**Introduction to Human Computer Interaction**
Prof. Ponnurangam Kumaraguru ("PK")
Department of Computer Science and Engineering
Indian Institute of Technology, Madras

Lecture – 16
Design Patterns

Welcome back to the course on Human Computer Interaction. This is week number 6 and I hope you are enjoying the course; I hope you are also trying the topics that we are covering in this course which is I hope you are getting your hands dirty by building prototypes by building; by doing user studies; by talking to users; collecting what the user needs are and doing all of the topics that we are discussing in this class.

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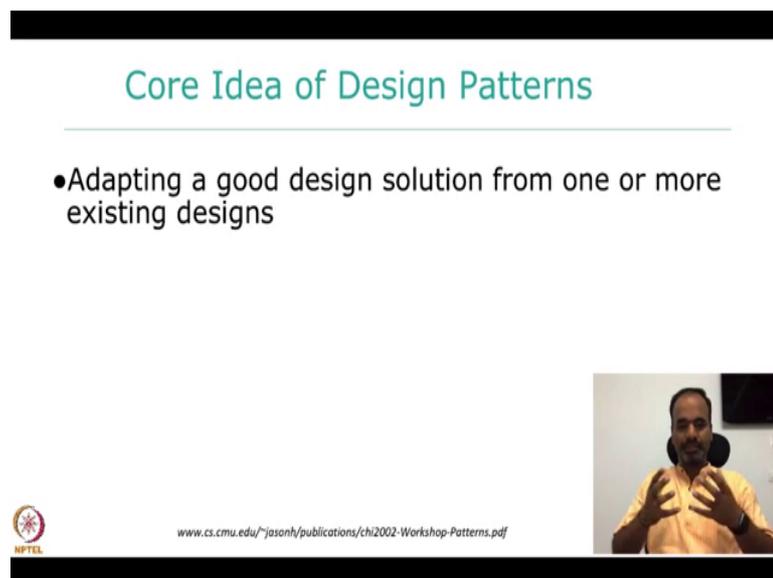
Core design or core idea of design pattern: So, what I wanted to cover in this week is this big idea called design patterns. You need design patterns is because it helps actually designers to use the patterns that people have actually tried and tested. Using one of these design patterns just helps users to also understand your design very well. And what I am going to do now is I am going to walk you through some of the design patterns, I am going to actually use content from (Refer Time: 01:11) Jason's course; where I will walk you through different design patterns; there is URL at the end of the slide; at the bottom of the slide in the slide which is where most of these design patterns are discussed.

So, if you are interested in looking at more of these design patterns, feel free to go look at these pdf.

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So, look at this. So, this is one of the best services that is like EBay, that is like Amazon, that is Flipkart right which is static. So, what I what I am going to do now is I am going to use these slides to tell you these design patterns. But I am going to use this website only as an indicator way of showing these designing patterns.

These slides will help you to understand the design patterns but we will at the end of when I am done with the design patterns slide we will also going to look at some of the real world services that are available there. How these patterns are actually applied in these services. But I am for so to say instructional purposes I am going to use this website called half dot com where I am going to walk you through the different design patterns. I am sure the site looks very familiar because this is like an e commerce website where you are going go buy CDs, you are going to buy books you are going to buy a movies all of that.

So, the question that we want to keep asking why you looking for these design patterns is what site is this right. This is a website which is e commerce that people are going to buy; people are going to probably upload information about the product that they have and the details about the product. So, one of the design pattern is called Site Branding where logo of the organization of the service is actually prominently kept on the website.

This website is as I said this website is all the body e commerce where people are going to upload, the sellers are going to upload the information about the products, the buyers are going to look about the products and make a decision on buying the product.

So, the first design pattern is site branding; as you can see the website service as actually has the logo on both sides of the left and the left and the right top as the logo. And these design patterns you have to keep in mind that I am covering some of these design patterns which it probably looks very trivial at this point in time for you because you are so much used into these kind of design patterns. But these all have some meaning, some background why their reward in the way it is today.

I am sure the solutions that you are using will also have a lot of patterns many I am sure just if you just think for a few seconds. The Ubers and Olas that you use they have very similar interfaces very similar patterns and if you look at let us take Facebook and twitter; there are some similarities. I think when we start up this course we did see the similarities and differences in the services but we were not really looking at from the design pattern point of view but we were just looking at how the interface were kept. So, here it is called site branding.

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And if you look at the other components of the website tab row content categories on the left; so these are all highlighting the different parts of the website and again I am telling you many of the web services that you may be using looks very similar to this. Flipkart

looks like this; Amazon looks like this; prices in the content area. So, up-front value proposition is the next design pattern which is where the service is actually providing information about whatever they are doing whatever their basic or the nucleus of the business is this put in front here; right up-front value proposition; which is the smartest place to buy and sell books, CDs, computers electronics and they are giving you the value of the categories and the information about different parts of the website.

A personal e-commerce also right because here it is also personalized depending on the clicks, depending on the links that you have seen, depending on the products you have seen before; they are going to actually change and provide different interfaces or different options, difference of different products for you to actually look at. So, this slide shows you the two of the design patterns which is up-front value proposition and personally e-commerce. Let us look at more of these design patterns.

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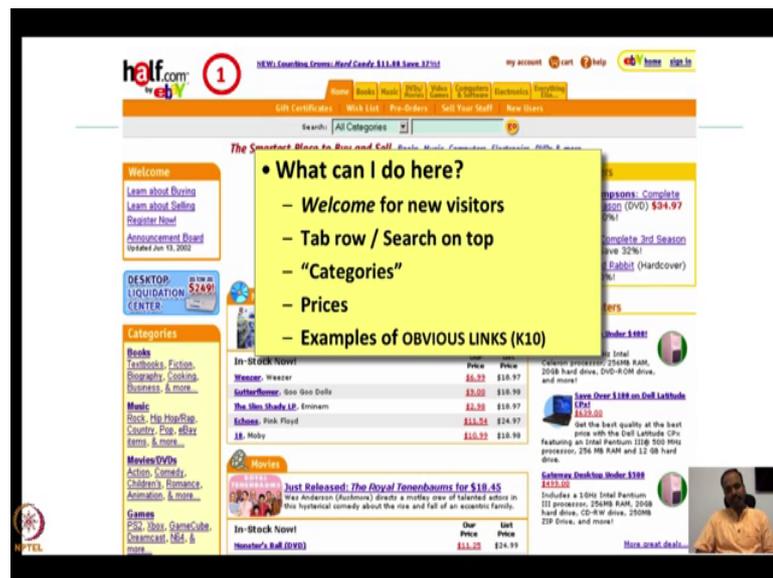
So, if you look at this slide, it is giving you the information about welcome for new visitors message; tab for search on the top; categories of the products; prices and some of these are the design patterns are basically called as obvious slides.

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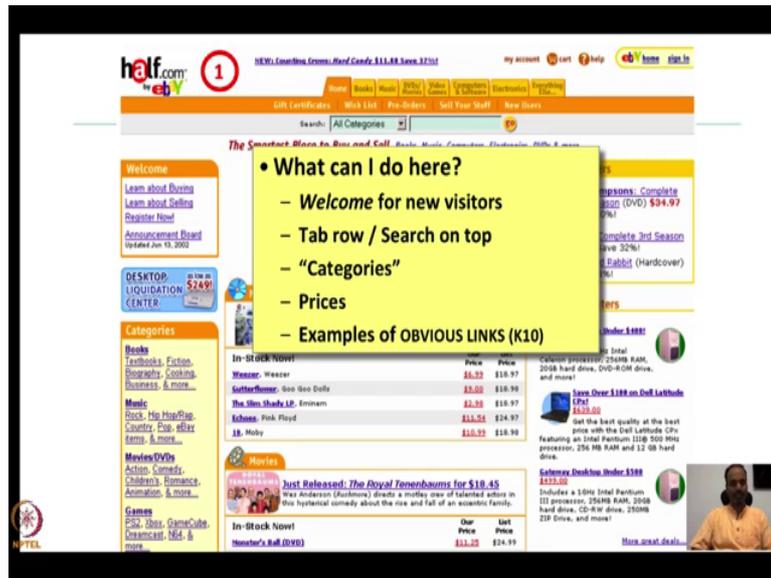
So, this is welcoming the new users and this is the tab or row for search on the top and you also see the categories of books textbooks and fiction categories of the products and then there is also price right. Examples of these are these are examples of obvious slides which is that; it is a design pattern which we need rent price, we need categories, we need all of that.

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So, here is another super important design pattern so to say this is called as above the fold; meaning I am sure if you think about this design pattern it is very critical is because

you want to put all the information that is available that is needed for the user to know before one scroll in the webpage; before one scroll in the app that you see right. Because otherwise it is completely a waste of time because the user is going to continuously keep doing this and he or she is not going to get the information that they want or they are going to get distracted. So, you will actually see some design patterns which are around this impulse behaviour of users which can also distract the user from what they were what they were intending to do while coming to the web service.

So, the design pattern is above the fold where information that is kept within one screen has to capture all important information that the user is looking for. Now it is actually we going to a different website.

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So, if you look at it now this is the home page so to say. Now we look at page where I have done some search and I am actually into that page looking at buying things and looking at more details about the seller rating and everything. Also here it is actually showing you product and logo is still on the top left corner, reinforcing the brand, same font, layout; everything it is looking very similar to the page number one right. So, the idea here is that you want to keep all of the same.

So, the users are not getting lost in finding out where they are. Again for many of us who are more used to using the internet and the apps; we may think that is a very trivial

design pattern but I think you want to make sure that you follow it when you are designing your own at your own solution.

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So, look at look at these are now some of the other important design patterns is that there is the pattern called as Bread Crumbs; which is it is actually showing you where which part of the website you are now right? You are in the home; from home you moved onto the page called music and that is where you are. It is important for the user to know where they are on the website and also the tab row on the top is actually the music is highlighted because that is where you are.

So, let us take if you around books or if you around electronics accordingly the tab would have actually been highlighted in a different cover. Album cover, Product Highlights and CD cover right. So, you are looking for the product visor but they have also provided you the cover of the visor, they have also provided you the details of the product and the cost and everything that is available with the cover there. This is helps you to get more information about the product that you are looking for.

