where you have operations. And how much of, say how many cars are being sold in Chennai. How many have sold in Bangalore and all that. Then, you can have picture, map of India and each of those cities shown.

And then, the cities will have by the side, number of cars sold. Or is zonal wise, East zone, West zone, North zone, South zone, what sales figures are there. Things where

type you can use, for because very quickly it says, South is doing better or North is doing better whatever.

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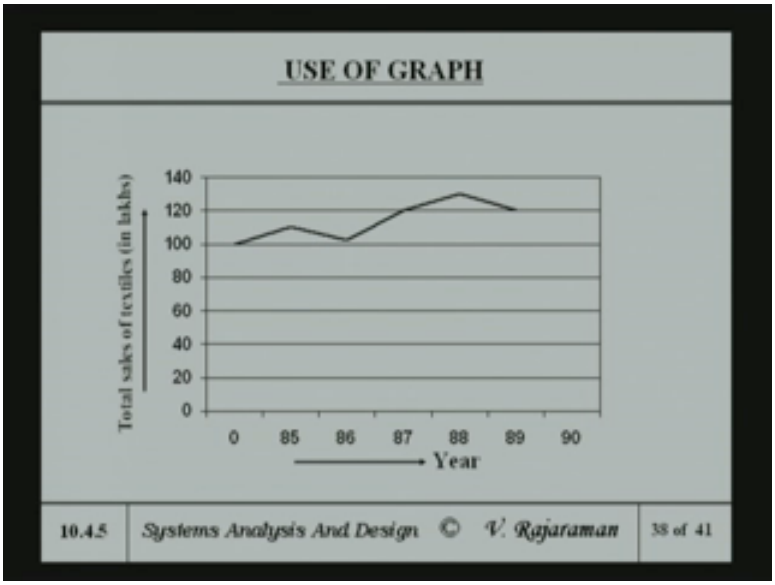

So, for this is total sales use of graphs, total sales of textiles in lakhs. So, you can see this kind of slowly growing, but it was dip in a particular year. And he ask a question why is a ((Refer Time: 25:32)), in that year. And you try to find out the reasons, that is what the strategic management is all about.

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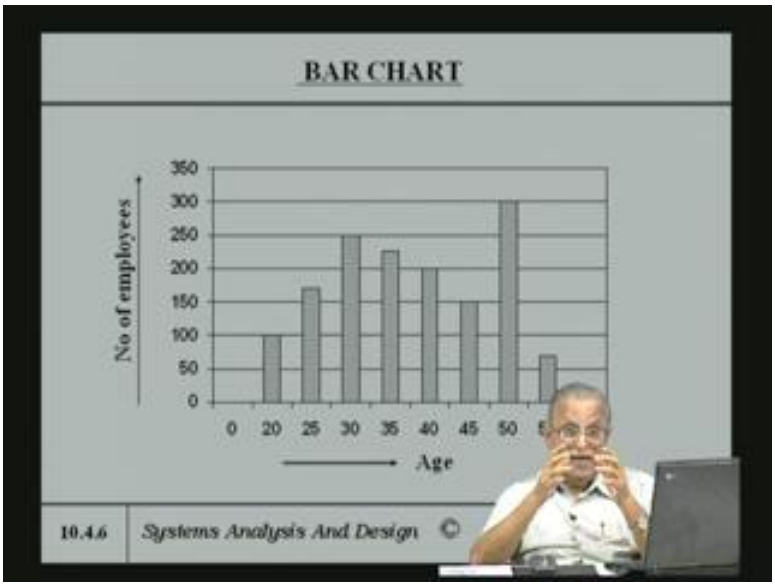

And the bar chart to know the number of employees by age. Now, when we look at the chart, you immediately see that there was a fare large, fairly large employees in the 50 age group. That means, you have the plane for retirement. There was very soon the 50's will become 60's. And so the company may be aging, in terms of the average age. So, you have to do some recruitment of younger people, to kind of make the distribution less queue interval.

So, having too many people who are old, having more people who are younger. And you may take strategic decisions to gave things like VRS, Voluntary Retirement Scheme. Because, there are too many old people. And I would like to recruit new fresh blood. And I might give a incentive to , to the older people to leave, earlier and early retirement and things like that.

So, the point is, this kind of a chart brings out significance. And very quickly you can see, what decisions are to be taken, based on this chart.

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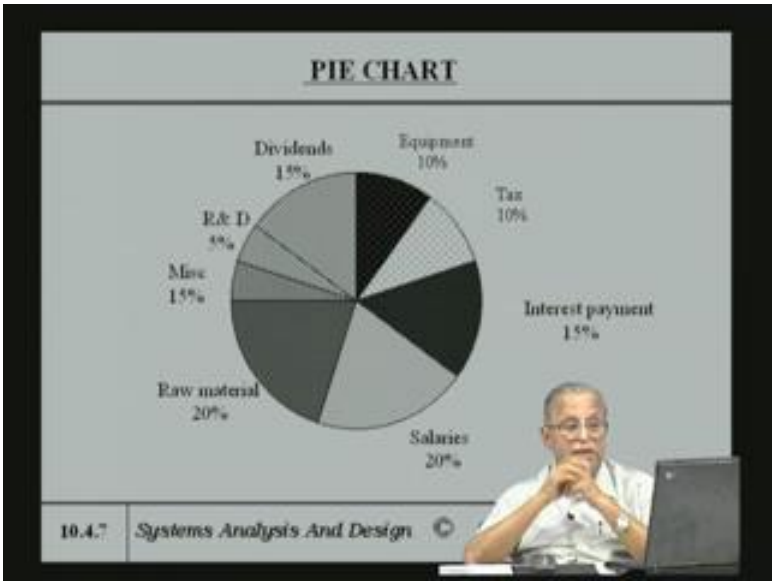

And a pie chart, for instance say it gives the way in which the money is being spent. You say that twenty percent is being spent on salaries. And raw material 20 percent is being spent, 5 percent is being spent on R and D. And you see here, the interest payments are 15 percent. At the kind of it wake up, there is on paying, that means I borrow too much money, maybe I should reduce that. And if the raw material cost are growing up, maybe I should reduce that.

So, point is the pie charts, essentially tells where the money is going, where the budget is going. And that would give a good idea of top management, to be able to kind of take an appropriate decision. So, that is the, so the conclude this module on output devices. We saw that, there are number of types of output of devices. And you have to pick the right device, for the right application.

And similarly, you also have to find out the right type of report to be sent to the right type of people, at the right time. And the content of the report, should also be appropriate, for the level of management, for whom it is intended. Then, it should be user oriented, appropriate for the user. So, that is essentially the the primary purpose of this particular module. But, one thing which happening, which I want to get into next is that. There is a trend towards high network computers.

And network computers, are becoming more and more important. Not only in the case of individual companies, but also in the case of the fact that e-commerce and so on, are grown in quite a bit. And e-commerce depends entirely on having a good network. So, we look at very quickly in the next module, even though this course is not about computer networks and internet and so on. I have to review little bit of that for with you, in this course, to be able to understand also, the web based reporting.

The world wide web based reporting. And also, later on in the course, we will talk about e-commerce. So, e-commerce, world wide web becomes essential. So, we need to have some method of, we had understand the implications of a network. And what types of networks are available. And how to use those networks for various applications. So, I am not spend some time, on the networks in the rest of the lecture.

We said that, we going to talk about web. And documents in the web, the world say something about the internet in the world wide web. And the documents in the world wide, how do put documents in the world wide web.

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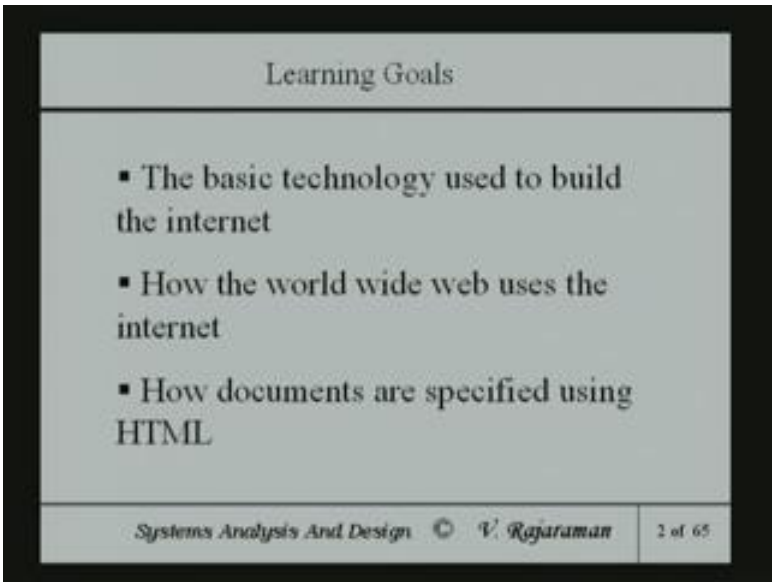

Basic technology used to build the internet, you have to learn something about it. How the world wide web uses the internet. Because, world wide web is an application on the internet. And how documents are specified using something called hyper text markup language.

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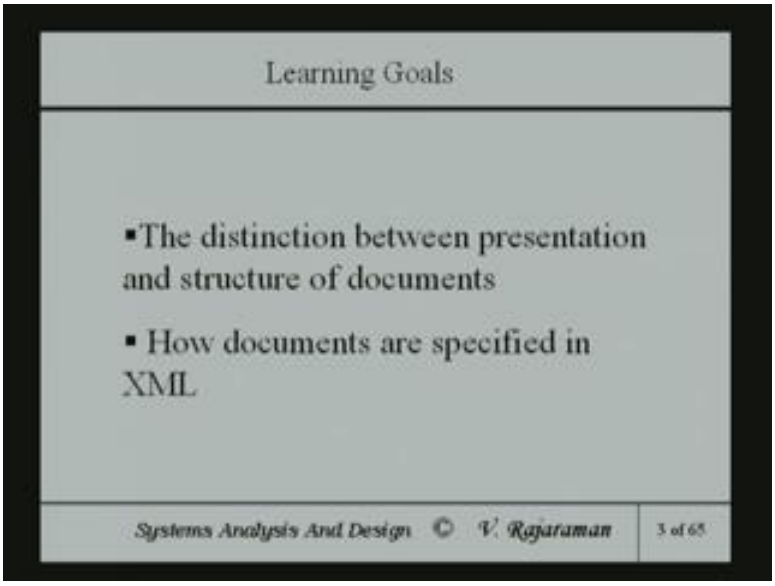

And distinction between presentation and structure of documents. There is a very interesting kind of a, we talked about report photon generators. And in fact, the HTML, XML are various languages, which are used for generating reports on the web. And how

document is specified, using the extended markup language, it is called. Or HTML is called the Hyper Text Markup Language.

