



ADDIS ABABA UNIVERSITY

ADDIS ABABA INSTITUTE OF TECHNOLOGY

CENTER OF INFORMATION TECHNOLOGY AND SCIENTIFIC
COMPUTING

FUNDAMENTALS OF WEB DESIGN AND DEVELOPMENT

Lecture One Based Assignment

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Section -2

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2. History of Network

1.1. History of Network

The history of Internet is very dependent on the history of network as the Internet itself is the network of networks, therefore we should look a little bit about evolution of network. The first network named ARPANET (Advanced Research Agency Network) is evolved in around 1969 in US and it was for sharing information and messages and playing long separation diversions and associating with individuals to share their perspectives. That time ARPANET connected 5 sites which are

- UCLA
- Stanford
- UC Santa Barbara
- University of Utah
- BBN

ARPANET is the basis for evolving internet since it was renamed the Internet in 1984, when it linked one thousand hosts at university and corporate labs.

1.2. Internet

At first there was internet (Remark: this is small I internet) which is the network of local networks means networks in geographically limited or small areas. But because of the invention of Web in 1989 by Tim Berners-Lee (a British researcher at CERN), we are able to get Internet (Capital I Internet). Therefore

$$\text{Internet} = \text{internet} + \text{WWW}$$

The Internet architecture had two main elements.

- The first was a set of protocols called TCP/IP, or Transmission Control Protocol and Internet Protocol (Cerf and Kahn 1974).
- The second creative element was the use of special computers called gateways as the interface between different networks (Cerf 1979). Gateways are now commonly known as routers; as the name implies, they determine the route that packets should take to get from one network to another

1.3. Internet hosts and usage

The number of computers connected to the Internet has grown dramatically from the network's humble beginnings, when it connected four computers at university research labs.

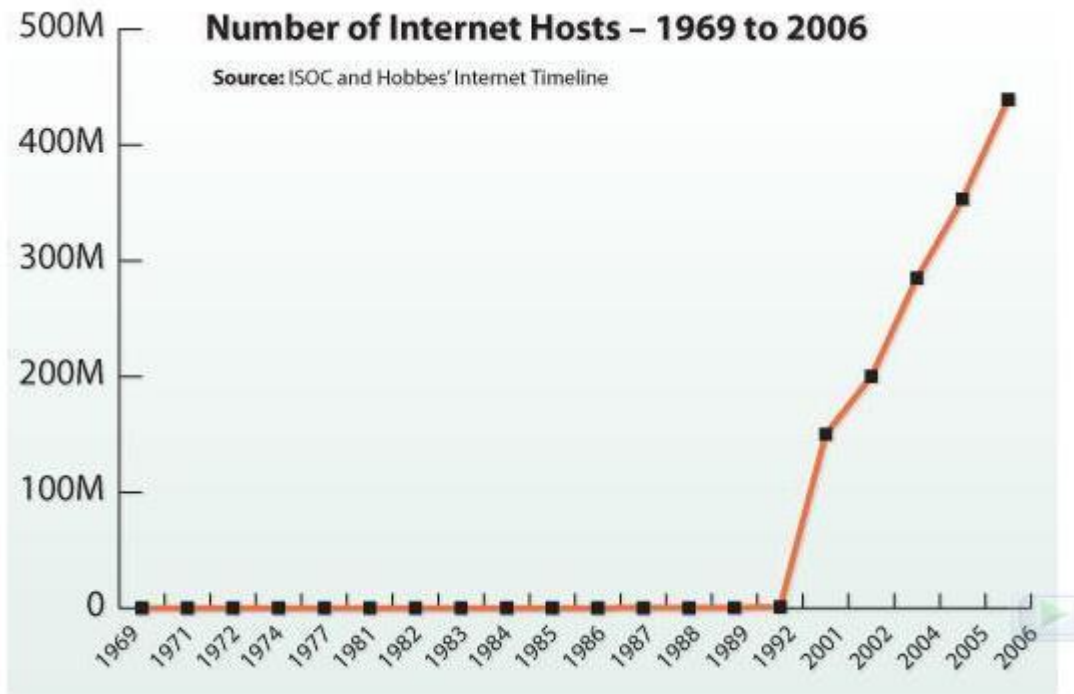


Figure 1: Number of internet hosts form 1969 to 2006

Internet usage has exploded since 1995, when researchers first started tracking this statistic.