And of course, as I started believing that the internet uses now and people like you and me live on two things; one is notification, the other one is rating. So, ratings are the primary way by which we make a lot of decision right; you want to go to the; you want to eat somewhere; you are looking for actually Zomato (Refer Time: 10:14) have the ratings of the ones that you use; primarily to decide whether you want to go eat there right; similarly, whether I want to buy the book from this person this seller. So, I am going to use this rating information is available for me here.
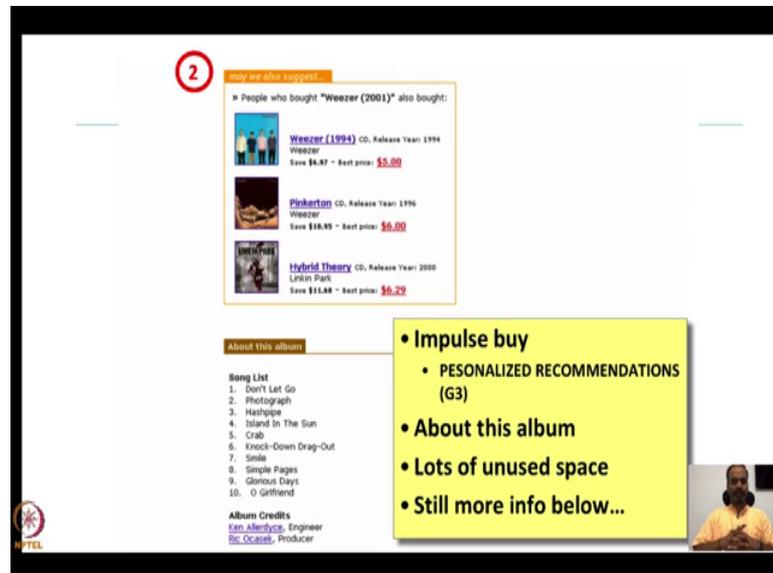
And of course, above the fold is the information that you want to keep it since we have right.

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Here is another interesting pattern that people have used; services actually generally used it even now. It is this whole idea called impulse buy. You are on the website to buy something product or to a book and while you are going through the book and while you are actually in the process of checking out the book; they would actually also show you recommendations of the books that either the same authors have written or something relevant to this particular topic to you for you to buy.

And I am sure if I ask you a question how many of you have done the impulse buy; many of us do that because it just helps because they I mean if you look at Amazon and I am sure Flipkart also does the same thing; where you can easily see that the book that you buy they would actually put it saying that people have bought similar books, people have bought this book when they bought the book a that you want to buy and they would also say that if you buy these two together the total cost x. But we are giving you to x minus 20 percent right.

So, those are the kind of the information that they are able to pull out because of data analytics; because of they are actually they know how users behave in the services. Using that they are they are making interface design better interface design, they are presenting information to you through interface where you will actually be made or you

will actually be pulled or you will actually be enticed to buy the product that they are recommending to you.

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So, now the question that you will have is now, that the seller rating I have seen is a product any good is the book that I am buying anything that I want to buy. So, they are again, they reviews about the books. Again there are so much of spams and so much of non relevant information that is available there about these products on these websites but you will have to find out the reviews, you will you will have to find out what the product is all about and then only you want to buy. So, you are looking for reviews. So, recommendation from the community.

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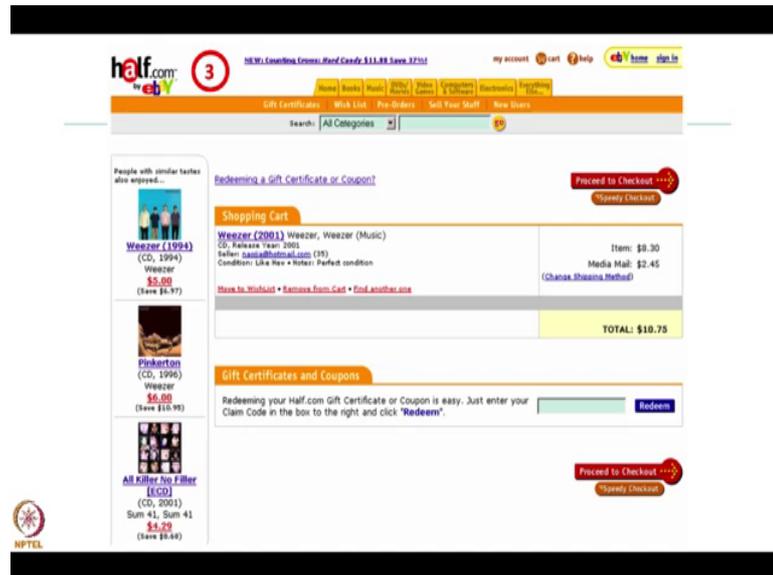
Now, let us move to the next stage of the next stage of the purchase. So, now we are in this page called the shopping cart or it is giving you information what is available in my shopping cart. So, here again you will clearly see that on the left hand side it is giving you some other product information.

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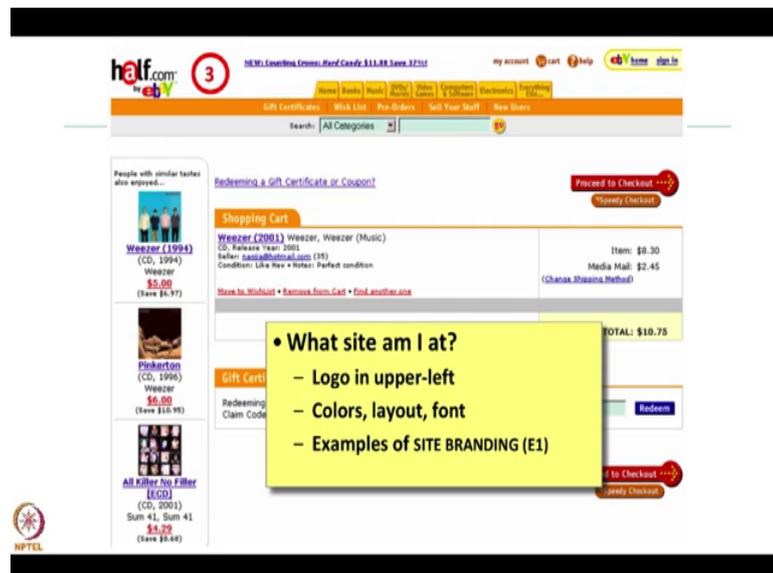
And then the main part of the website they are giving you what the product that you have actually checked out. Again the logos are kept, colours and fonts are same side branding

is continued but there are actually some very interesting pattern that they follow here which is called a Shopping Cart.

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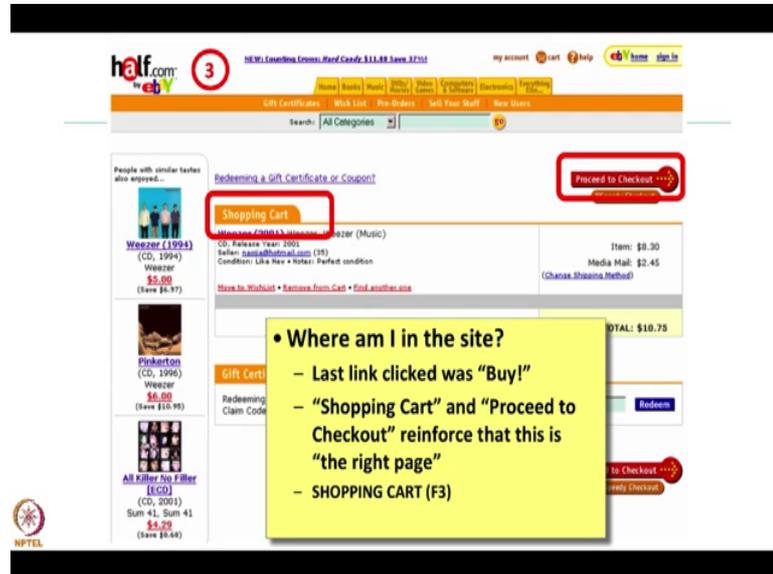
And you will also see that this Proceed to Checkout is highlighted and they want you to attention there because that is exactly what they would like you to do which is check out the product and actually pay for the product. Shopping cart and proceed to checkout reinforce that this is the right page and shopping cart is the design pattern and cross selling of course. Using the impulse buying there is also this idea called Cross- Selling and Up-Selling which is where they are going to actually give you information about products that are connected to the product that you want to buy and get you actually buy the products.

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So, the next things that you actually look at in these websites are how much will it cost? Can I remove it from my cart? Can I find another one move to wish lists? All of these you will actually see that in the services that we are using now like Amazons and Flipkart also actually deploy these.

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Listed in the shopping carts; so I think the other design pattern that this particular page uses is called high visibility action button which I said before; proceed to checkout, high visible they want you to get to the checkout and visually distinct, 3D, looks clickable, repeated above and below to the fold. So, that you actually do not miss it.

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So here is another page where you this is the page where you are signing up or creating your account. So, if this page says that register now and it also provides username and

password and it is giving me there are some design patterns here too; what if you forgot my password? Sign-In or New Account is the design pattern here.

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Say now we are in the page of where you want to actually fill the shopping a shipping address and billing details. So, that is the design pattern on signing on your account which helps you to actually create new account or sign into the existing account.

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So, with that what we have seen is there are some design patterns. There are many more meaning I think this is not a comprehensive list of all the design patterns that are

available out there. But I wanted to only highlight some of the design patterns which are some things that you want to keep in mind. And the advantages of the design patterns is that you can quickly prototype because you actually have this design patterns which you can implement it quickly and they are readily available designs again it is connected to the quickly prototyping they are easily usable so to say.

And users are too tuned into the design because users know that they are looking at the similar kind of designs in products after products. So, they can actually get the user interface very quickly. The learning curve for using the design; using the product that you are building is actually very low because we making use of design patterns that users are already aware of.