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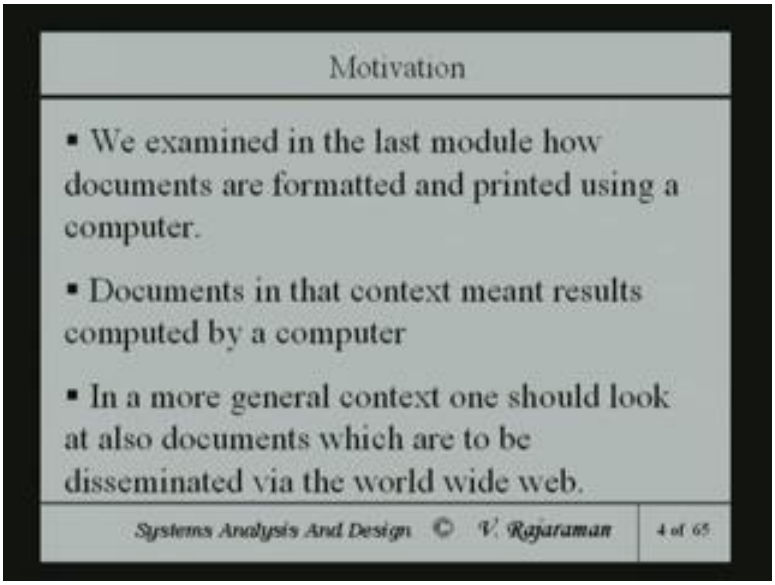

And examined how documents are formatted and printed. And documents in that context meant results computed by computer. In a more general context, one should look at also documents, which are to be disseminated in the world wide web. This is what I was saying, that worldwide becomes web becomes very important with the emergence of the internet.

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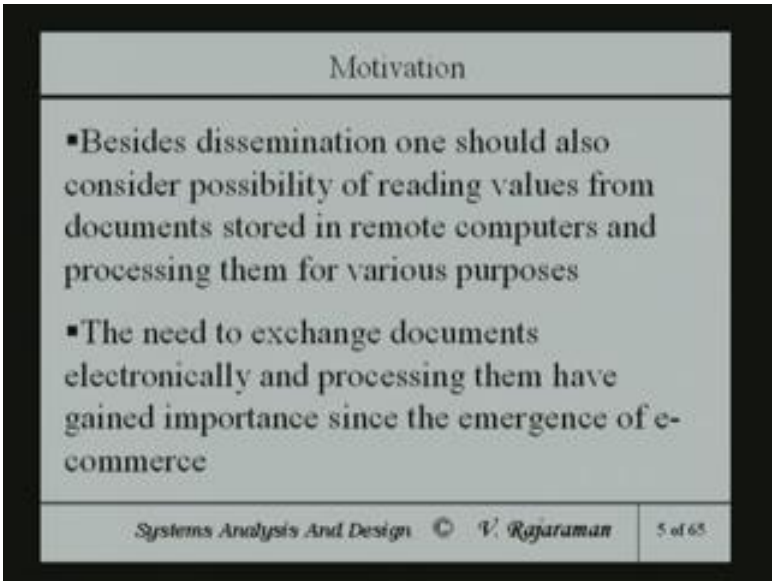

Besides dissemination, one should also consider possibility of reading values from documents stored in remote computers. And processing them for various purposes. Because, the every computer is connected to the computer prior. The need to exchange documents electronically and processing them, have gained importance, since the emergence of e-commerce.

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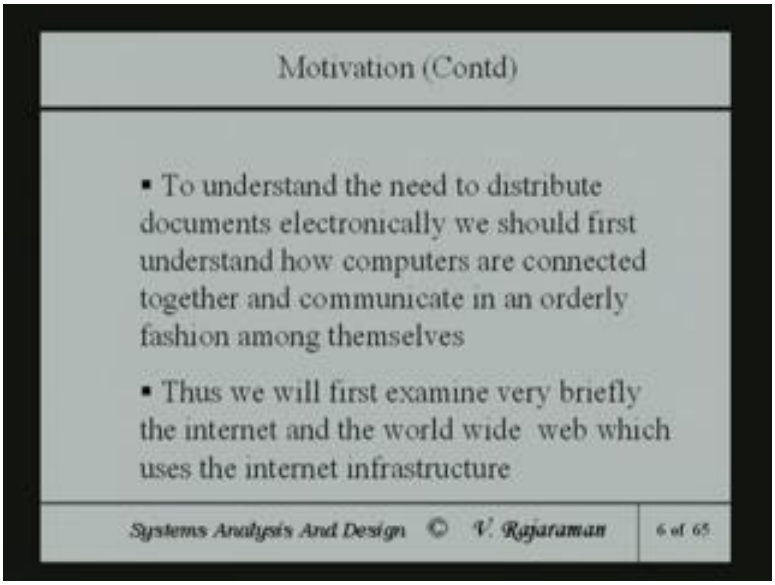

Understand the need to distribute documents electronically. You should first understand how computers are connected together. And how they communicate, in orderly fashion among themselves. That is the reason I am going talk about networks a little bit. Thus we first examine very briefly, the internet in the world wide web, which uses the internet infrastructure.

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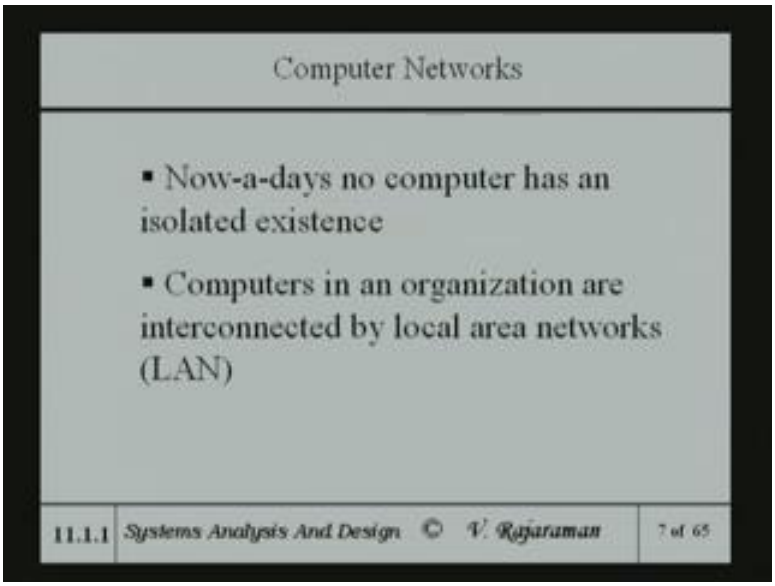

As I said no computer today, has an isolated existence. A computers is an organization are connected to a local area network, within the organization.

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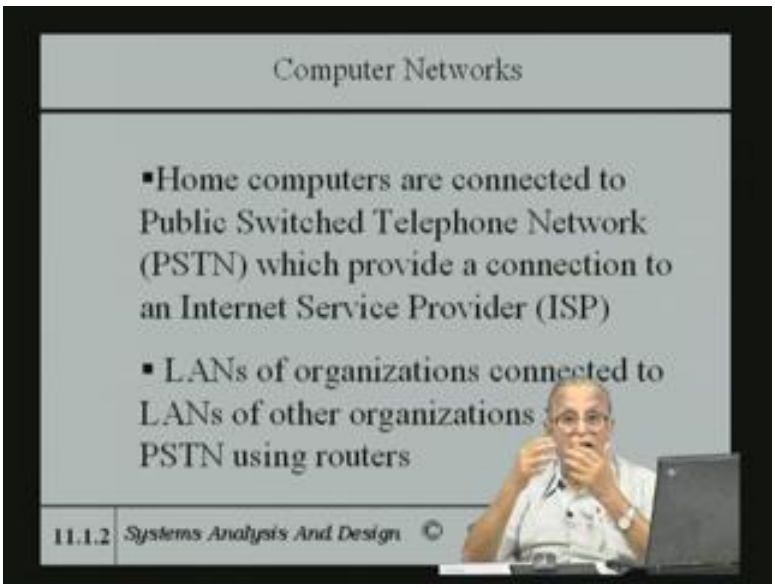

And computers at in your home are connected through telephone lines, or wide band lines to a internet service provider. So, even the home computer, become the part of the world wide network of computers. Local organizations or LANs or local area networks, of organization is connected to local area networks of other organizations. Each

organization, that is known LAN. And these LANs are interconnected, through either a public switch telephone network.

There is public switch telephone network or communication lines, which are provided by, communication providers like BSNL in India. BSNL as well as Reliance and Tata, InfoComm and so on. And so this interconnection, is so called routers and so on.

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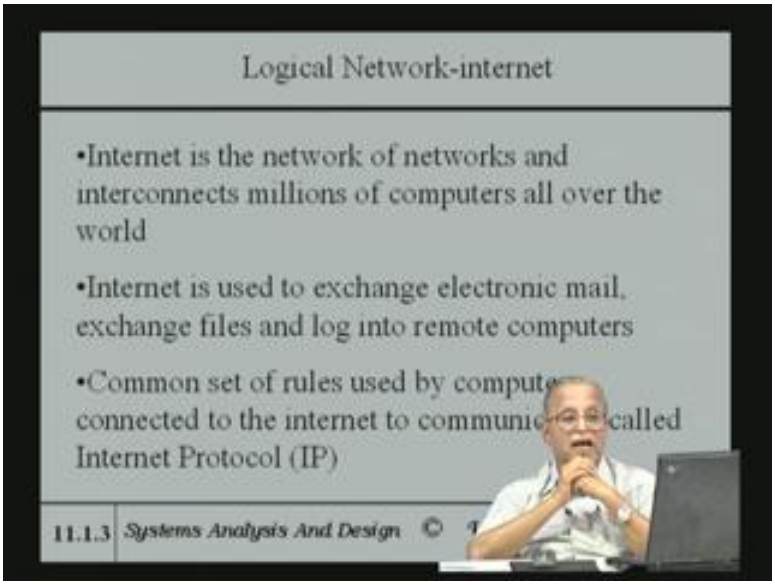

Internet is the networks of networks. And interconnects millions of computers all over the world. In world so the LANs of different organizations are interconnected, individuals are connected through the internet service provider. To other computers which may belong to a LAN of an organization. And internet is used to exchange electronic mail, exchange files and log into remote computers. So, we are done all is that probably.

And common set of rules must be used, by computers connected to the internet to communicate. So, it is called internet protocol. Unless there is a common set of rules, which every computer users to communicate. Then, communication cannot happen between computers. And computers are of various types and varieties, there are desktop machines, there are laptop machines, there are machines, which are mainframes. There are mainframes made by IBM, there are PCs made by DEL and so on.