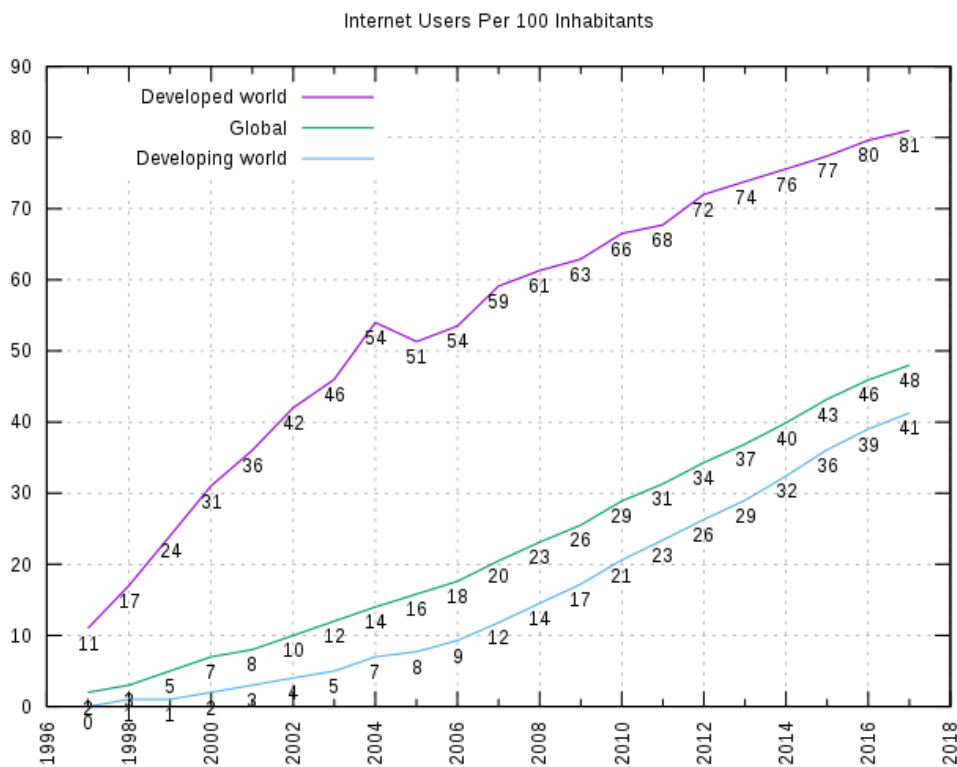


Figure 2: Internet usage of the world

1.4. Internet and society: success and challenges

After half a century of research and innovation, the Internet was firmly established as a widely available resource offering an array of potential benefits. Users had greater access to information of all kinds, and governments and businesses had a new platform for providing information and services. E-commerce brought economic growth, greater choices for consumers, and opportunities for producers in disadvantaged areas to reach new markets. A variety of communications options, from email to elaborate social networking sites, made it easier for friends and family to stay in touch over long distances and for strangers to form “virtual communities” around common interests. Grassroots organizers adopted the Internet for political and social activism and used it to mobilize worldwide responses to natural disasters and human rights abuses. Users of all ages embraced the Internet as a medium for personal expression, and new applications helped democratize the technology by making it easier for ordinary people to independently produce and disseminate news, information, opinion, and entertainment.

However, many challenges remained as the Internet entered the twenty-first century. Users faced abusive practices such as spam (unwanted commercial email), viruses, identity theft, and break-

ins. Technical experts responded with solutions that attempted to minimize these on-going dangers, providing anti-virus systems, filters, secure web transactions, and improved security systems.

3. Web Archive

Web Archive is a website where we can see captures of millions of websites taken in different time and see the differences. I have chosen five websites to see on web archive.