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Dis-advantages

❑Curtails creativity
❑New designs may disturb users / bored with the same designs
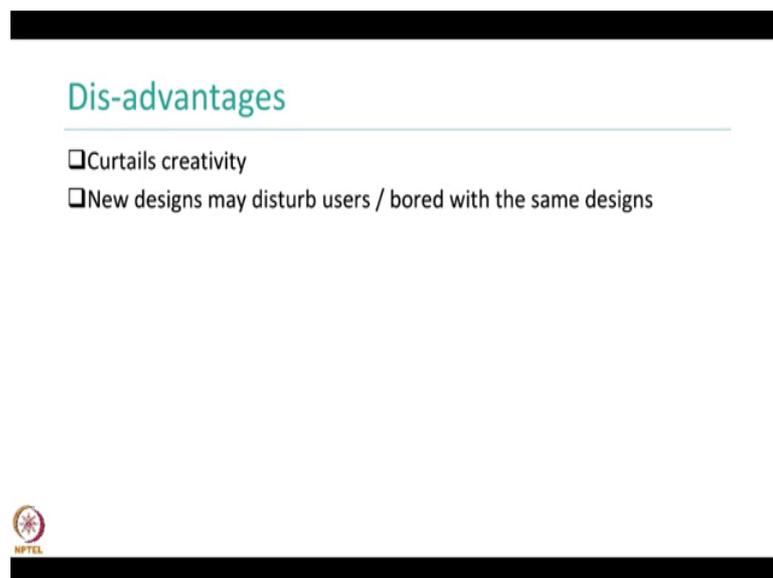
For some of the disadvantages; the disadvantage is that the it just curtails creativity of the design right. So, because if you are using a design pattern that people have been using for the products otherwise then you cannot really create an excitement for the users to use it and the same point as actually users learning curve is low, we can actually argue that it is also getting boring to some extent; the users are getting bored because they seeing the same kind of patterns again and again and all the products that we using. So, those are the disadvantages that I see in using the design patterns.

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So, what we do now is we will actually take a quick look at some of these services. What I am going to request you to do is I am going to request you to please look at the services that you are otherwise using for reviewing the design patterns that we just now saw. But we will go through some of them quickly with as part of this lecture itself.

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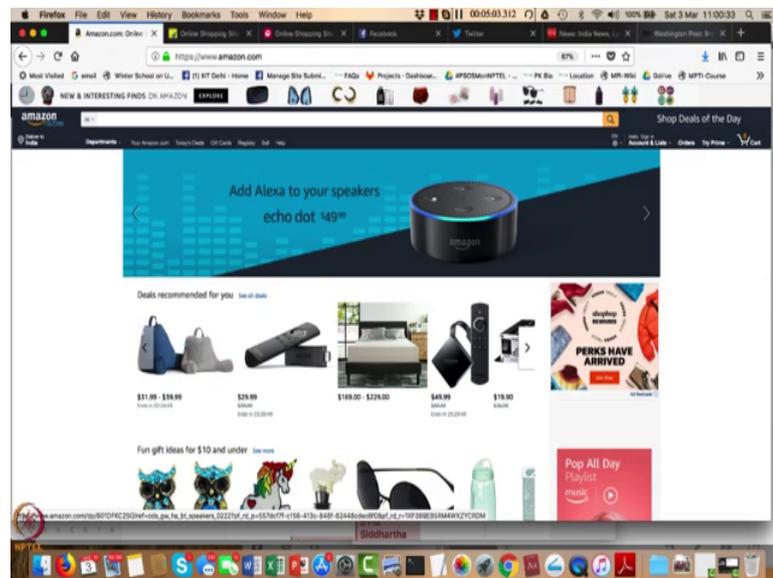
Now, what we look at is we will take some of the services that I have in my slides and see how they have actually applied some of the design patterns. Again as I said these design patterns are not comprehensive that you have seen in the slides but these gives

you an indication of what are the design patterns that exist out there and the pointer in the slide will give you a comprehensive list of all the design patterns that are available. So, now let us look at this Amazon site right. So, you remember we saw the thing called as site branding where they are going to put the logo wherever possible which is evident that is one here and if you look at the design they also have something called as necessary information or a information that you need when you are actually looking at these services.

For example, it has the cost here, it has the product picture here and this also has a advertisement here which is actually talking about popular product which could be actually leading into impulse buying. If you remember we looked at something called as a shopping cart, there is a search bar. All of these design actually are coming from the patterns that we saw before right and above the fold. So, they are giving you the most interesting or most connected a products that you would be buying for you above the fold right. This is also to some extent it could also be personalized; from this searches from the things that you have bought before on the website Amazon dot com right.

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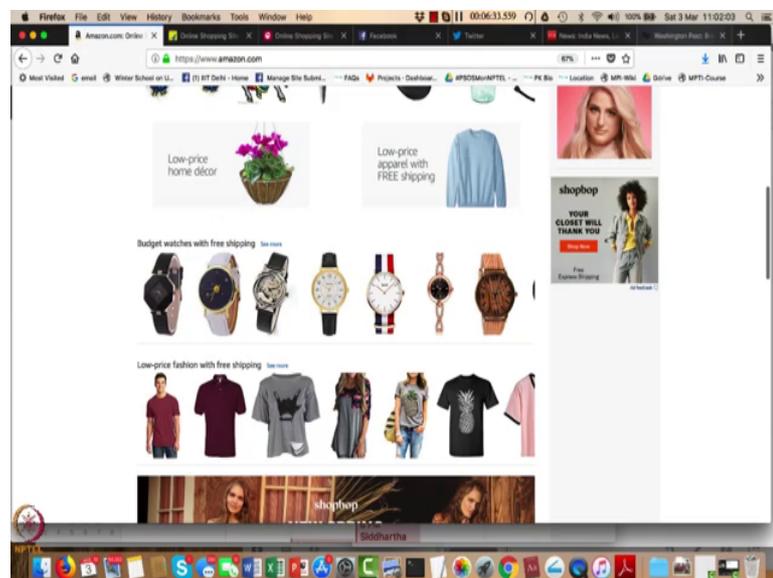
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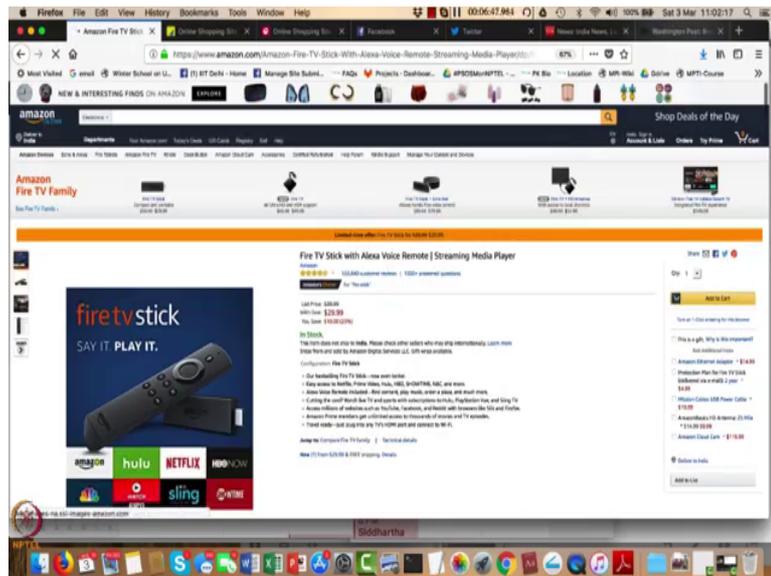
So, that gives you so for example, let us go into a product. So, you will actually see into a product. Now if you remember we also saw the design patterns for giving you the information about the products itself and the description of the product, the cost, that rating if you remember; one of the other thing was rating and we would also have a reviews. So, if you remember we talked about reviews also as a design pattern.

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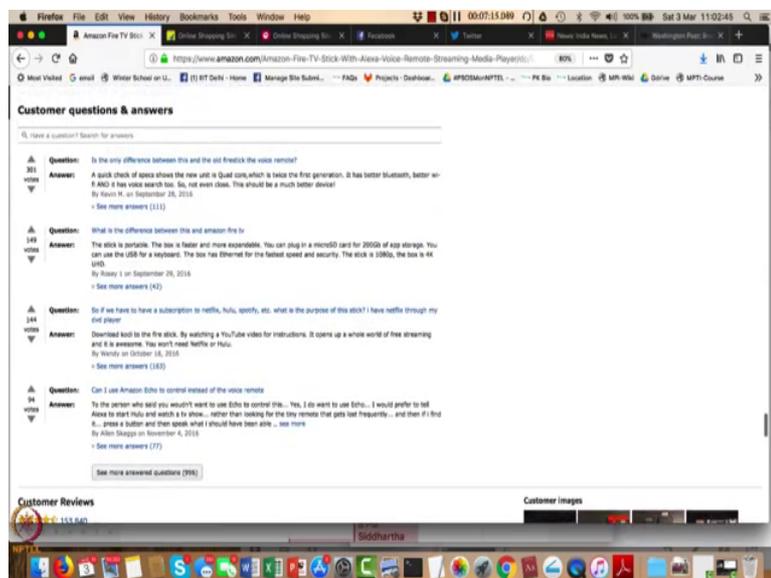
Because one of the things that you are looking for is to see how the product is this is about the product and there is also reviews about the products that people have written with the star rating that they have given right.

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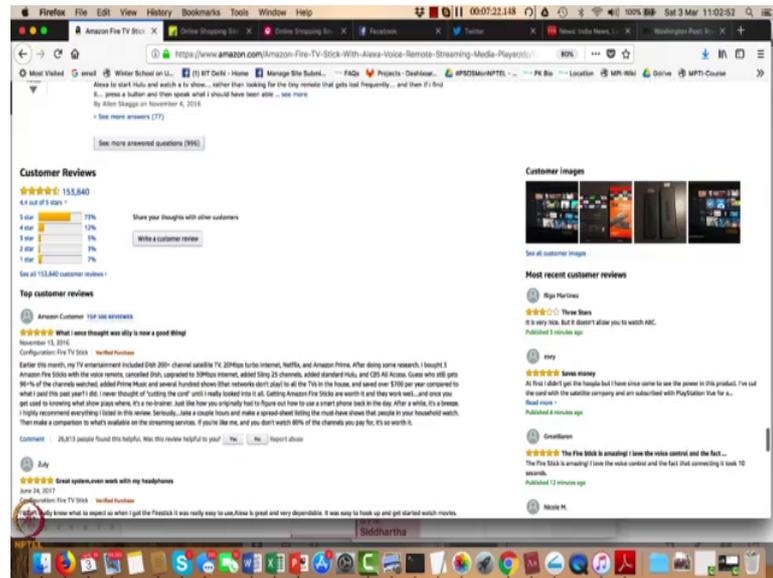
So, that is the kind of details that you are looking for. So, all of this again is again above the fold is clearly here it is giving you the product details; it is giving you add to the cart; it is giving you all the details like this is a gift, what is the cost and other details about actually checking the product out.