So, there are varieties of machines. And also different architecture, some computers are very different from HP computers. And HP computers would be different from my PC's and IBM's machines, will be very different from the HP computers. So, the point is that different architecture machines, all need to kind of communicate. And that can happen, only if there is a common grid on set of rules of communication, these called a protocol.

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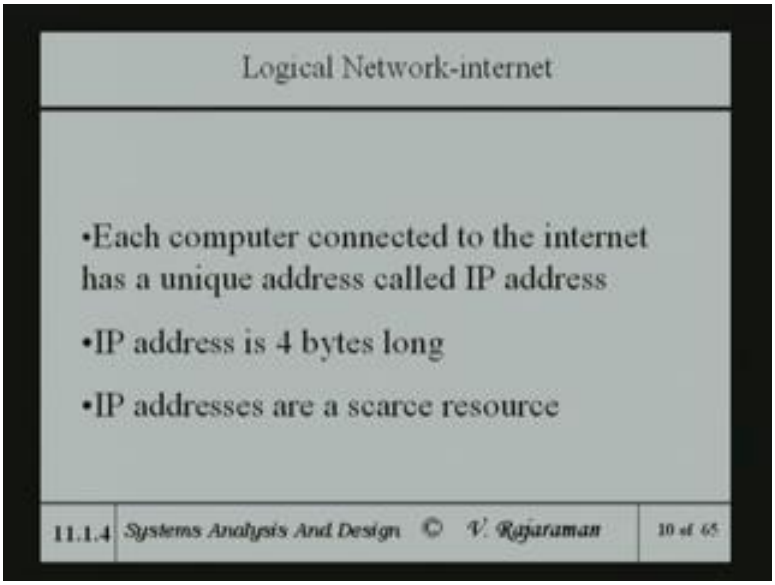

So, internet protocol is universally used, for connecting computers to the internet. These computers connected to the internet, has the unique address, called it is IP address. The IP address is unique for every computer, connected to the network. And it is a 4 bytes long. And it is a scarce of resource, because number of computers are increasing all the time. And so there is always a demand for new IP addresses. And so now, they are going towards the next generation IP, not yet happen.

But, it is expected to be happen in next 2, 3 years. When you go to the next generation of IP, there may be address is very drastically increase. So, there is something which people are looking forward to.

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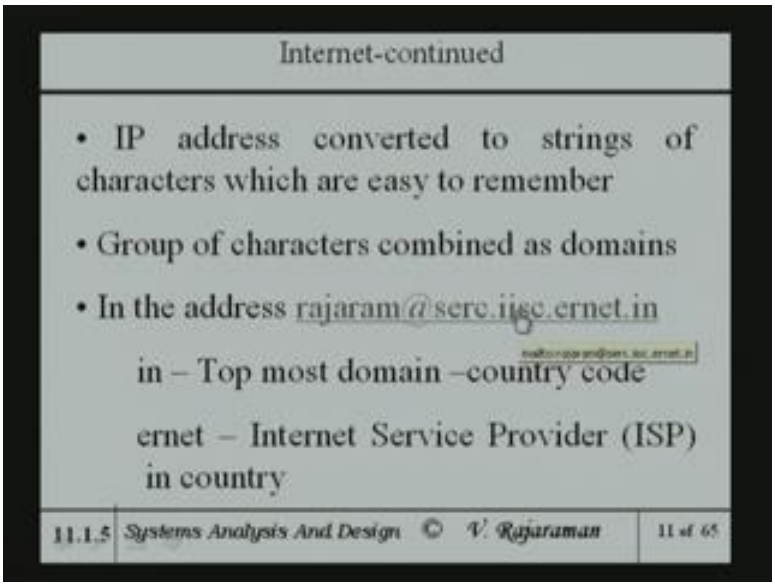

IP address of course, are numeric strings are numbers. And they converted to strings of characters, which are easy to remember. Because, as are we concerned, it is difficult for us to remember a large, something which is a like cell phone number. So, many digits, 10 digits we have to remember. Said if you have 16 digits to remember, it is always very difficult to remember that.

And so you kind of combine them, to understand the groups. Like the address, for instance, is an IP address for B which is converted to a unique address, which is of the type, which is can be remembered. So, for the instance, it is divided, address are divided into number of parts. You starting from the right to left, last part is top most domain, normally gives the country code.

And next one ernet, this in is a country code is called top most domain. And this is the internet service provider. And IISc is the place where I belong.

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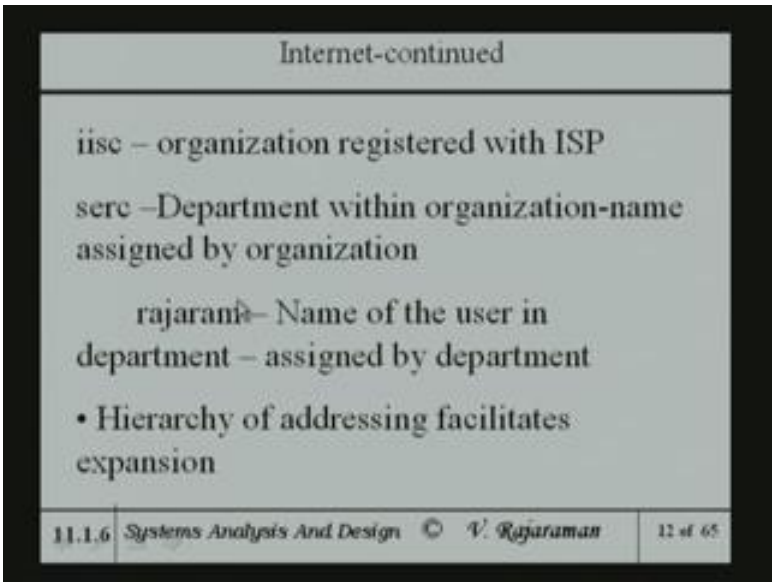

For instance, by kind of look at IISc, this is the organization registered with ISP. That is what, which I belong, serc the department within the organization. Name is assigned by the organization, in other words the IISc gets the group of IP addresses. And within that group, they will assign various departments. And the departments assign in terms, in turn to the individuals of the department. And Rajaram is the name of the user in department, assigned by the department.

And this hierarchy of addressing, facilitates expansion. Suppose, tomorrow one more person joins the department. Then, we can give one more address for them person and give a add it, without touching the rest of the thing. And similarly, if the internet service provider, namely ernet has gets one more organization as there subscriber. They can add a new subscriber name, just like as IISc, they can add another name. So, that is the well idea.

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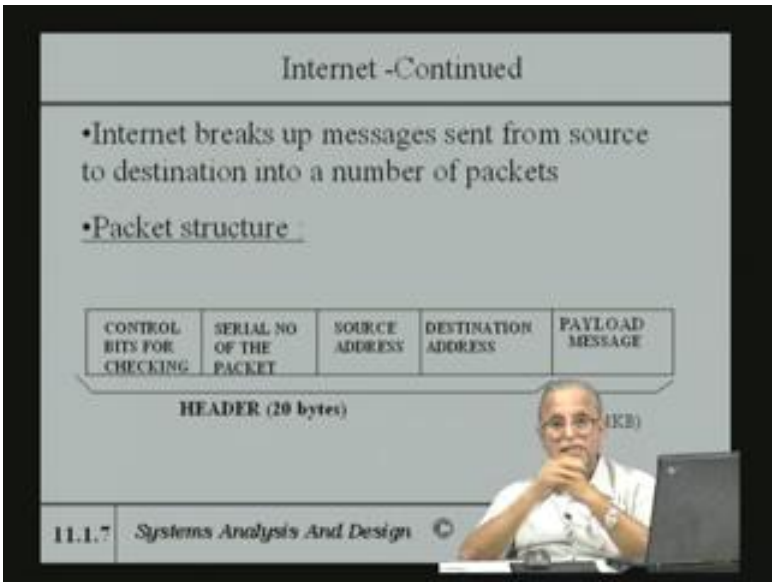

And internet breaks up messages, sent from a source destination, to number of packets, it is called packet switching. Because, the packet switching is extremely important, I will explain why. And packet structure, in every packet there is, if you got a long message, it is broken up into a number of packets. And each packet have it is own existence, might say. And the packets are sent one after the other, but they can take different routes.

The advantage being that, if suppose one route is busy or one route is down, for some reason, it can take another route. So, different packets take different routes. And that is the advantage of packetizing. And that is what is lead to the decrease in the cost of all the you send your E-mail and almost no cost. And now of course, people are talking about voice over IP. That is using the internet having a telephone conversation, which is at very very low cost.

So, these are all possible, because of this technology. And they packet structure, this is a part of the message. And then, these are all kind of neighbors, source address from where it starts this destination address. Serial number of packets can arrive orderly order. And control bits of checking, any error in this have some parity bits stuff like that. And the payload can be, there is actual message can be up to 1 KB very large. But, not large enough for say voice and so on.

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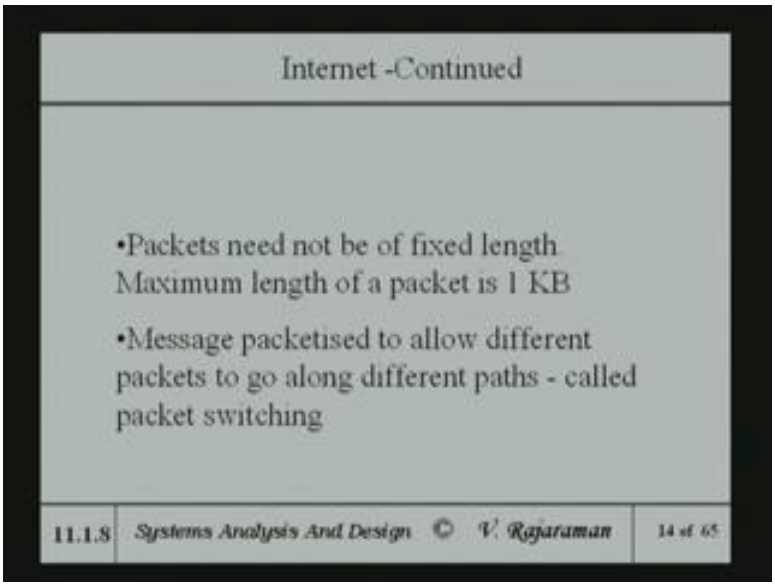

Packets need not be a fixed length, maximum is 1 KB. Message packet is to allow different packets to go along different paths, is called packet switch in.

