agMOOCs
What is the Internet?
T.V. Prabhakar

Hi. Welcome to this lecture on what is the Internet? In this lecture I will try to give a quick introduction and overview of what the internet is.

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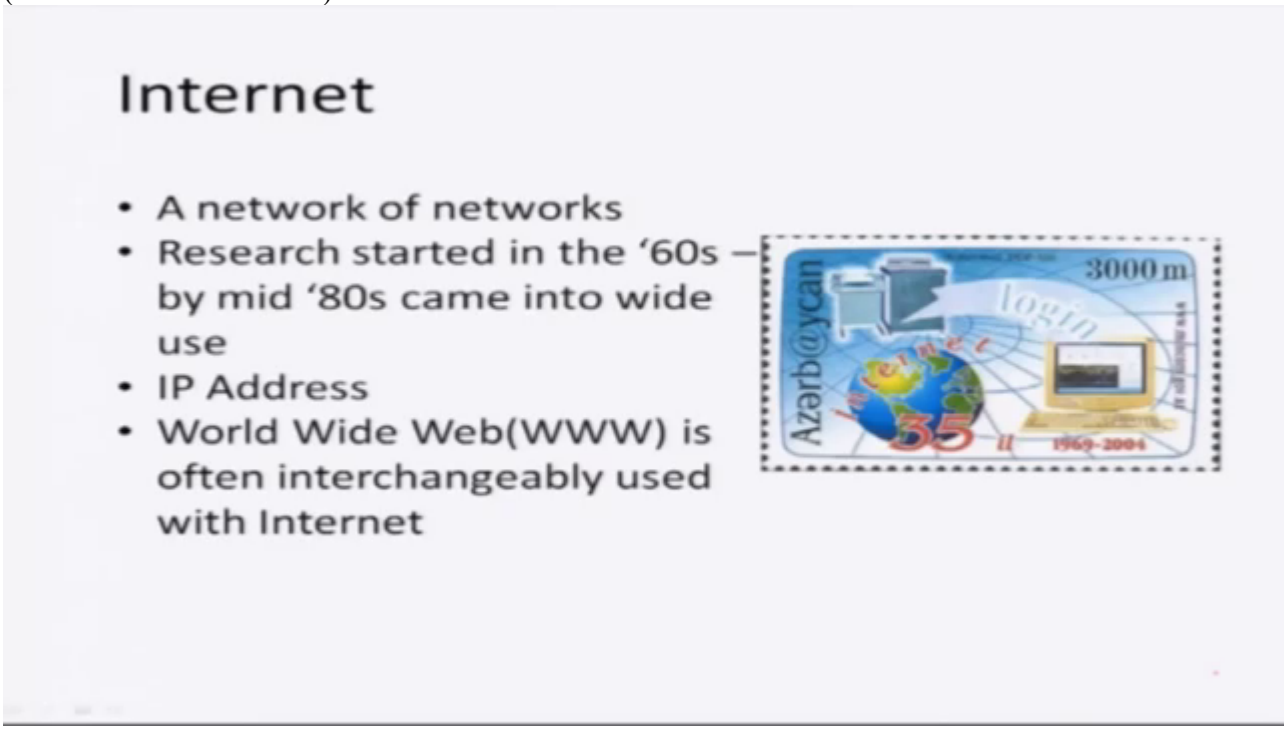

So internet is basically a network of networks. There are large number of computers in one location which are connected to each other and this location is computed to another set of locations which has its own computers and they're all connected with each other. It's a network of networks. The research in building computer networks started in the 60s and by something like mid 80s and when I have a house I have an address for my house, a house number or street number and so on. So similarly internet has the address is called an IP address, so you can locate computers on the internet using their IP address.

The World Wide Web WWW is actually a program which runs on the internet and people typically the web and the internet interchangeably often when, they say, go to the internet and look for some document, what they mean is go and search the for the document using the World Wide Web.

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So now what is the World Wide Web? So World Wide Web is basically a program which will help you share information. We call it technically an implementation of hypertext. What is hypertext? We will see in the next lecture. Hypertext was built in Geneva way back in '89. It was conceived in '89 but it got public in '91 and if you want to see the first web page for example you can click this link and see how the first page look like. So Tim Berners-Lee is the inventor of the Internet.