So, that can give you a sense of what the how design patterns that we have seen only as applied in Amazon dot com; see Amazon dot com as a very popular company and they are actually following some of these design patterns which probably helps them in making a good company.

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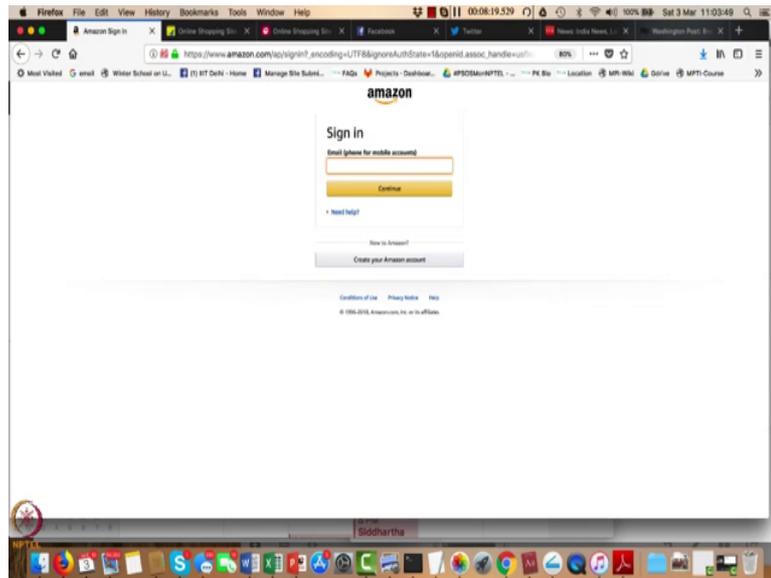
And if you remember we also saw this sign in or create an account where you are asked to give your email address or then asked for password and information like that.

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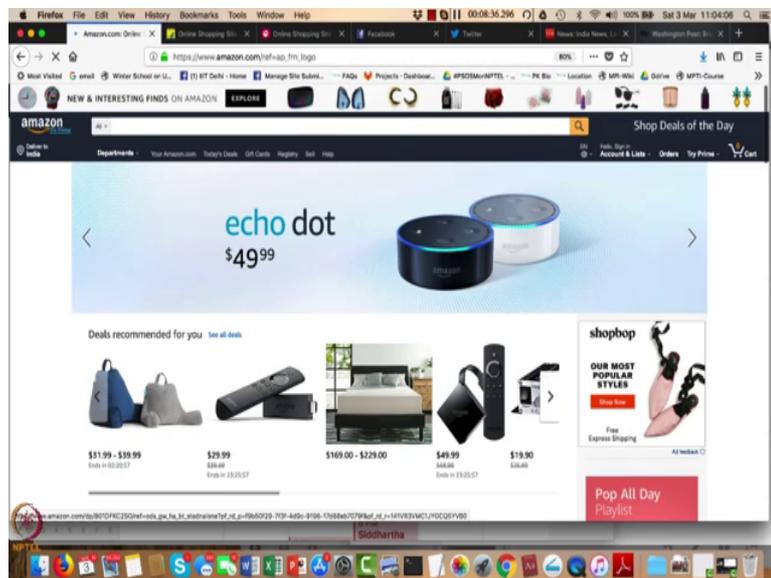
I have that gives you a sense about what are the design patterns that we saw in the slides and how it is getting implemented in the website web service Amazon dot com. Let us go to another product.

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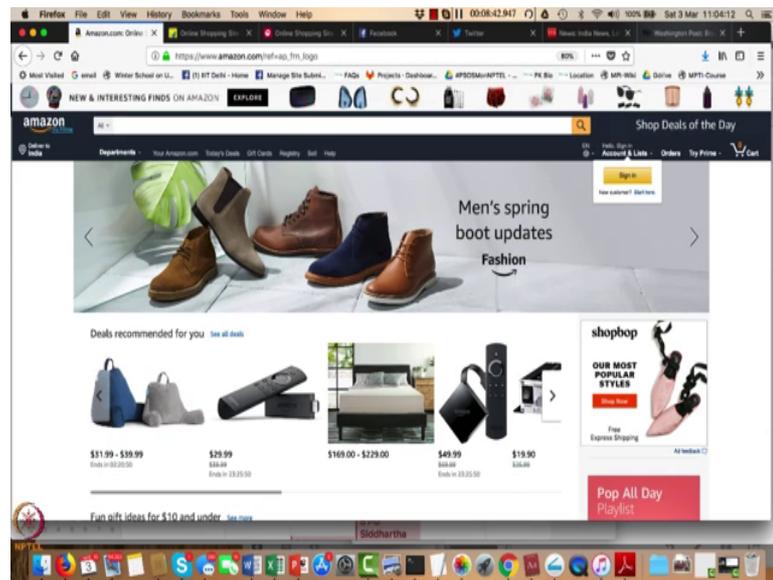
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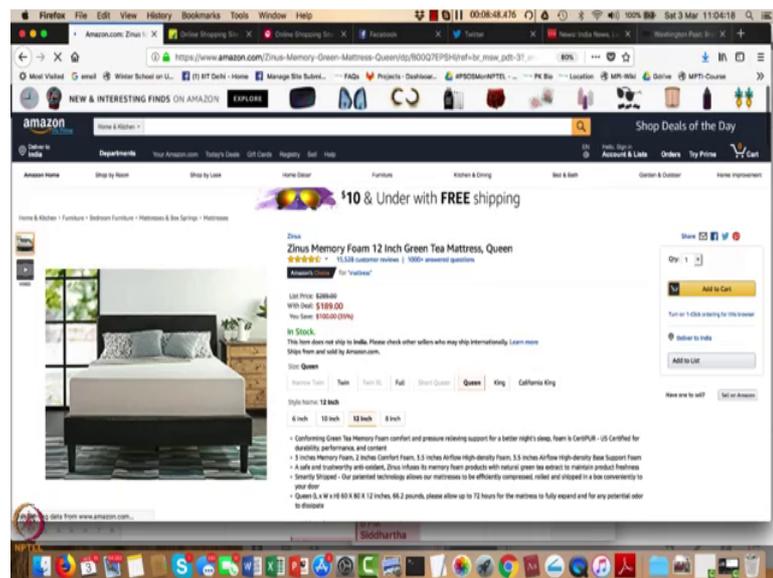
Now the product this is again giving you details about the products about the product itself. Now, details about the reviews total number of reviews and see if you remember one of the points that I discussed was this impulse buying or recommendations that they would do is a frequently bought together this plus this plus this; total price is 292 dollars compared to if you were to buy this these item separately.

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 Add to cart; deliver to India and again these may be the product sponsor. Products related to this item customers who bought this item also bought. So, all of this is recommendation; they using your business, they are using a patterns that you have used, the website to predict these kind of a products and actually present it to you ok. So, that is probably giving you a sense of Amazon dot com.

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 Now let us look at another service which is popular in India Flipkart. So, given that we have already seen amazons likely slowly I will actually make the rest of these services

slightly quickly. So, site branding personalized map, personalized content categories, search bar let us go to one of the categories man.

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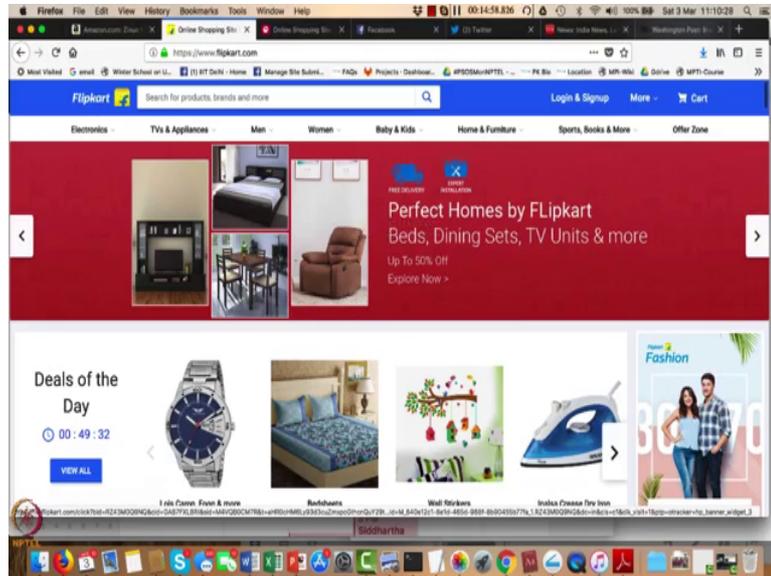
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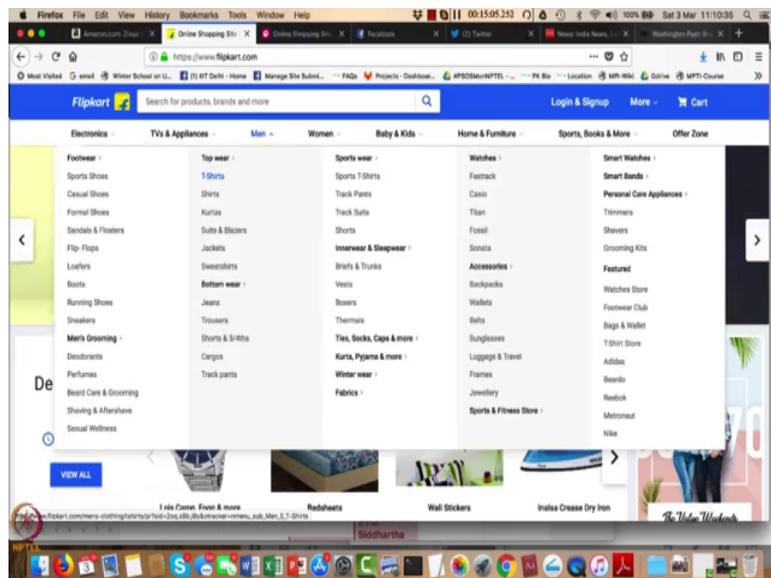
And it is actually providing me cost of detail, details of the products right. So, if I click on one of them it is giving me details about that particular product. Now that we have all of these social networks says also; share. So, you can see share to send it to your friends and post it and if you see that a shopping cart there is login and sign up; all of the shopping cart; create a new account and if you remember ratings questions about the

products and other products right; so here similar products which is probably for impulse buying.