3.1. BBC

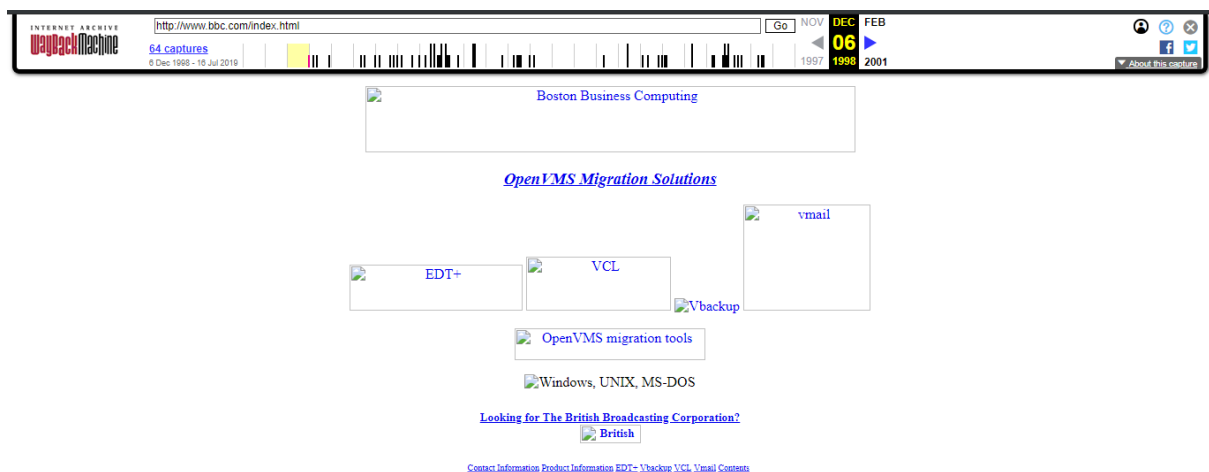


Figure 3: Capture of BBC website in Dec, 06, 1998

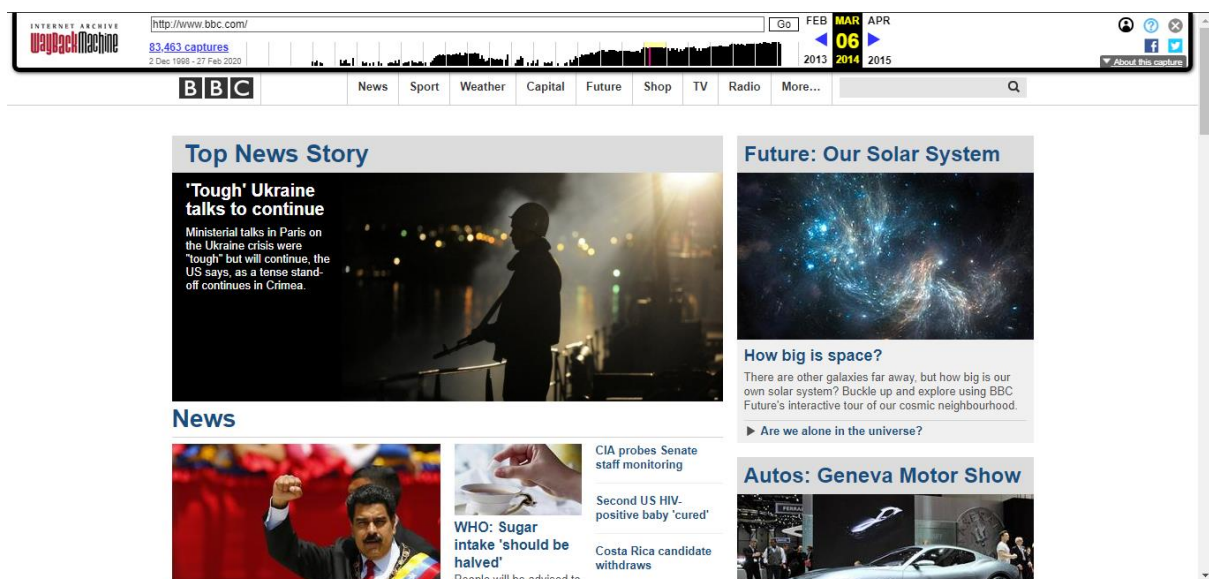


Figure 4: capture of BBC website on Mar, 06, 2014

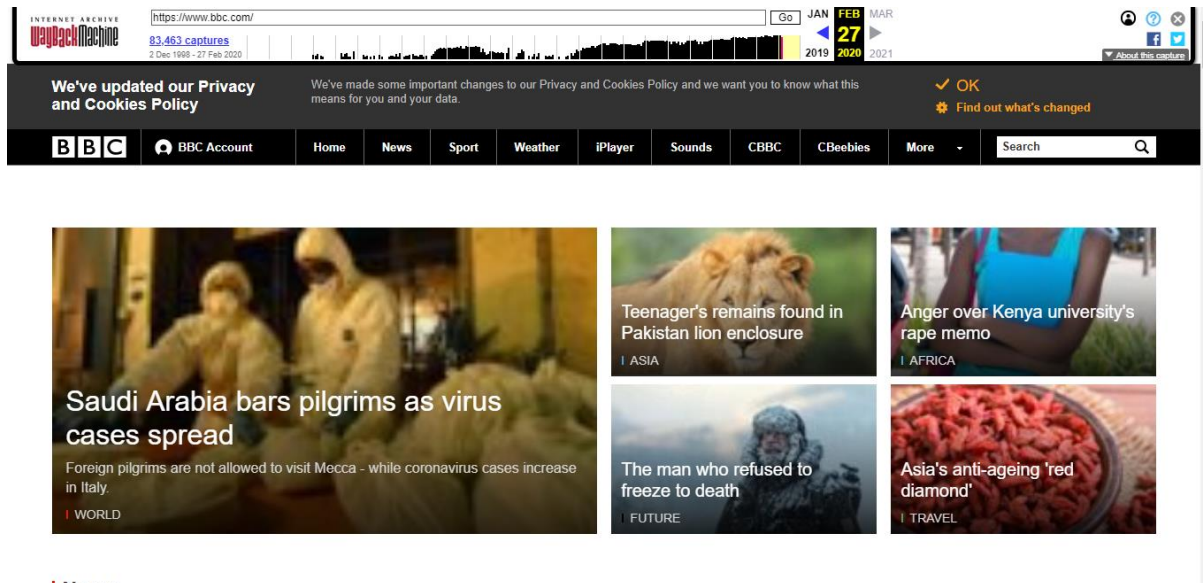


Figure 5: capture of BBC website on Feb, 27, 2020

- Observation and assessments

As we see in the above 3 pictures BBC website has been changed a lot. At the beginning, even it didn't have visible pictures all we see are texts which are linked to other page.

The capture at the middle is taken on Mar, 06, 2014. It is very changed compared to the first one. Although it didn't cover all the screen because of margin left and right, it is relatively beautiful. It contains several images with text as heading, contains more pages than the other previous captures.

In fig 5 we see the recent homepage of BBC. There is lots of staff changed these days. The header is consisted of their logo with their pages like home, news, sport, weather, sounds... including the search bar. Their body part is consisted of Latest News with HD quality images with various text styles and so on.