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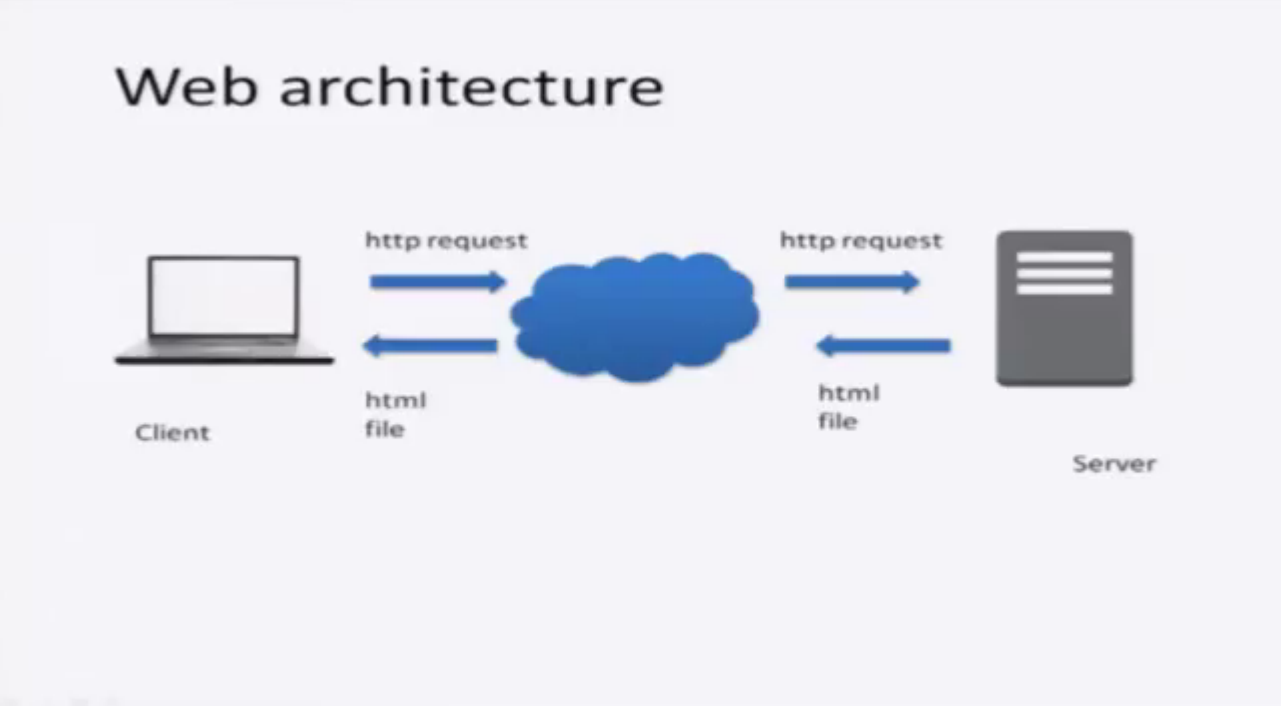

So what is the architecture of web? What is the web consists of? The web consists of basically a client, the computer that you access the web is called the client and it is connected over the network, there is a large number of links and small computers in between, big

computers in between which will direct any requests that you send to what is called the server. This is another computer sitting somewhere anywhere in the world. Now they talk to each other using what is called Hypertext Transfer Protocol, HTTP and the server when it receives an HTTP request it sends a file back to the client in an HTML format, hypertext markup language format. So client sends a request to the server and server sends a response in HTML and the client then display the HTML document which has come to the client. This is how the web works. This is a very top-level view. We will see more details in another lecture.