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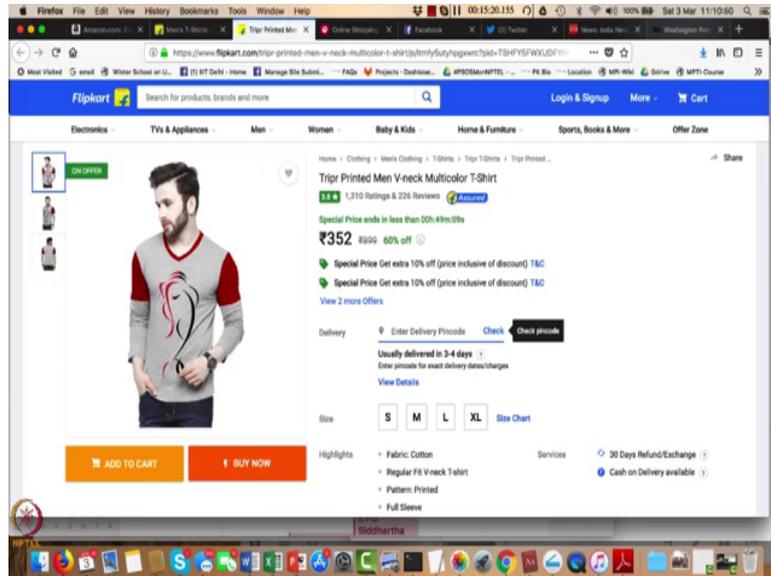
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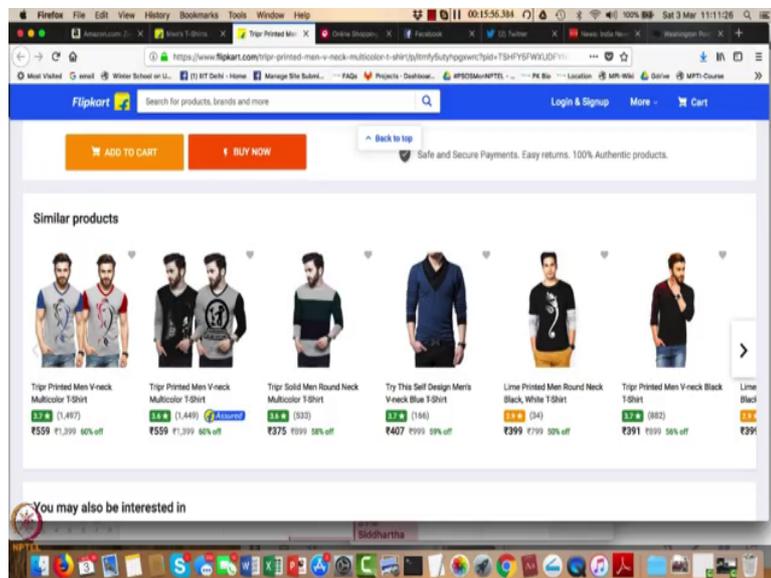
And again this is also recommendation, so that is the kind of way that Flipkart is implemented the design patterns and imagine the way that these web services would have been; like for example, 5 years before. So, later in the class we will actually look at some services like Google and Dell and Microsoft; how these websites were 15-20 years before. We just think about it right when these patterns were not very common the

companies may have you may have had a different website, a different way of actually presenting the information.

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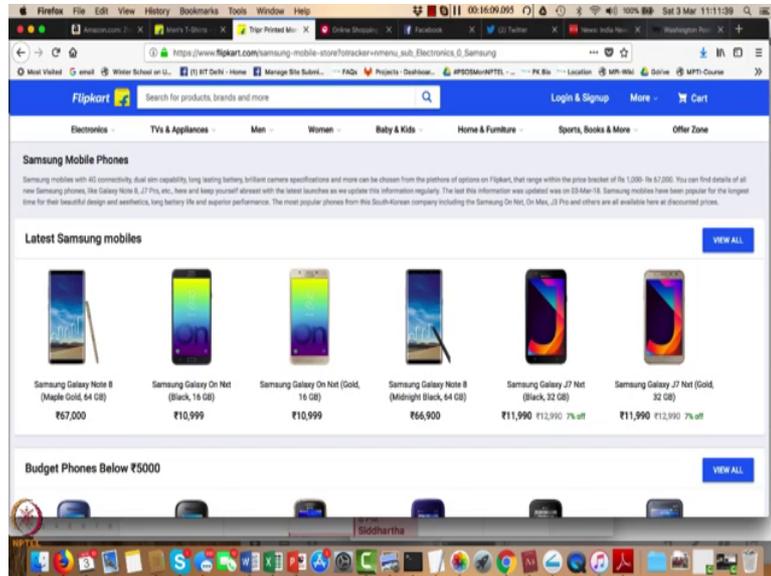
And later we could actually look at some of the web services that was available 15-20 years before and see whether we can actually see any differences in the way that the information is presented now versus 10, 15, 20 years before.

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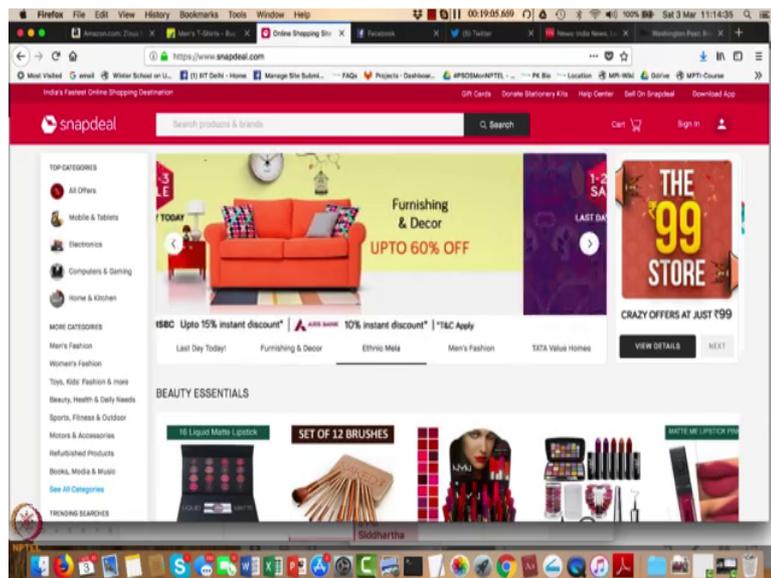
Now, let us see another service called Snapdeal again if you look at this is

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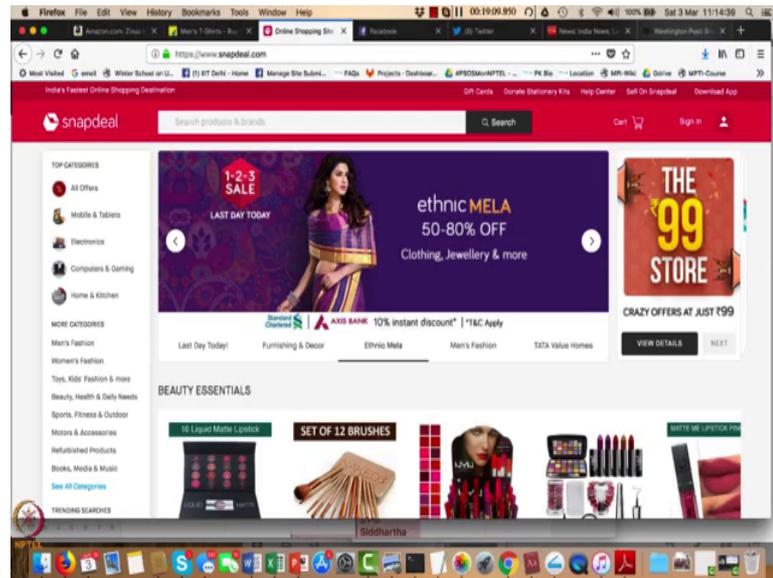
a site branding obvious information like the categories that you want to see the cost and shopping cart, recommendations and let us get into a product.