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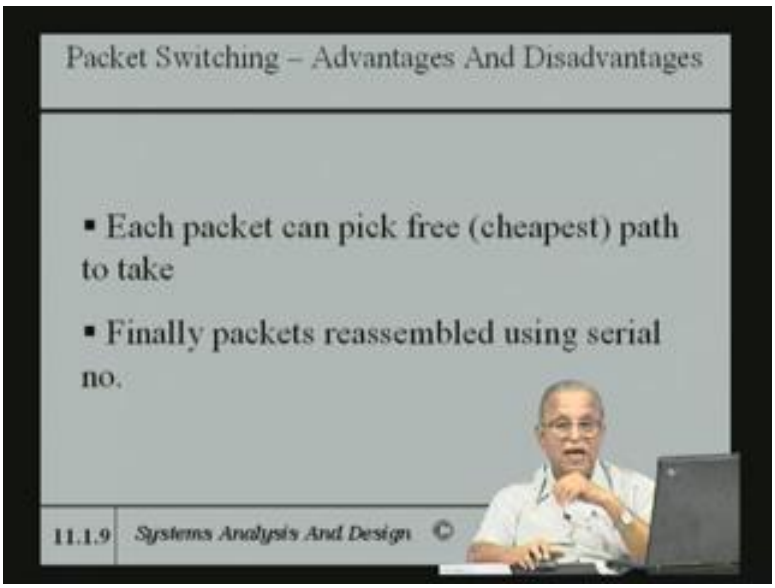

Each packet can pick the cheapest path to take. And finally, these packets are reassembled, using their serial number. Because, each packet has got the serial number, as we saw. And it is overall existence as we said.

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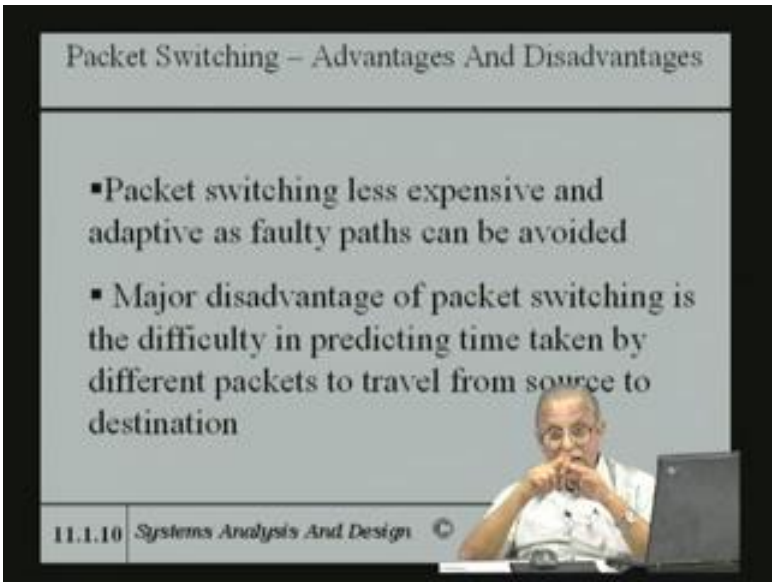

Packet switching is less expensive and adaptive, to faulty path and so on. Major disadvantage of packet switching, is difficulty of predicting actual time. So, it will taken by different packets, because one packet may take one route. Another packet may take another route. And the route times taken by the different routes, may be different. And also they will change, they will be dynamically changing, because many people are using that network.

Suddenly one line may become very congested. So, the router will route it to a different path, which is relatively free. And so you cannot predict ahead of time, which particular path, particular packet we will take. So, they would normally arrive out of order, but then you got to have method of a reordering them. At the recipients place, to able to make sense. For the person who gets the final message. This creates little bit of a problem for voice. If the voice is cut up in different parts.

And it takes a long time to reassemble them, then you have a lot of delay would in sending the voice and receiving the voice; and that is disturbing. Because, conversation cannot go on. In fact, even in telephones, if suppose if the satellite communication is used for the telephones. You find that there is a certain delay, for the speech to go out to a satellite and come back to you. And this delay is disturbing to the user.

And so people will come up with better solutions. In terms of resolving lines and so on. For reservation protocols are used, to be able to make it somewhat less choppy, they send

by one. So, the voice over IP is not becoming much more sophisticated, than the earlier methods. Does not matter for E-mail and text files. And for audio and video has send it be no problem.

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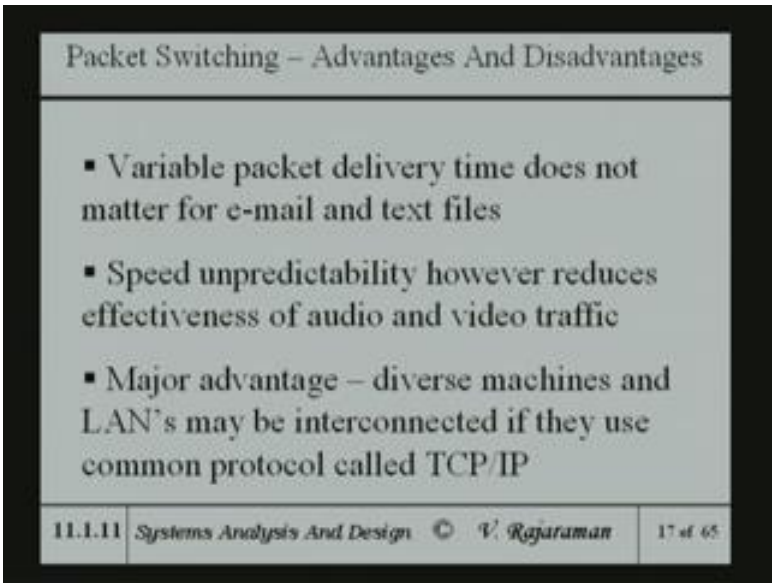

Major advantage of the protocol is that, diverse machines and LANs may be interconnected. If they use the same common protocol.

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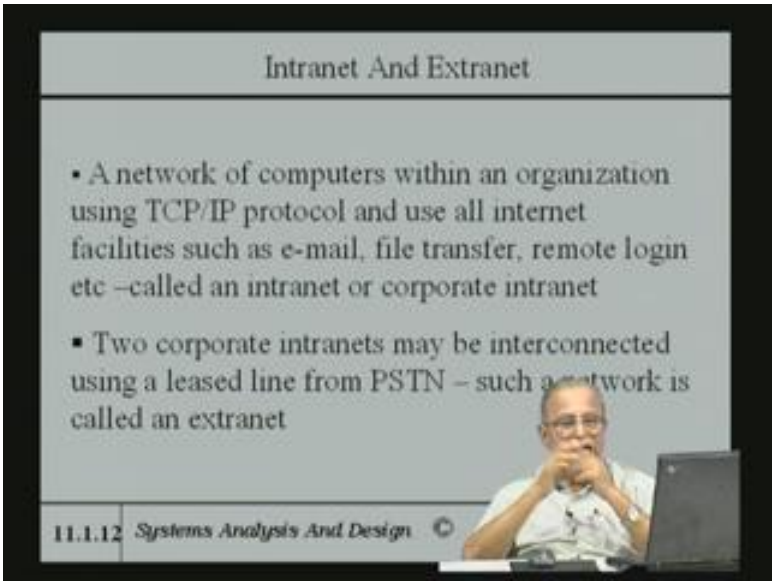

It is called TCP IP, transmission control protocol, internet protocol. Transmission control protocol is one which is use to reassemble. All the packets which come out of order. And

I will not go into details of it, but there is essentially the protocol, which is used by the internet. And this protocol and primarily the availability of applications on the internet, or E-mail transferring file from one IP address to other IP address. Remotely login into any other computer and so on.

And within organization, if all the facilities which are available on the internet. Or available to the local area network, using the same protocol, same programs and so on. It is called a corporate intranet. Internet is for the world wide connection, intranet is for the individual organizations connection. Two corporate intranets, may be interconnected using a leased line. And from in a public switch telephone network; and that is called extranet.

There is suppose multiple organizations, decide to cooperate an interconnect their own intranets together. To have private connection, like whereas in the company may be a manufacture. And they will have their own intranet. And another company, may be a spare parts supplier or component supplier. And component supplier, may have his own intranet. And there may be a person who is your distributor of cars.

And he will also own intranet, because you have multiple branches within a city. So, all these need to be connected together, to be able to smoothly function. As a overall structure from a supplier to the manufacturer, to the showrooms and consumers and so on. So, this they are cooperating companies. And then, they connected together. And they allow access to certain types of files. And that is called a an extranet.

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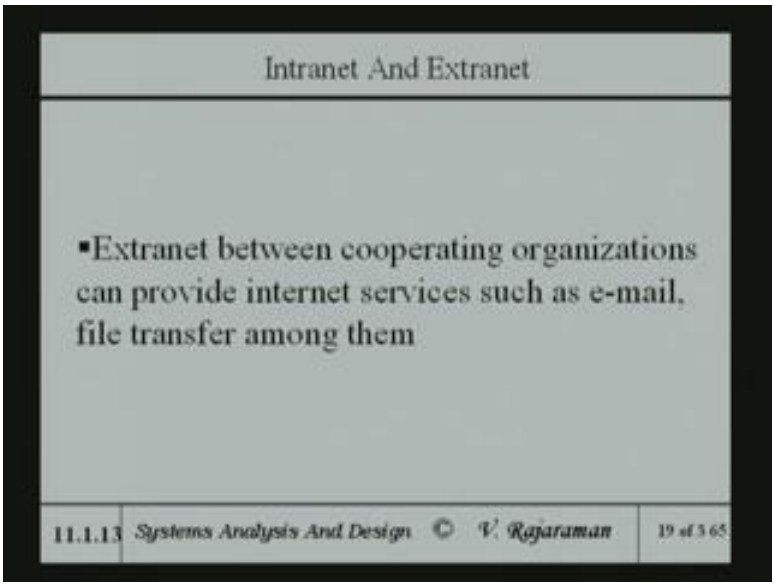

Extranet between cooperating organizations which can provide, internet services between them.

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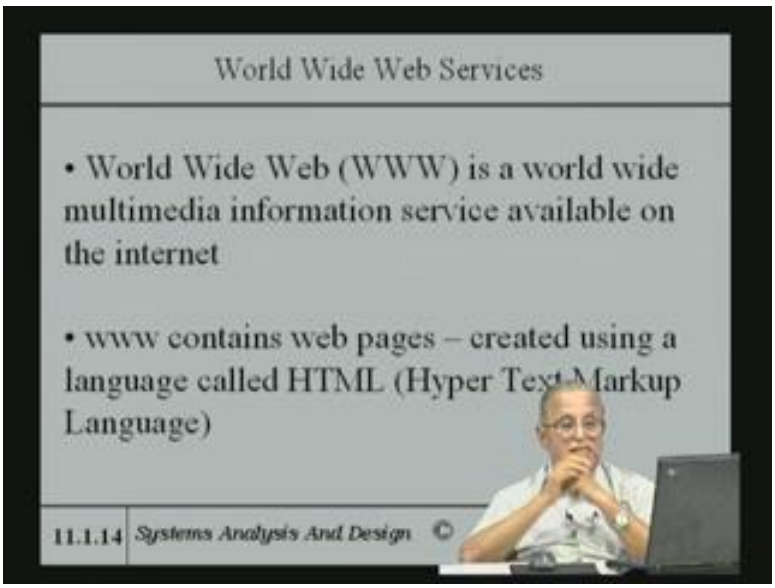

world wide web, is a worldwide multimedia information service, available on the internet. And it contains web pages, created using a language called HTML, hyper text markup language. In fact, web browsing is one of the most common things people do.