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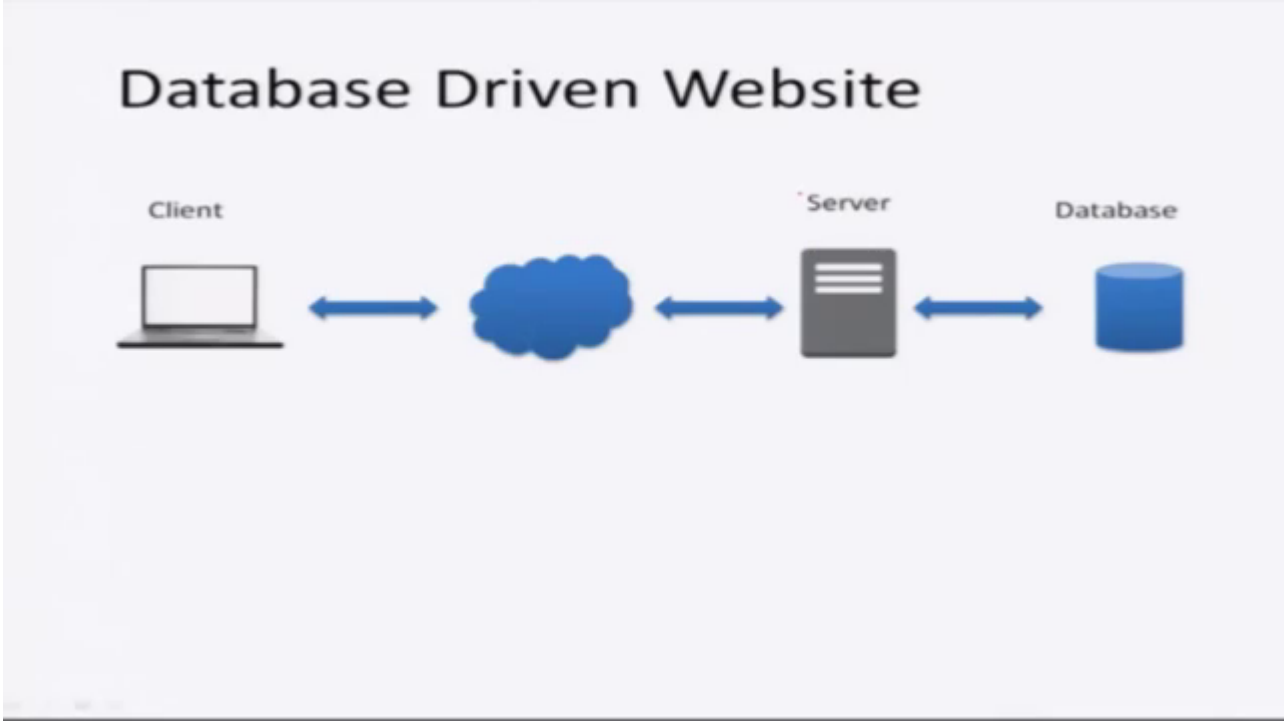

So on the server side often you have what is called a database. So if there is a large amount of information that is stored and needs to be retrieved and sent as part of the response to the client then it is stored in what is called a database, so when there is a database serving the web application we call it a database driven website. So there is a client. There is a server. And then there is a database engine in which data is stored.