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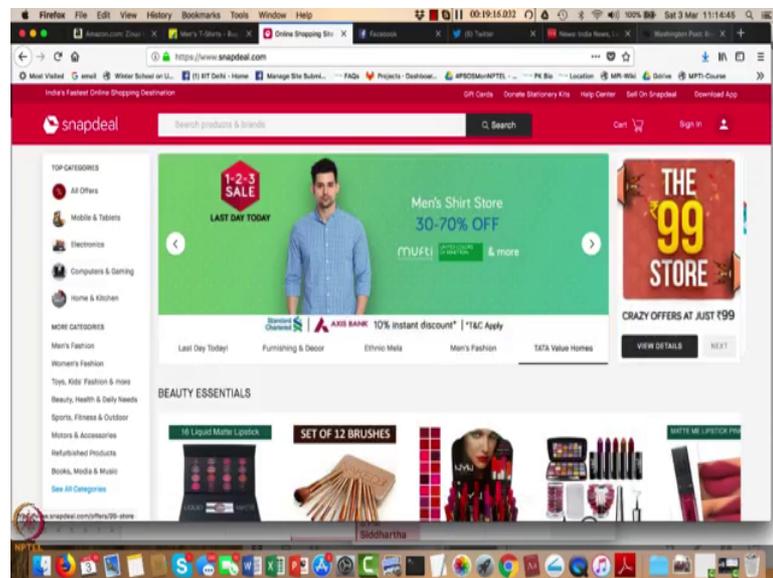
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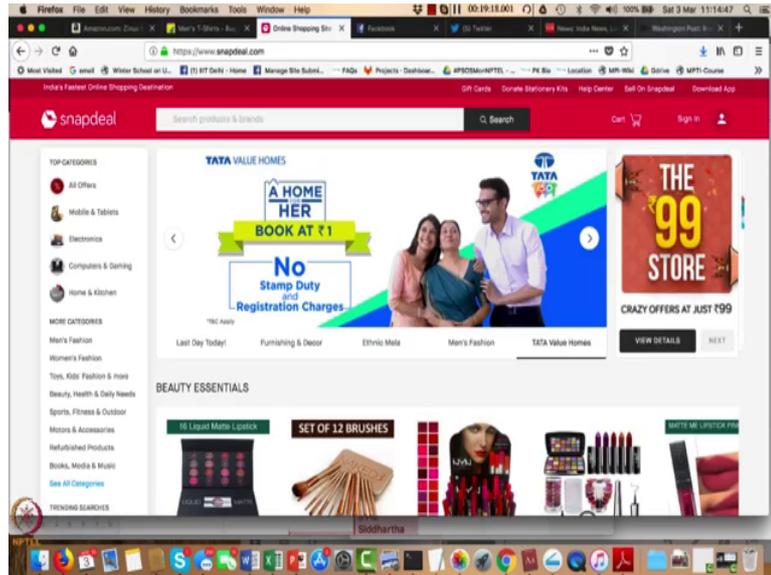
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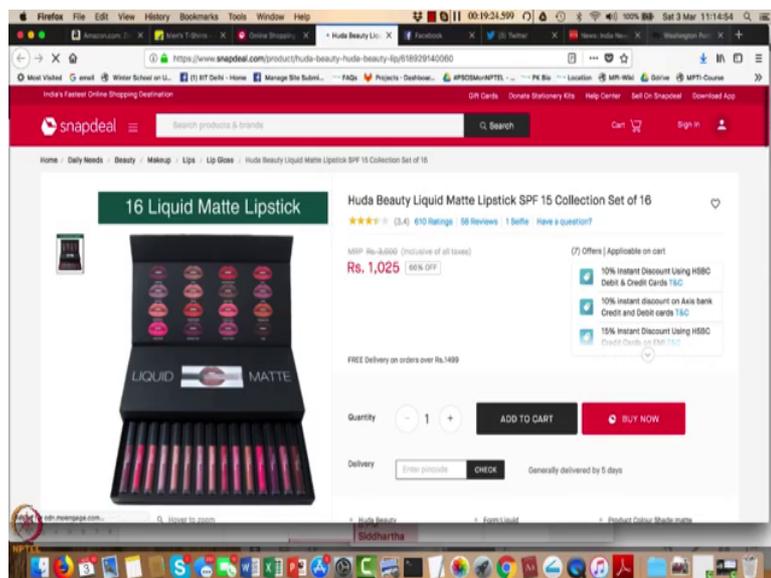
And product details, add to cart which is made in a different colour; buy now again if you remember the focus on getting your attention to some of these actions on the website is essential in the design pattern, the ratings and reviews.

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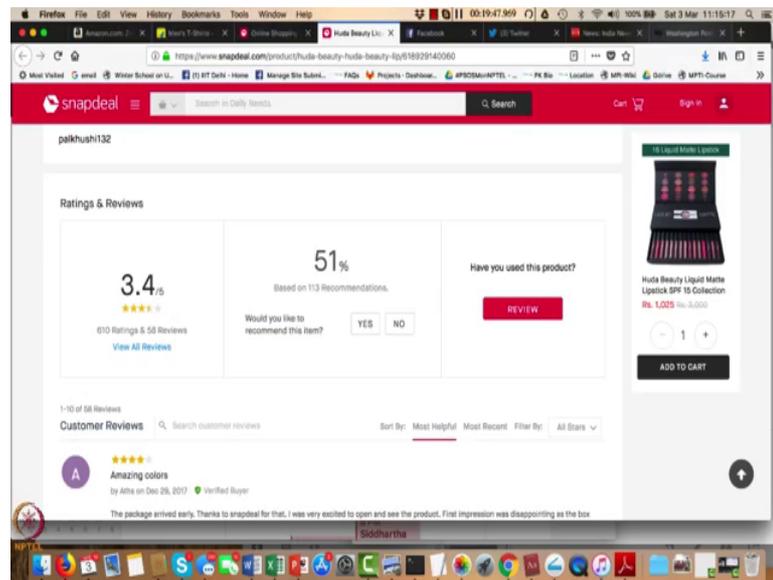
So, these are these are kind of above the fold again everything is presented here right. So, the important ones that you have seen is above the fold, recommendation, obvious links, create an account and impulse buying recommendations So, therefore you can clearly see all of these services are actually applying these design patterns.

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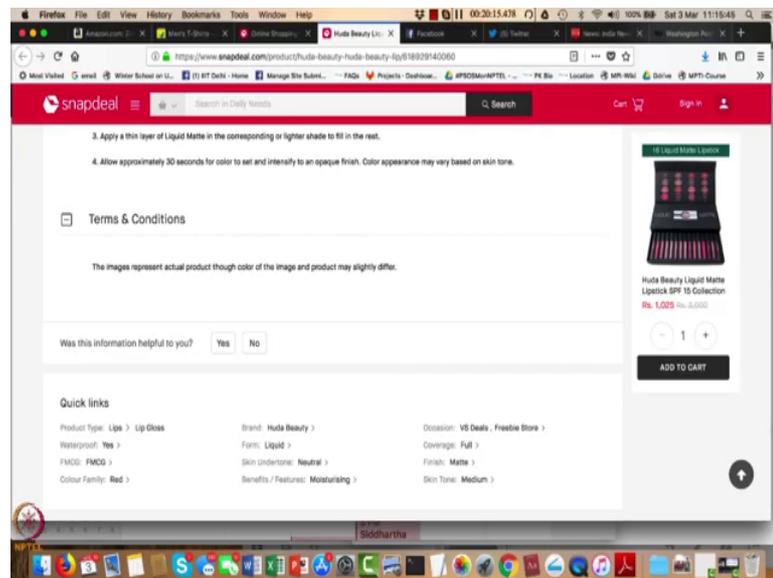
And all of these particularly are of the same category which is Amazon, a Flipkart, Snapdeal all of them of the same category and therefore you can clearly see how they have implemented the same thing that we saw in the slides is half dot com. So, if you are

building any of the services like this; I would highly recommend you to make use of these design patterns. Now, let us look at slightly different categories of services and see what kind of design patterns that they have applied from the ones that we have seen.

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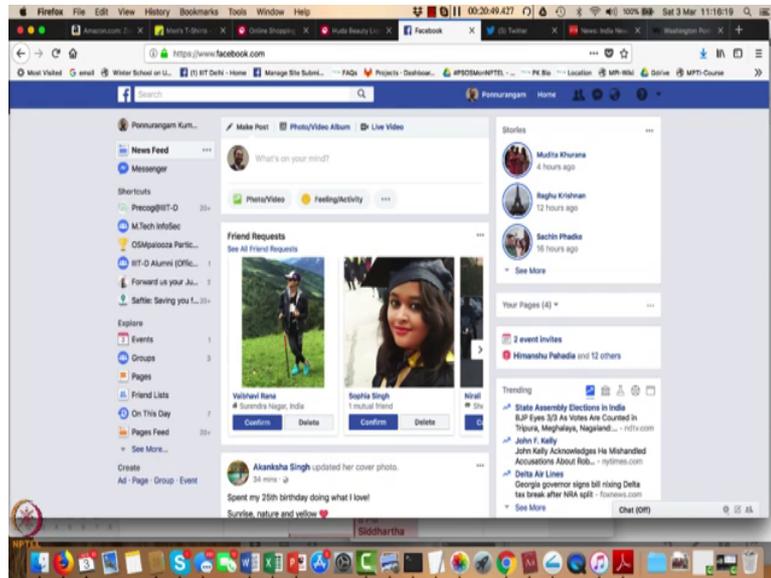
 Also you can clearly see that they have the logo site branding even though this is presented as just a snap it is the site branding and in this also if you see there is above the fold that is being used right. So, in terms of on the left it is it is showing me all the shortcuts and the categories of topics that I can look for or the categories that I would be looking for which is events groups pages everything and on the right if you see they are showing any stories which is something that I may be interested in.

Therefore it would be like a recommendation and definitely trending is; then recommending that these are the news that I may be interested in reading right. So, trending, stories, shortcuts and explore; these are the design patterns that they are using from the ones that we saw; which we here it is not impulse buying but it is actually obvious links right. Trending you want to really know what are the topics that are trending now. So, that probably gives you a sense of what are the design, how even if organization like Facebook is actually developing or deploying the design patterns that we saw.

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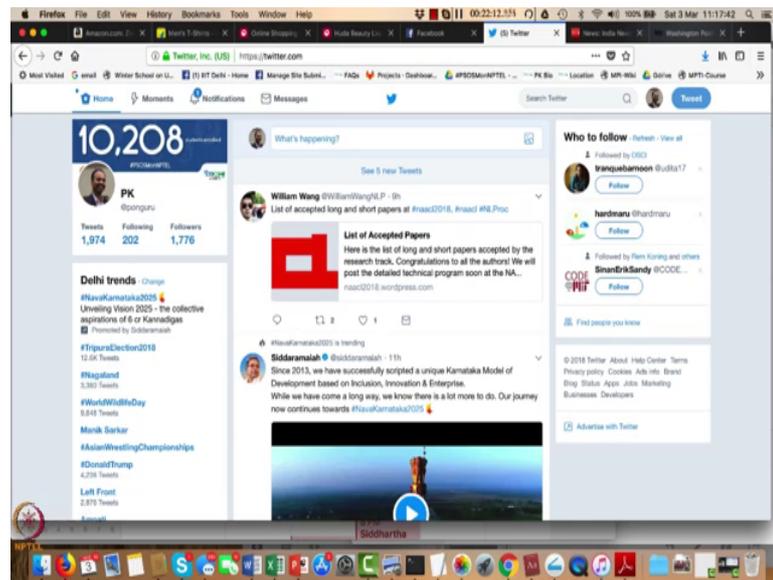
So, now let us look at twitter right. So, twitter also has different sets of design patterns; one is of course, they have their they do not have their logo on the left or the right but they have the site branding at the middle of the webpage, but they have actually other design patterns like about the fold which is they are showing you the trends; they are showing you to follow, all of this just about the fold.