3.1. Amazon

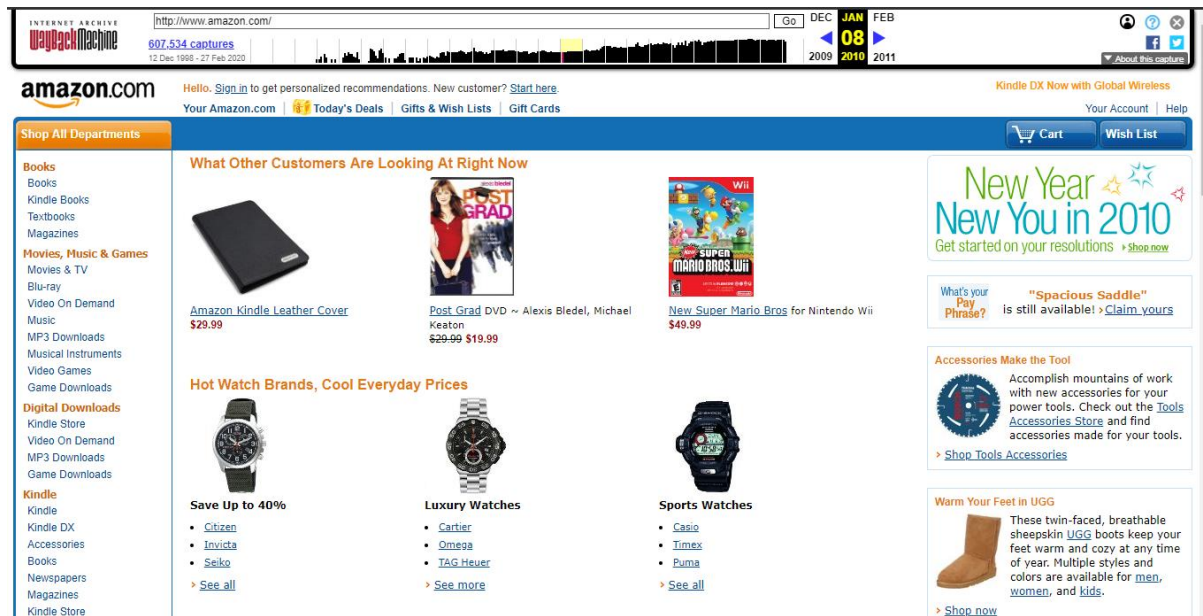


Figure 6: capture of Amazon website on Jan, 08, 2010

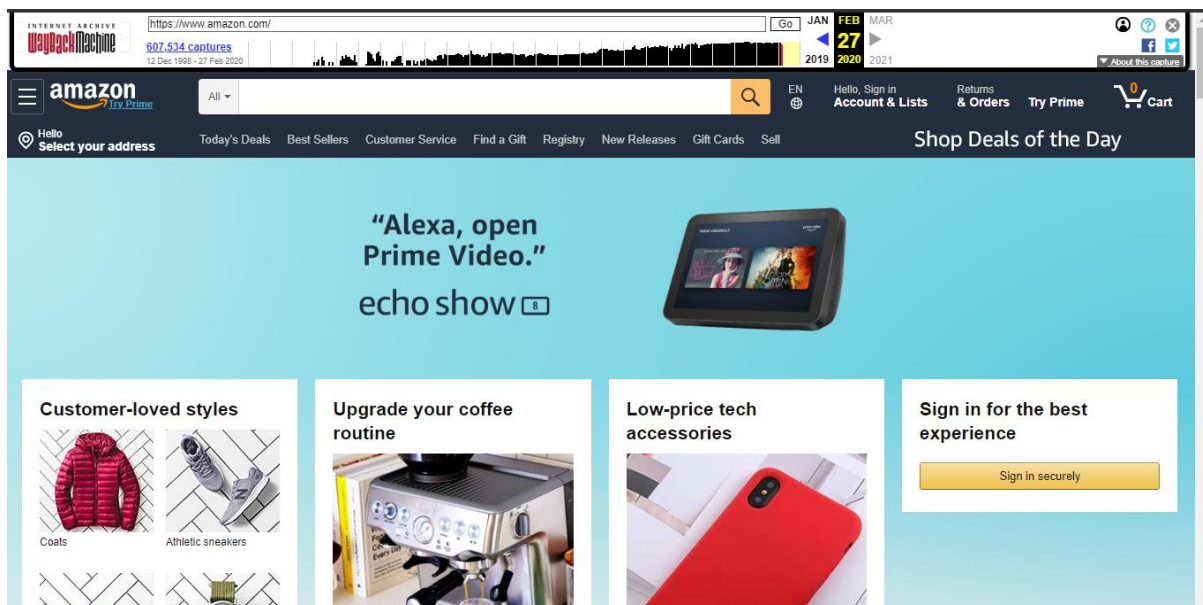


Figure 7: capture of Amazon website on Feb, 27, 2020

- Amazon has also changed its website numerous times. As it is shown in the above in fig 6 the website was good but not that much. The layout of the website is not beautiful. The body part has 3 partitions, the one on the left has several links which they provide, the middle one has sample images of the products they sell and in the left it has some promotions.

The most recent website of amazon is shown above in fig 7. It is so eye catching with their HD images of their sample products for sell with nice colouring of the pages it consists and fonts of the texts. And I think now it is more convenient for the users to use the website without difficulties.

3.2. Wikipedia



Figure 8: Wikipedia on Feb, 06, 2008



Figure 9: Wikipedia on Feb, 24, 2020

- As we see Wikipedia doesn't changed that much though some changes are visible, the logo is changed, the search bar also looks different, they removes some texts and now it is

comfortable for eye to see and someone can now easily access whatever they want form this website with his/her favourite language.