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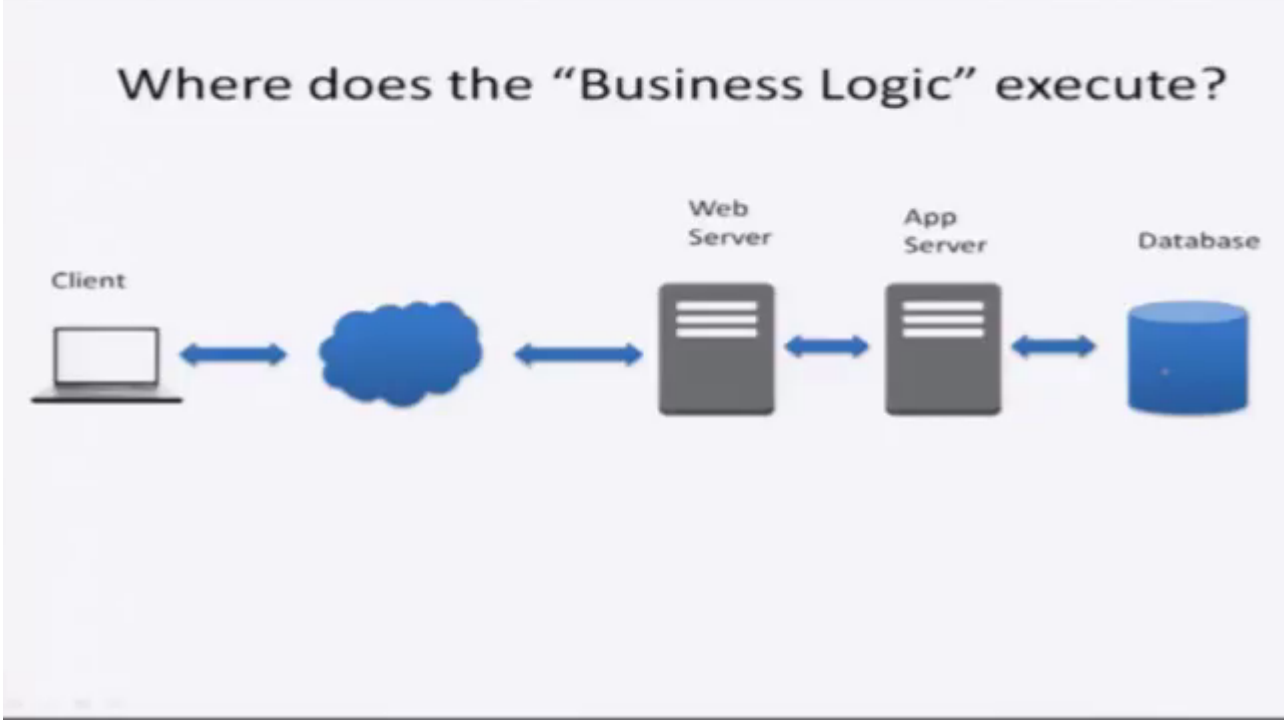

If you dig a little more deep this is how it will look like. Actually the request that the client sends goes to the server over HTTP, an HTTP request goes and the web server executes it in what is called an application server, app server as it is called. And the app server is the one which talks to the database engine, brings the data and sends it back to the client. Now -- so this is where the so-called business logic of the application sits. Let us say you are using the website to compute your tax but tax calculations have to be written in some programming language and they get executed on the app server.

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So, essentially we have what are called browsers sitting on clients, the program that you use to access the Internet is called a browser and it is running on the client machine. Now

browser is a program which will display the HTML content that is coming from the server, the hypertext markup language, HTML is hypertext markup language that content is displayed in a properly formatted fashion like bold italics and then multiple columns and so on so. The job of the browser is to display the HTML data that is coming from the server. It can also execute programs written in JavaScript or flash or Java and so on which will help you in creating interactive websites, it will help you in creating animations and display images and so on. So there's a program that's also execute inside the browser where the user can write these programs and create more interactive and brilliant websites.

Now the browser's remember passwords. You all know this when you have created a login ID and a password to put access a particular web application. The next time you go and visit the application the browser can prompt you with the password. That means it is storing the password somewhere. Now this is very convenient because I don't need to type in the password and often I forget what password I used last time. But remember this is also very very dangerous, because if somebody has access to your machine, they can see the password that you have used for that particular website and maybe steal your password.

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There are also what are called cookies. Now cookies are small amounts of data stored in the client -- in the client machine. So this is actually data sent from the web server when you access a web site the web server sends some data to be stored on your client. And this client stores it in its local machine and when they access the site back they send this data again. So what is this data useful for? It is useful for many things. One of them is personalization. Let us say you have said, look, I would like to see information about India. When I log into my Google News into a news website or I would like to know the highlights of the cricket matches that are happening. So you can tell the new server this is what I am interested in and the news server may remember this data by writing a cookie on your machine. And the next

time you access the new server the cookie is sent and this information is used to personalize the mail or the news that is sent to you.

It's also used for tracking. It will remember that this particular person has come to my site before so many times and so on. So it is actually not a good thing, but cookies are used for that.

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So the homework for you is figure out how are the cookies stored in your browser. What are the cookies? Which sites have stored cookies on your machine? And also figure out how to see the password that is stored in your browser. Very often you forget the password that you have used and you may want to know what you have used, so you can actually go and open the location where the passwords are stored and figure out. So this is homework for you. You have to learn to do these two things. Thank you.