And so, you are sure of actually getting these content when you come to this website; not necessarily when you scroll down and then only you get this information. So, that is how they are applying the design pattern and of course their design patterns are going to be slightly different because the services that they provide that the features that the website like twitter has is not the same as the one that we saw for example, Amazon or Flipkart or Snapdeal.

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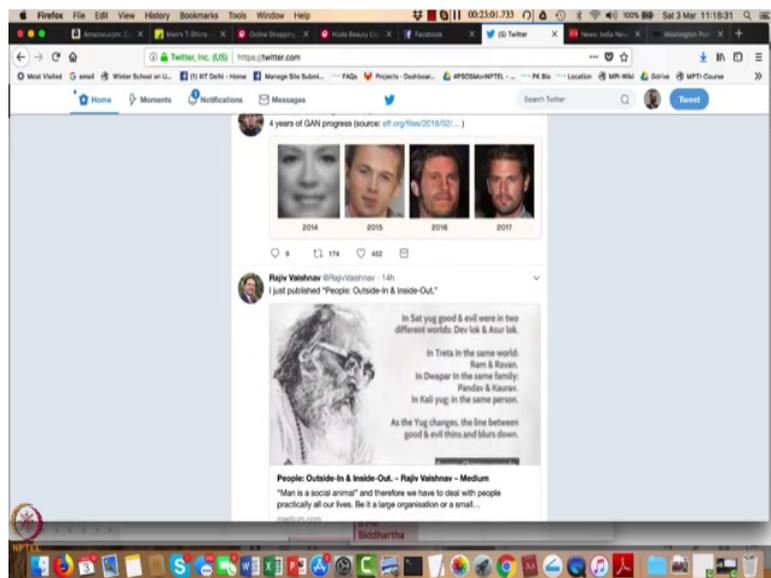
So, this will help you to understand how different types of organizations are actually services are actually deploying their design patterns. Now, let us look at actually another type of services

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So, now I will go to news media services. Let us look at times of India by Times of India.

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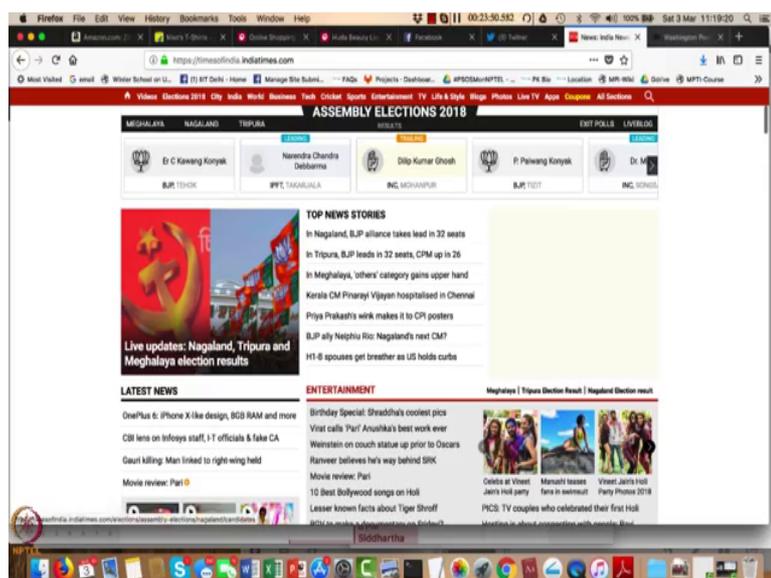
Here they have all the categories. So obvious links so to say I guess here. Because these are the links that you may be interested in going from the homepage and above the fold is also here because they are showing you the most critical information that they think is necessary for now they are showing you the assembly elections 2018 results; which is what they probably think that users who are landing on this page would be interested in right. So, these are obvious links for any articles that users would be interested in going to ok.

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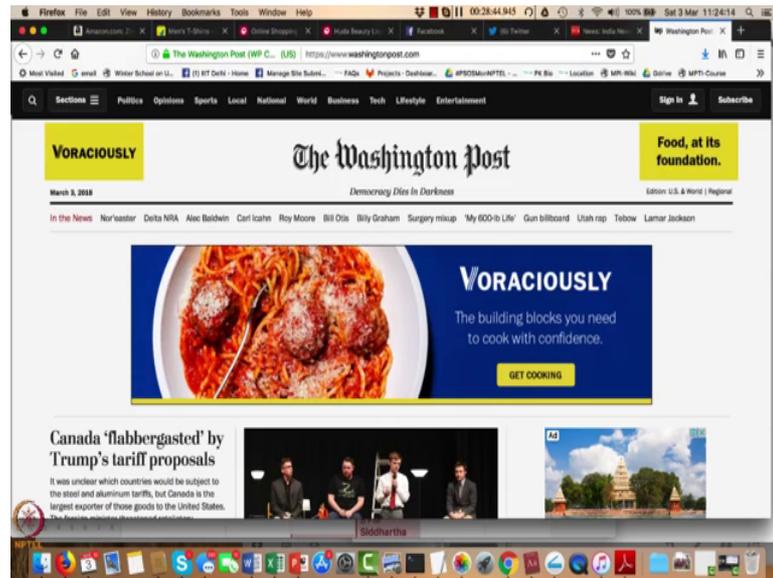
The last service that I want to discuss is actually Washington Post. So, in Washington Post if you see again about the fold either presenting new information which is necessary for you to look at before scrolling which is the topics the important interesting or the most useful in news that they think that you would be reading and that is also connected to recommendation and they also have the sign on they do not have a cart; because they are not selling anything and recommendations to some extent is actually shown here which is the topics that one may be interested in from going from this page right most read. So, that is probably keeping in the number of people who are reading the article they are presenting it to you right.

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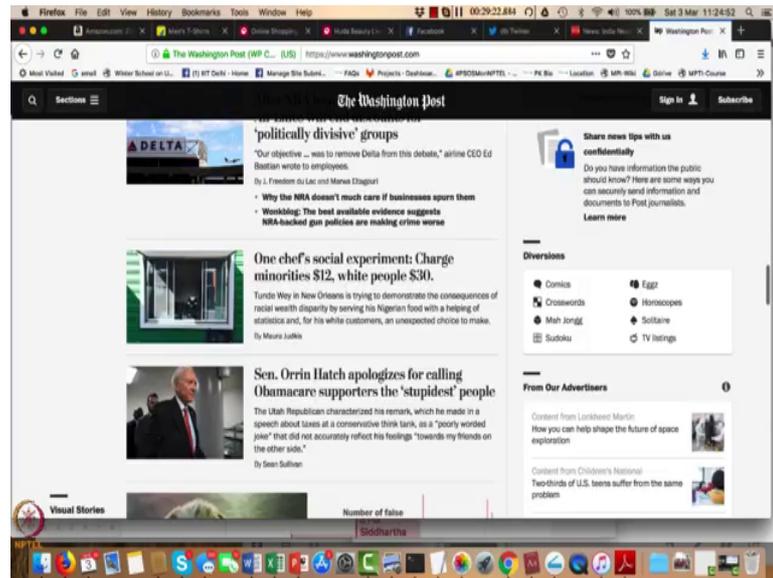
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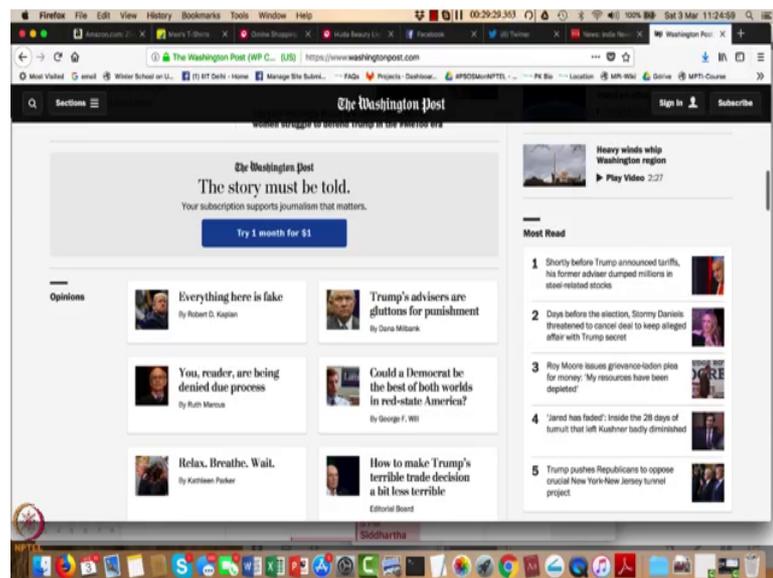
So, that helps you to get a sense of how service like Washington post is actually deploying their deploying the design pattern. Even that we focused only on the e-commerce website kind of design patterns; Washington post does not have many of them apply. We saw how these services have implemented the design pattern and I hope that gave you an idea for what the design patterns are on how it how you can implement it.

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IDEO Video

❑Empathy
❑Fail fast
❑Process is the key not the problem or final outcome
❑Nobody is a subject matter expert
❑Learn it from real users
❑Diverse group members help
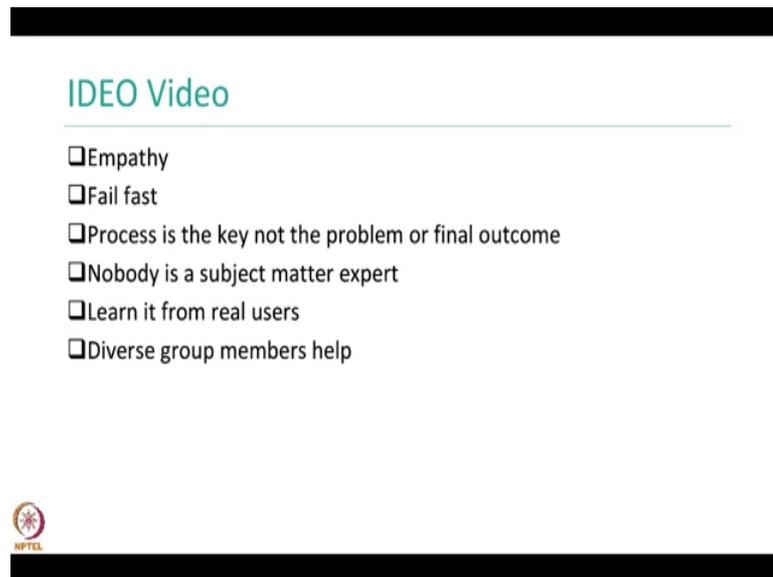
Now let us look at some of the videos that I asked you to look at the and we will discuss about what did you get out of the video. So, I am hoping that you have already seen the video because if you have not seen the video then there is no point in actually going beyond this section in the lecture and the reason why I cannot play the video as part of the lecture itself, it is because of copyright issues. So, I am expecting that you would have gone seeing the video and therefore and then actually listen to these particular slides.