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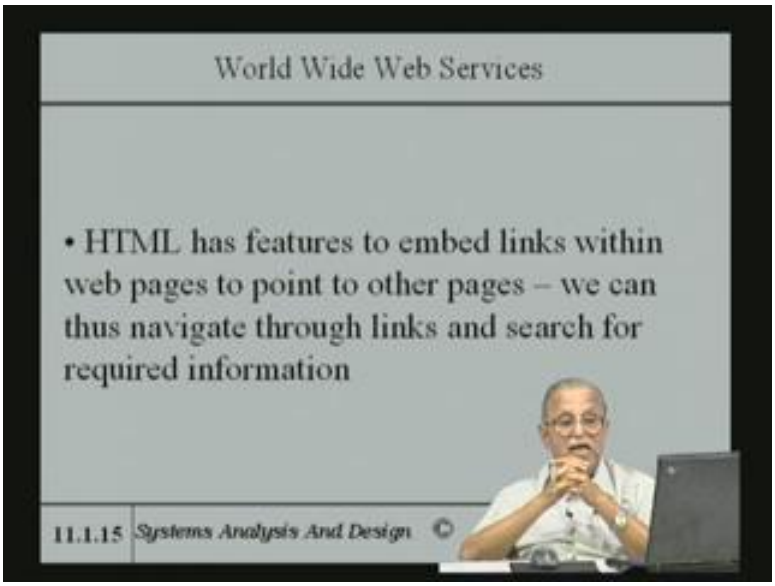

HTML has features to embed links within the web pages, to point to other pages. The greatest advantage of HTML is that, when you do a search; it can leave to other similar kind of sites. And take you to other sites. So, HTML is got features to link other web pages. And you can navigate through the links and search for required information. That is why, it is called hypertext normal text. Normal text, it is just a single page and does not link to anything else.

Whereas, hypertext links to other pages. And if when you click the link, then it gets to the new page, the link page.

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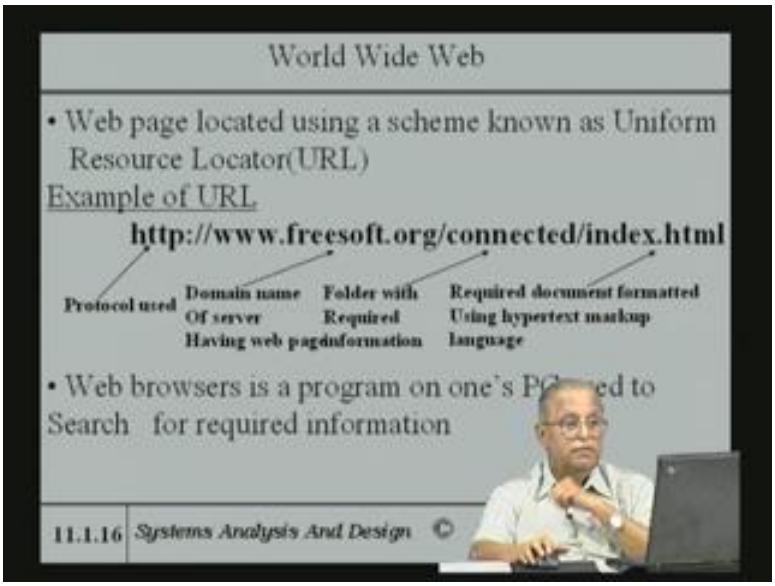

Like each web page, has a scheme called uniform resource locator. The uniform resource locator, is used to be able to get to particular web page; which is stored using that locator. You can immediately go to that web page. And get the information which you want. And if exactly the web address of a company or individual, you can put the URL, on the using a program called the browser. And it will immediately bring out that for you.

So, the http is the protocol, which is used for this interconnection. And www is of course, the world wide web and freesoft is the domain name of the server, having the web page. And the connected freesoft dot org is the company, whose the domain name of the company. Having the web page, which you want to look at, folder with required information is in connected.

There is this has the folder with required information. And this is the required document formatted using, hyper text markup language. So, that is what is this says. Web browser is a program on ones PC used to search for required information.

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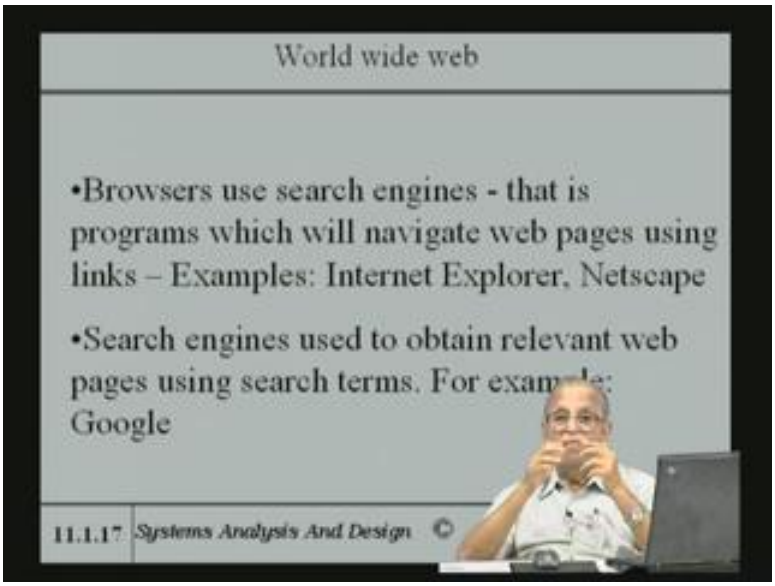

Browsers use search engines, that is programs which will navigate web pages, using inks. Like Internet explorer, Netscape and so on. Search engines used to obtain relevant web pages using search tabs. For example, using Google search engine, where you can use search tabs. If you do not know the URL you can use search terms, and get information. Like you want to find out about Indian cars, you can write just Indian cars.

And bring out the web pages of various car manufactures in India. In fact, it will bring out the whole lot of information, wherever Indian and car occurs see.

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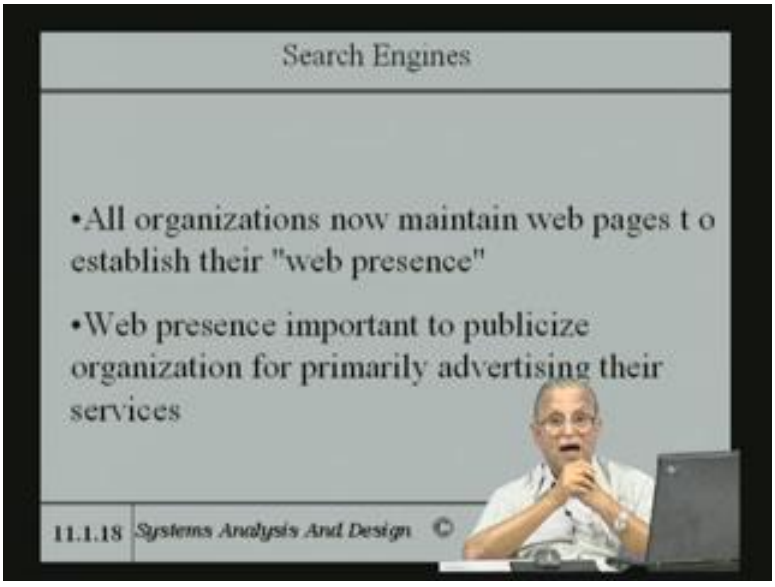

And of course, you have to do a safe filtering through that. All organizations, now maintain a web page, to establish their web presence. Web presence you tries the world that you exist, web presence is very important. For companies to be able be visible, to the to the rest of the world. Because, world wide web become becomes such pervasive, including every home as it. But, the web page is very carefully maintained by most of the companies.

And lots of individuals also, maintain number of web pages. To be able to give information about themselves. Particularly if there are person who is a consultant, who wants to kind of attract customers, you will have them. Web presence important to publicize organization, primarily advertising the services. The document has got three parts, in the context of, in fact any context, but it is a specifically important the context of a web page creation, as well as linking.

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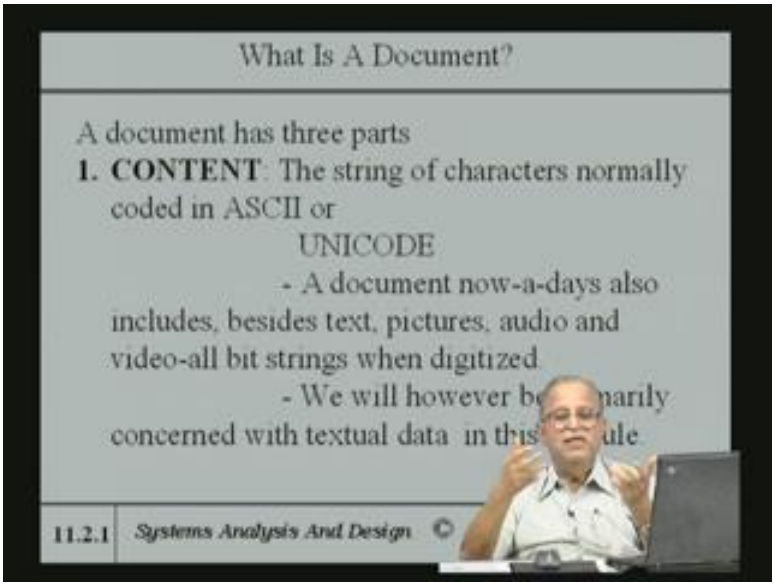

And methods of document storage and the retrieval on the world wide web. The string of characters normally called coded in ASCII or Unicode. See the content is normally has set of ASCII characters coded I. now-a-days of course, Unicode is used particularly for multiple languages. Because, Unicode is a 16 bit code and it covers almost the entire languages in the world including various special symbols like alpha, beta, gamma and things like that. A document nowadays also includes text pictures audio and video.

Ultimately all of them become big strings, because they are going to be digitized all of them.

We will have primarily concerned with textual data. Because, we are not really talking too much about other types of data, in this course. How the data looks like to a human user, presentation is what we talked about in the report generation and report presentation.