So, I am sure you got something out of the out of viewing the video. Here are some things that I think is critical that you want to take away from the video that you saw. So, first one is empathy right. They clearly say that talking to the users is critical, talking today the real experts is actually the person who is buying things in the shopping mall; buying things in the grocery stores with the cart with him or her and having a kid in one day and how are they trying to buy. All of that you have to understand that is when you make a better design.

Fail fast; fail fast is something that we have discussed before in the task two the video emphasize on making some design and using that design coming up with prototypes, coming up with ideas; how to use what you observed in real users and adapting it to your design. So, when you do this fail fast when you have multiple designs for a particular solution do the design, make a prototype, get feedback come back and design. You are

failing fast because if there is any errors in your design it will be easier and it will be good to actually get it a fixed quickly. A process is the key I think the head of the group when he speaks. He says that they are not subject matter experts of any particular topic. What they are good at is only the process in which they find the solution. I think that is super critical for this class; I think this class or this topic helps you to figure out a process in which you can make good designs, process in which you can develop solutions which people would use not make you an expert in a particular domain.

Nobody is the subject matter experts; learn it from the real users and another critical thing from the video is that if you have carefully watched it the members of the group are actually so diverse right. There is a manager, there is a there is a PhD, there is biomedical person, there is a chemical person and there is a person who did only had admissions in medicine but did not take it right. So, these kinds of diverse people actually helps you to solve the problem better and one thing we do not do well in at least the Indian ecosystem is that when you do projects, when you do programs you end up actually having people who were similar to you and therefore, the creativity of having diverse inputs is missing.

So, if you think that you took away anything more than what I have listed here, I would like to know please email within the mailing list and I would be actually came to see what you took away from the video more than what is in this slide.

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Sketching & prototyping Video

❑Empathy
❑Even Google starts with paper prototype
❑Simple drawing on a paper / post-it
❑Used in any stage of designing
❑Wireframe
❑More flesh out in paper will help the digital one
❑Visualize elevation in prototyping
❑Simulate interactions
❑Record the interactions and share ideas

Now let us look at the video of sketching and prototyping; this is a three part video that I actually shared in the slides for week five. One is on sketching and prototyping; another one is on digital prototyping and the third one is on native prototyping. So, if you look at these three videos you will get a sense of how Google is actually trying to do some of these prototyping, but I think my emphasis for watching the video is not particularly because what Google is doing but particularly to let you know how these things are done. And of course given that Google is doing this is this must be one of the prominent ways by which other companies are also doing the attacking the problem of building prototype.

So, again I am I am hoping that you have seen the video. So, now let us go look at what are the key components of this first video I posted. Empathy right; empathy comes back again and again. Even Google starts the first video actually emphasizes that even though it is Google which is a large company; they also start with paper prototypes even though Google is such a large company they also start in paper prototype a simple drawing on a paper are posted right. So, the key component is that for the prototyping for the sketching specifically, I think even if you do it on a simple paper or a post it that is good enough for users to give you feedback.

Sketching can be used at any point in your design process. The entire lifecycle of design you could actually use sketching to get some inputs from the users and of course, the end product or sketches wireframes where you develop; how the interface is going to look at. So, the big reason why you want to actually do sketching and prototyping is that the more you get clarity on actually having what to build it will help you to have shorter time in terms of building it itself. Prototyping allows you to even view the elevation when you are actually building the prototype.

This I think we saw in the lecture that I discussed about prototyping. So, the point here is to emphasize that Google also does something and Google also promote such methodologies. Simulate the interactions of course the goal of prototyping is to simulate interactions. Record the interactions and share the ideas. There at the end of the video they actually say that develop a small GIF or a video how the interactions are done and then you could actually show to users to get some feedback.

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Digital prototyping Video

❑No coding is necessary
❑Building models like architects create
❑Users get the feel of final product
❑Principle <-> Sketch
❑Features in principle. Transitions are made easy
❑Form tool

The next video that I posted is on digital prototyping right. So, the digital prototyping the goal here is to actually get the paper prototypes that you have built into some digital form. Here are the points that I took away from the video and I am assuming that by now you would have watch the video before seeing this part of the lecture. No coding is necessary right; you are only building digital prototypes were you are not really writing the code. Building models like architects way right. Architects are so, the outcomes of the digital prototype is that it will look like the model that the architects would build before actually getting on to the starting the construction itself.

Users get the feel of the final product when you have the digital prototyping done the users get. In the video you would have seen how they are showing you, how the interface will look like, where the image moving the video moving the product on the left moving the product on the right, where the information cataloguing, where the information about the products are presented. And in the video he specifically talks about principle and sketch which is moving from content from principle to sketch and back and forth. Also allows you to do better design which is that you create the basic things in principle and then put it to sketch or put to design the basic thing in sketch and put it to principle. So, you can actually develop the interactions between the interfaces.

 The video generally goes through a lot of details about features in principle and one of the main thing that the video talks about is transitions are made easy. I mean in just few

clicks you want to start from the transition a to the transition b how we want to go you just have to drag and drop a line saying when I move from when I am on this interface when I do this; the transition should go to this particular interface. If that is done it is actually easy for the end users to move between the interfaces.

And imagine I think these cool these tools that have come up with the in the last 5 or 10 years. As made all these development of interactions pretty easy and simple and he also talks about a tool form which allows you to make the interactions slightly more better and it also captures how the interactions when the end users are doing. This can actually help you make a better decision on what the interactions for the users when they interacted with the system.

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Native prototyping Video

❑https://www.youtube.com/watch?v=lusOgox4xMI&t=342s

So, the last one is about native prototyping: Native prototyping is mostly looking at the video, looking at the final code writing for the system that you want to build and I will post this link in the class and add it to the video notes. So, because this is not the one that I sent in the email. This is the fourth link that I am asking you to see before we talk about it in the lecture. So, just to avoid some confusion I will let you to actually look at this video in lecture six and then week six and then we could actually look at the outcomes of the video in the lecture now.

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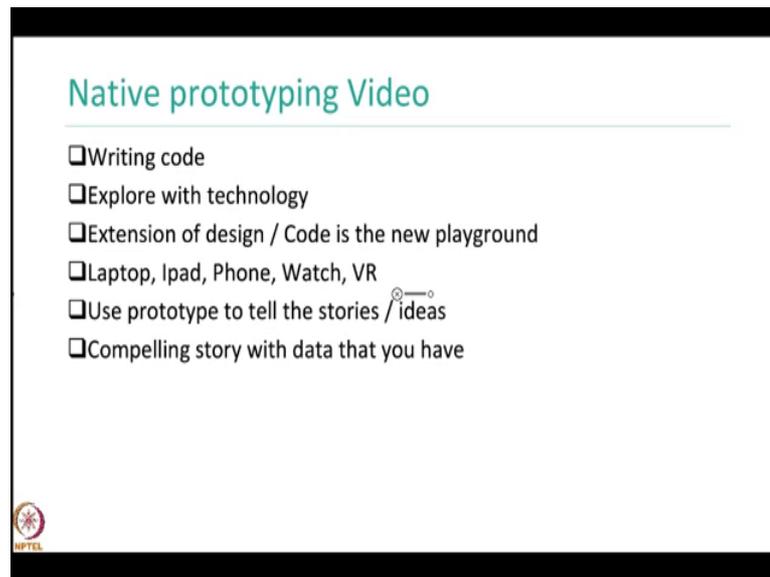
So, what is this native prototyping is all about? It is about writing code, explore what the technology because I think the phone that you have today actually allows you to get a lot of information from the phone itself. So, you do not have to do it external tools to find out information like what is the height and which ends standing vibration right. All of this is actually getting captured in the phone; which if you have access to the phone device then you should be able to get these details and use it while making the decision.

Like for example, I think there are features in iPhone where when it is falling down at a particular right, the speed in which it is actually falling down can be used to say the phone to shut off. Extension of design or code is the new playground right. So, you want to make sure that you get the design that you have been doing in the paper prototyping, sketching and digital prototyping to the code. So, you can actually do things with the code.

The problem with writing the code is that you may not that this is one of the big reasons why the designers are to also interact with the developers and this is also an important reason why a developers have started becoming more designers and designers have started becoming more developers. Because it allows the designer and the developer to talk because not always the everything that you come up with the design can be achieved through a line of code. So, that is something you want to keep in mind while you are developing. Another critical thing that the video talked about is actually designing a

product for usage in different devices right; Laptop Ipad, Phone, Watch and VR. So, if it is the same YouTube app that I have to use, I may be using it in all of these platforms.

So, how will your design change? How will the design what are the design patterns that you use? How will you actually enable all the features that are available in YouTube on the desktop or most of the features or which features should be made available? So, those are the critical questions that you want to ask while designing and that actually comes out when you are doing this native prototyping and you want to make sure that you use this final native prototyping to tell the story that you want when you are talking to the users. Because this is the most richest form of interactions that you are going to provide to the user.

And develop a story. So, whenever you are trying to collect a interact with the users I think it is best to find a good compelling story when interacting with the users. If you remember this is connecting to the topic that we saw earlier; call task analysis. If you have a good compelling story, good compelling reason why users have to interact with the application that you build? Users will generally interact more and they will also provide you more feedback.

So, with that I will stop with the week six lectures we will also add some lab sessions for week six. So, that will help you to get some hands on of some topics also.