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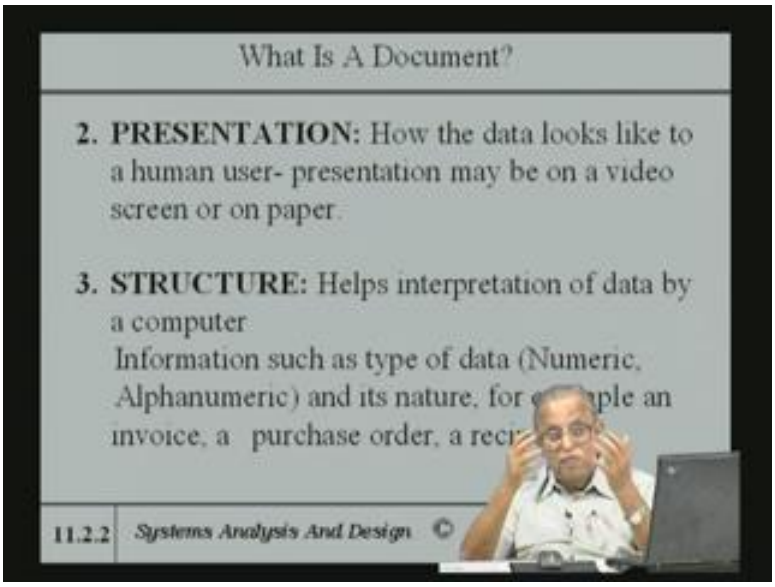

And a structure helps interpretation of data by a computer. Other words the presentation on a page is important for a human user. We computerized use that data it needs to have some more information about a structure. What do you mean by structure is, is it a number, is there a set of characters, is there a data structure like a vector; or is it a record structure.

So, that kind of a structure is important for a computer to know in order to be processing. Type of data these are structure presents numeric, alphanumeric and also information structure is it a invoice, is it a purchase order, is it a recipe things like that. Because, each document has got some nature the recipe is got always something with, which it starts saying that, the ingredient required the method of cooking. And then how many does it serve and things like that. So, each one is got a structure. Similarly, invoice is a structure and purchase order has got a structure.

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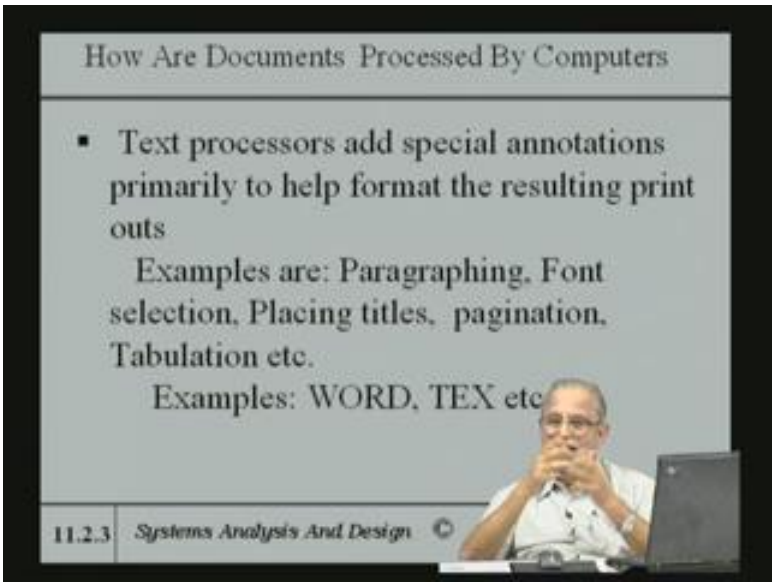

Text processors add special annotations primarily to help format resulting print outs. Text formatting text like, word processors. They send it in to a formatting to make it some bold face, some italics and then paginate right justify things that type. Paragraphing, font selection pagination tabulation etcetera. So, word word is a common example. There are primarily presentation aids which take raw content and transform them to neat looking documents. When displayed on the video or printed on paper.

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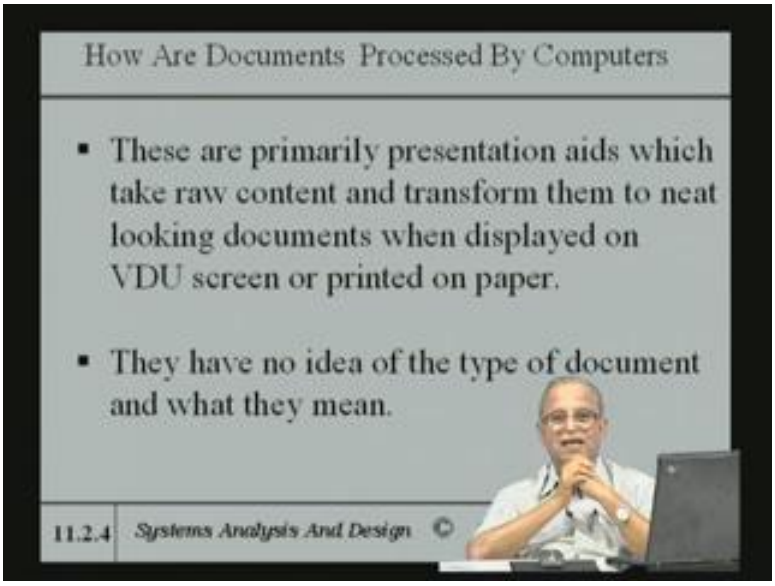

They have no idea about type of document and what they mean. They just do not you know there is no semantic information built in. Meaning of the document is not whether it is a invoice or a payroll, it cannot distinguish. Because, does not know there characteristics as well as the format is concerned.

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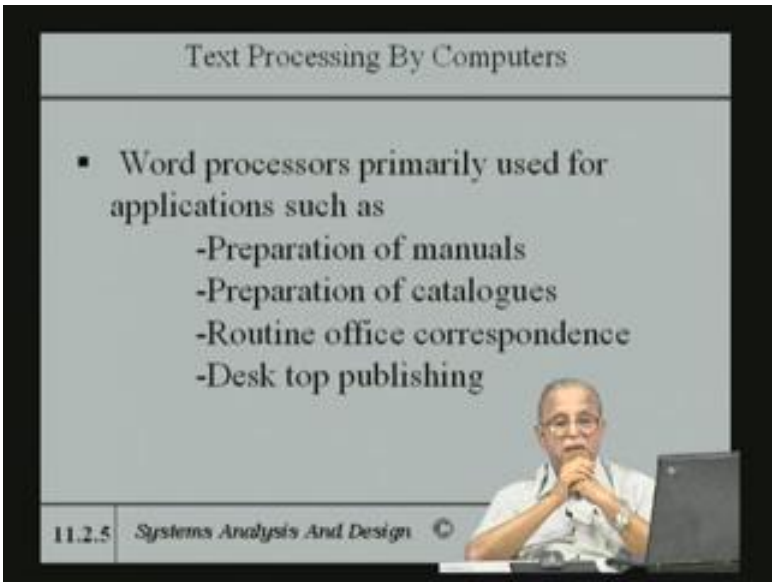

Word processors primarily used for application. Such as preparation of manuals, preparation of catalogues, routine office correspondence, desk top publishing, for all that of course, the word processors is used.

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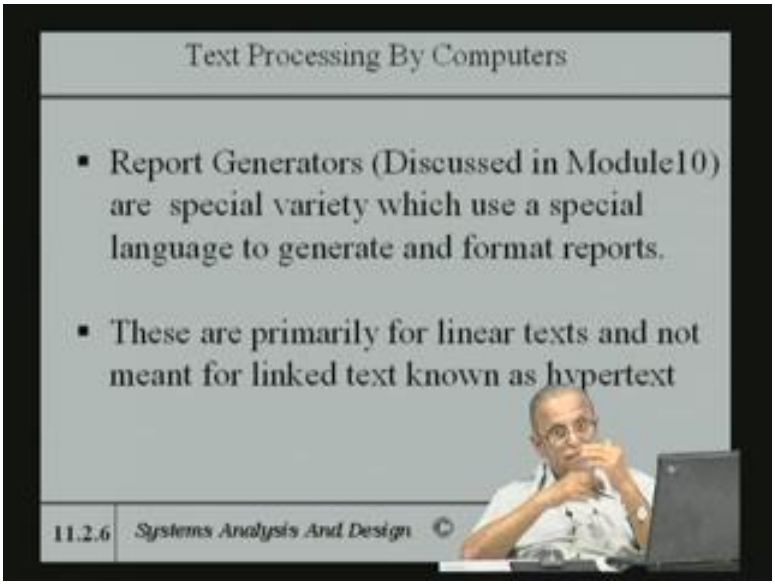

Report generators we discussed are special variety, which use a special language to generate the format of reports. So, there only in doing format is what is important, not the content. So, primarily for linear text and not meant for linked text known as hyper text. Hyper text is, what is important in the world wide web construct.

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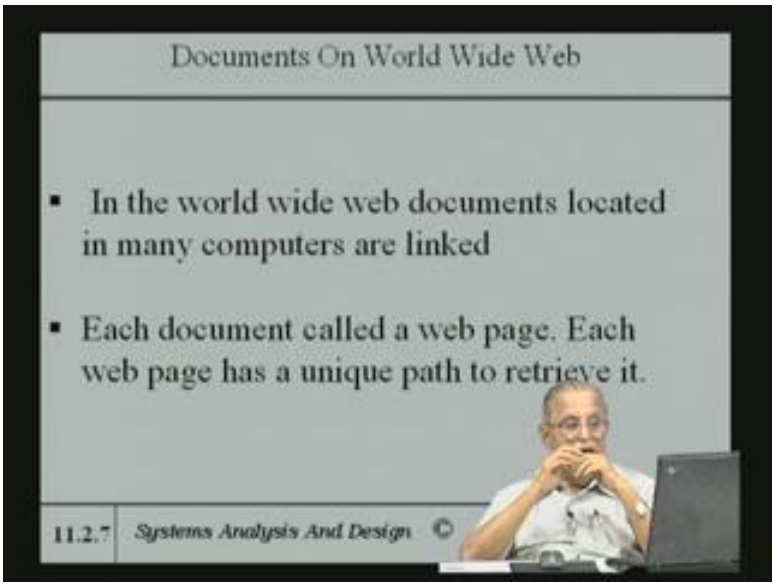

The world wide web documents located in many computers are linked. So, the web pages need to be interconnected, each one is got a unique path to retrieve it.

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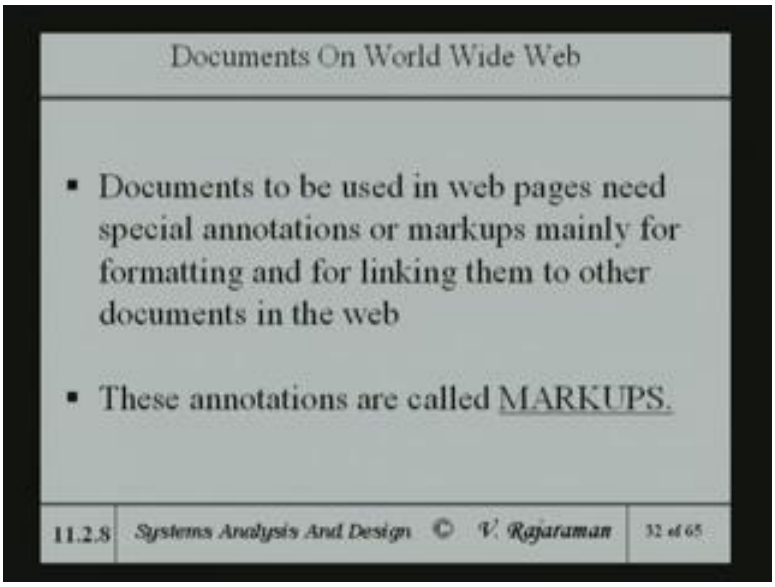

Documents to be used in web pages need special annotation or markups mainly for formatting. And for linking them to other documents in the web, these annotations are called markups. So, this is what, this is the latest advanced which took place. In terms of the one of the biggest application of the internet. The coming of the web because those transform the entire way in which even commerce is done. That is the reason we have to talk about e commerce in this in this course

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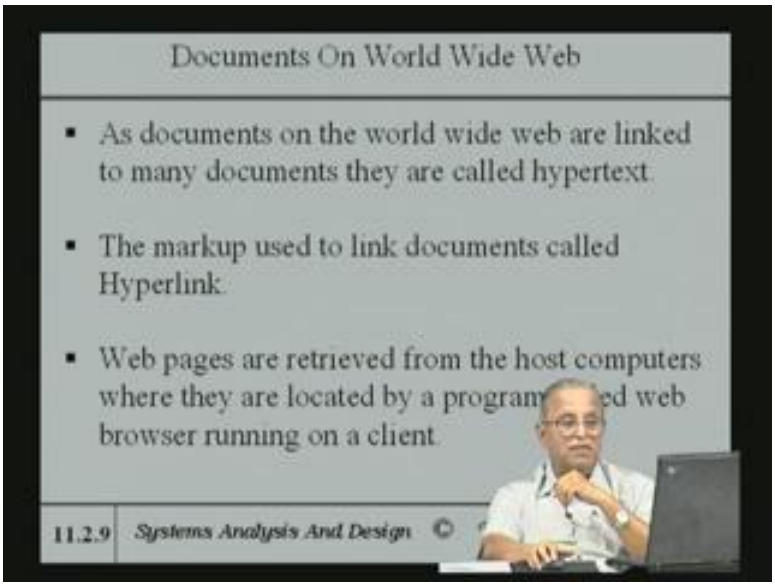

As documents on the world wide web are linked to many documents, they are called hypertext. The mark up used to link documents called hyperlink. And web pages are retrieved from the host computers, where they are located by a program called web browser running on a client, this is what talked about.

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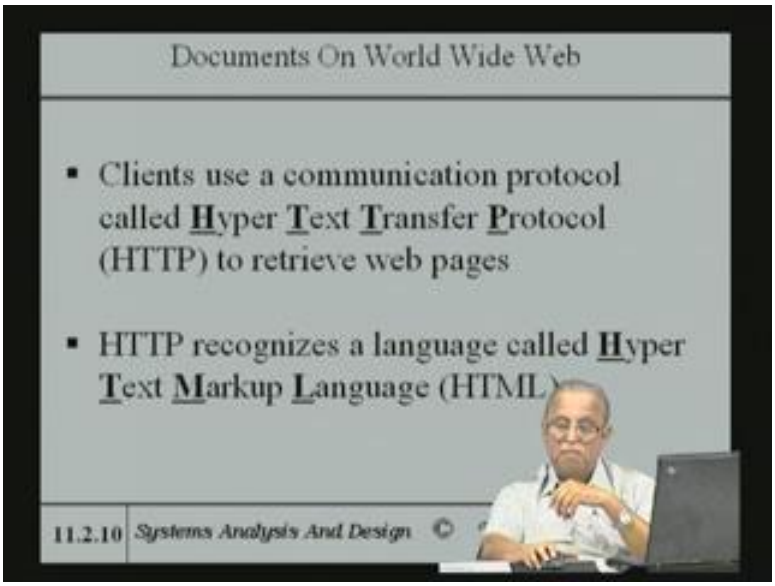

Clients uses a communication protocol called Hyper Text Transfer Protocol and language recognized by a HTTP is called hyper text markup language, which is result in the formatting language.

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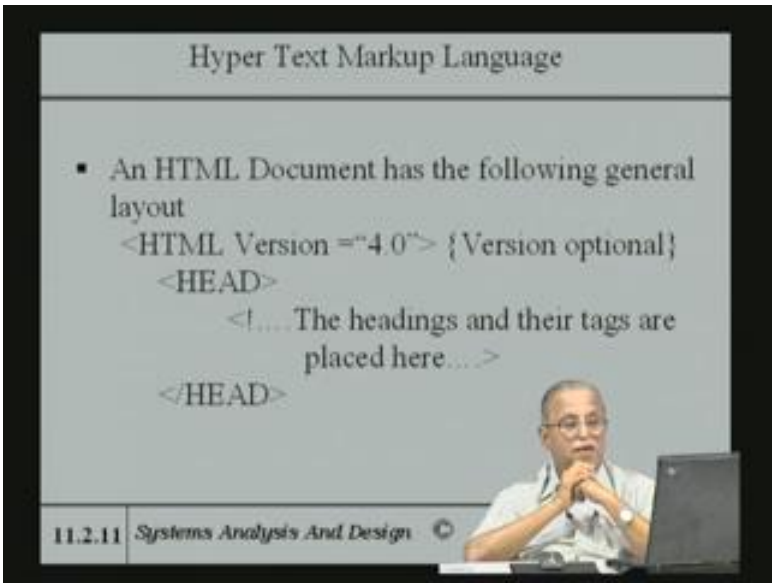

Hyper text markup language is has special layout, because you have something like it is called a syntax like any any language. HTML version something, which can give the version number, which is optional. And the headings headings and the tags are placed

here. So, it starts with the double arrow and ends with the double arrow in which there is a slash to say it is end of the heading.

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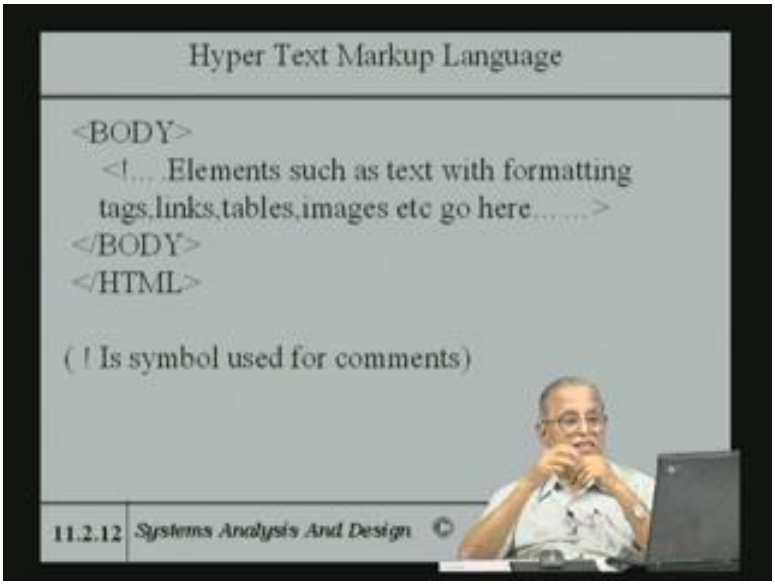

And then the body and the end of the body and end of html. And the exclamation symbol used are commands and elements, which has text with formatting tags, links, tables, images etcetera are put in the body.

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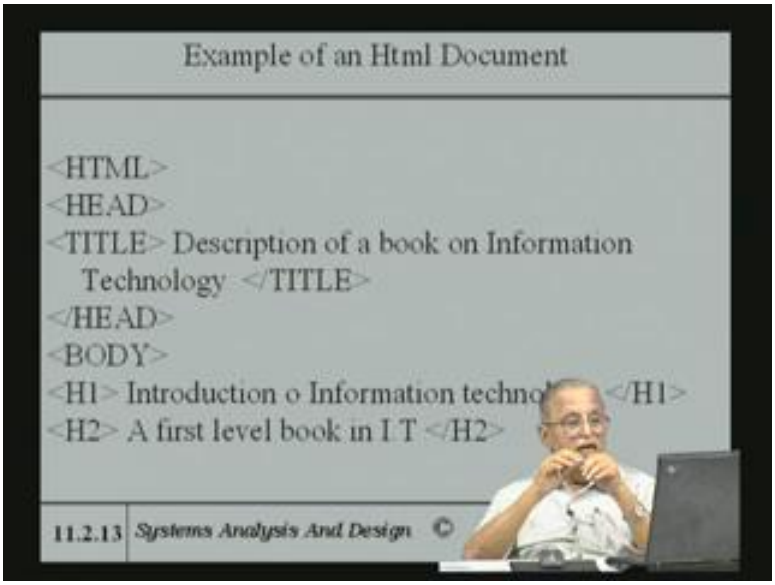

I will give an example. An example of a document HTML, I have not given the version number and so on. Head, title description of book on information technology that is what

the heading is. And the body introduction to information technology and slash there is. H 1 mean it is the heading the first level heading. The second level heading say is that it is a first level text book in IT.

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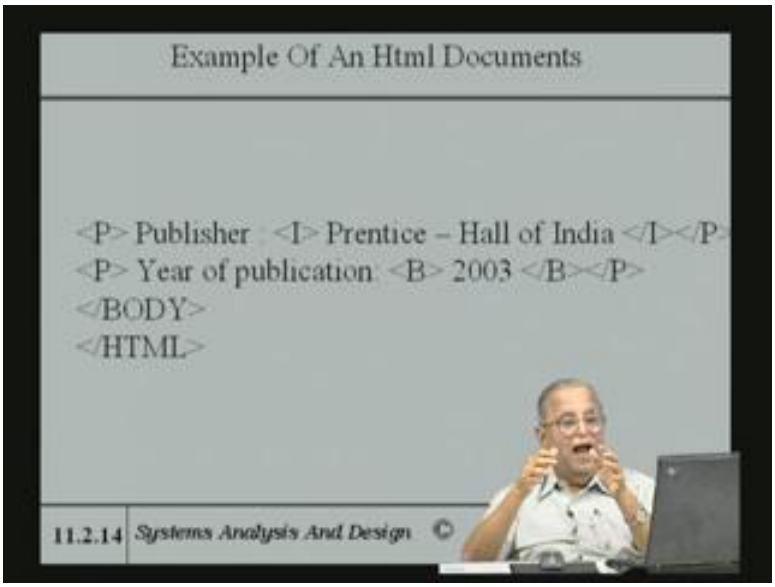

And then publisher and in italics. So, I now shows the publisher and italics that is all we end here and in bold face the year of publication 2003 will be in bold face. Because, the B shows bold face, I shows italics. So, the point here is you can give certain kind of formatting as well as styling of the document using this language.

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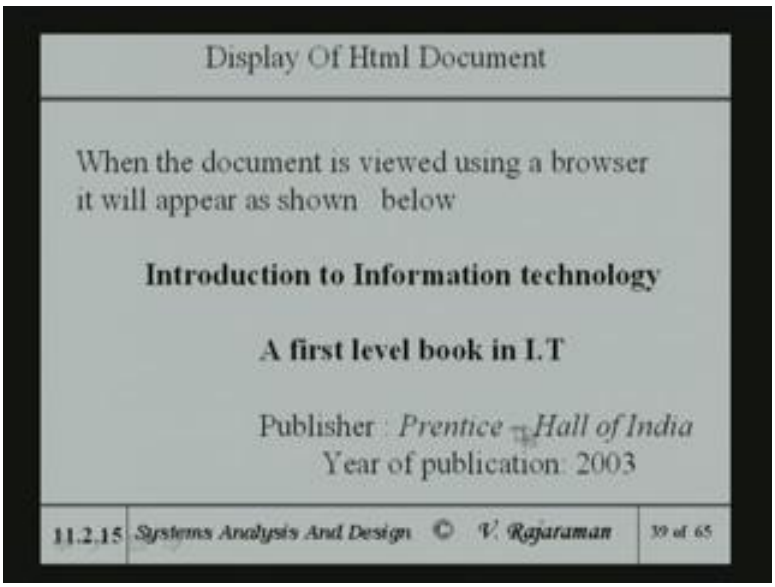

And I am get into great details about this because it is not a purpose in this course. But, to give a favor of what this does. If an document is viewed using a browser it will appear introduction to information technology a first level book. Headings are normally in bold face and publisher prentice hall of India and year of publication 2003. Actually 2003 should be in bold, but it is not actually brought out as a bold in this typing. But, this is brought out pro properly italics. It should appear like year of publication 2003 bold.

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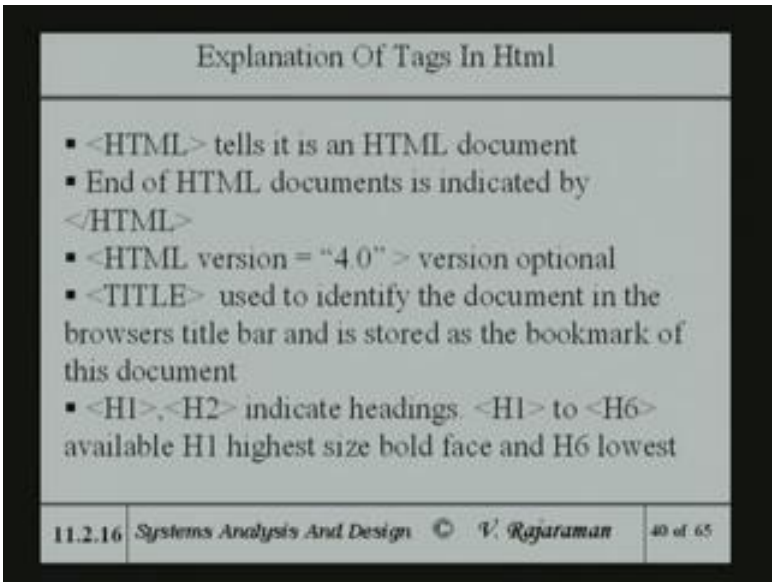

HTML tells HTML document is beginning and that slash HTML is the end and the version title I mean I told all about this. H 1 to there are 6 levels of headings and various sizes bold face H 1 to the highest size is h 1 and the lowest size is H 6.

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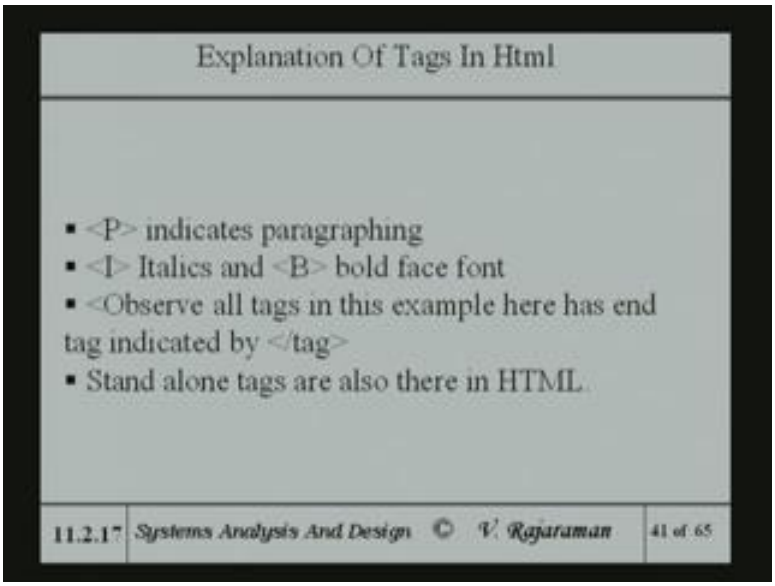

P indicates paragraphing I indicates italics. B bold face and tags the example are the beginning tag and end tag HTML is a tag the body was a tag and so on.

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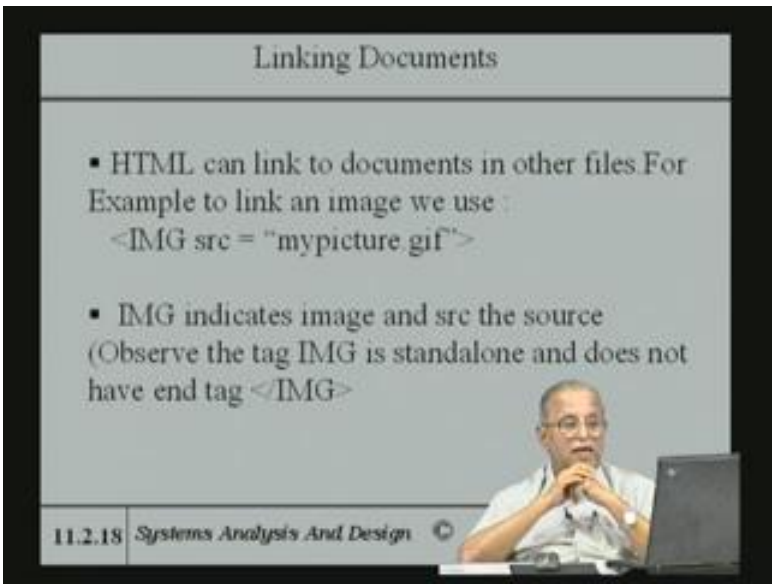

And html can link document in other files. For example, link to an image we use a image source is mypicture dot gif. So, this will, so connect to an image called my mypicture dot gif. And IMG indicates the image and src indicates the source. it is observed that it is stand alone tag it is does not have an end unlike the other cases.

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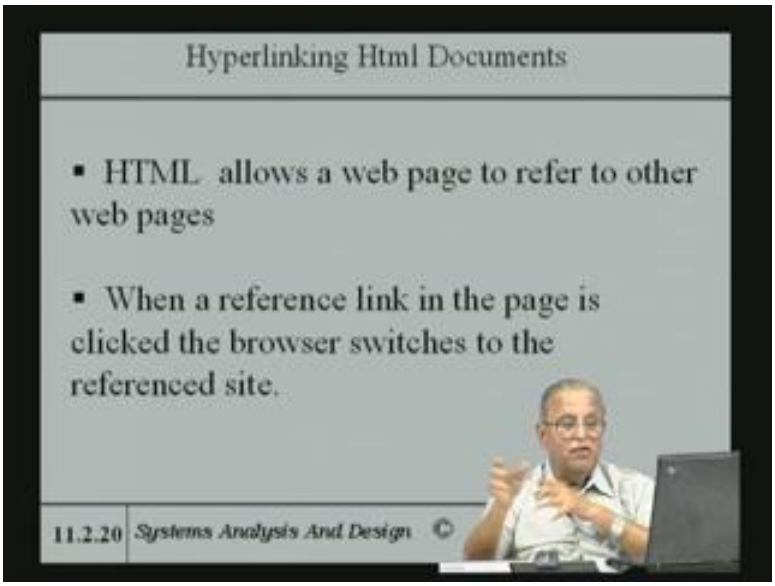

Html allows a web page to refer to other web pages. When a reference link in the page is clicked the browser switches to the referenced site.

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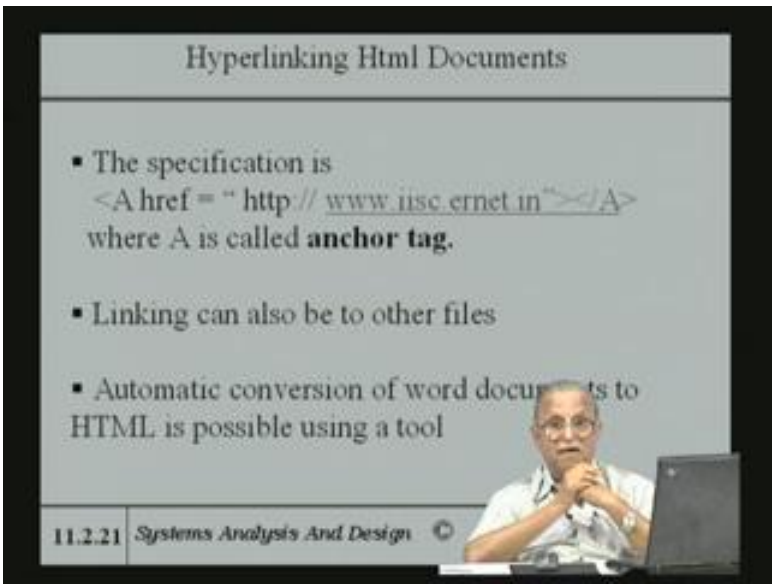

Like the anchor tag and if you click that it, will it will get to that web page given by www iisc dot ernet dot in. Linking can also be to other files that is I have given to it to other. In this case for another web page it can be to a file also, automatic conversion of web document to HTML is possible. Otherwise the it is possible tool to do that. And

there are lot of up comings in HTML, which we look at in great detail and the successor called XML; which we will talk about the next lecture.