3.3. YouTube

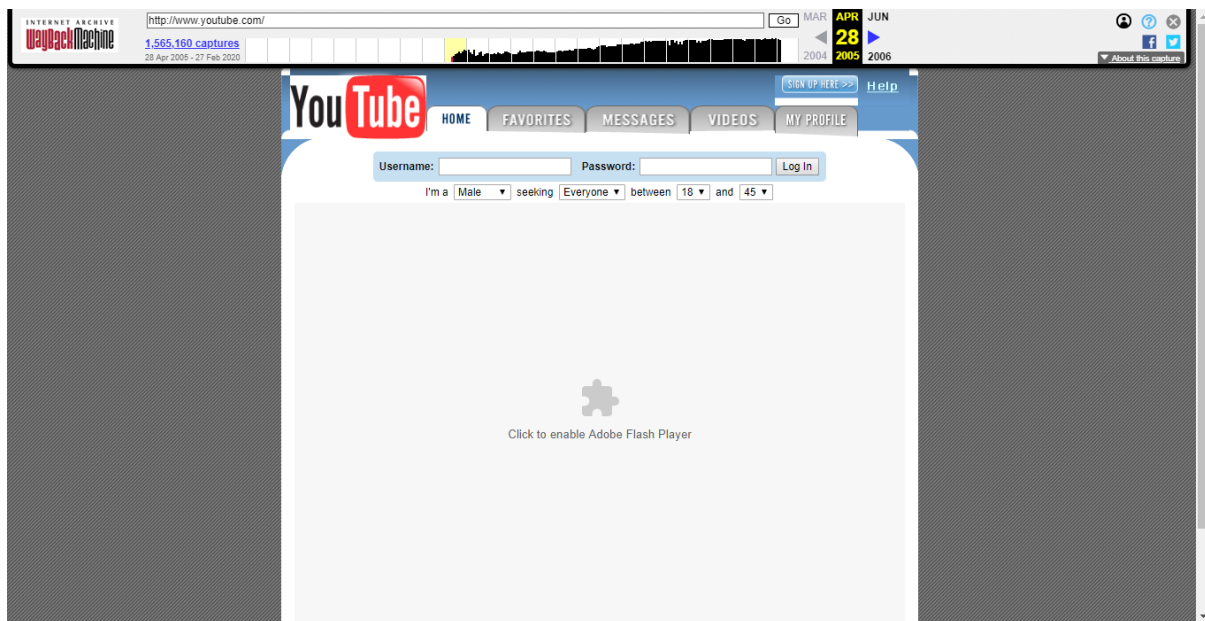


Figure 10: YouTube on Apr, 28, 2005

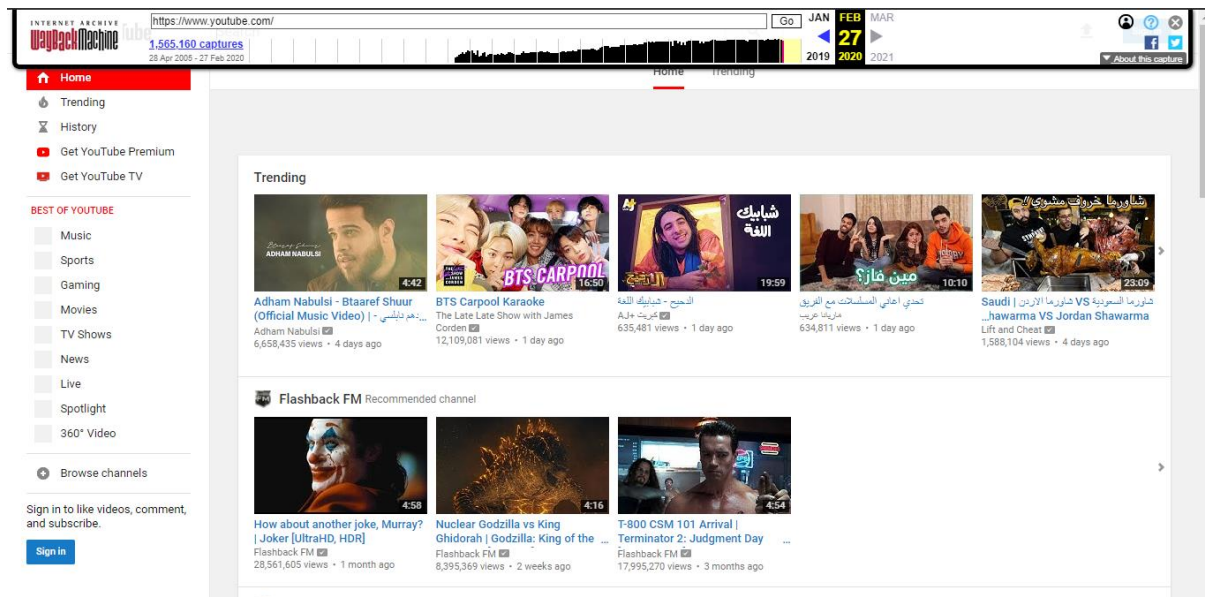


Figure 11: YouTube on Feb, 27, 2020

- As we see on the above to figures YouTube have made changes. The figures are very different. The capture which is taken on April 2005 is uncomfortable for eye and not eye catching. It has buttons at the header and the fonts of the texts are not good.

- The recent YouTube website is shown on the above fig 11. The body part has two partition, one is on the left with narrow width contains of menus and links to other related pages, the other partition is the wider consists videos of different types as a sample. So in my perspective the latest one is nice looking and comfortable.

3.4.Facebook

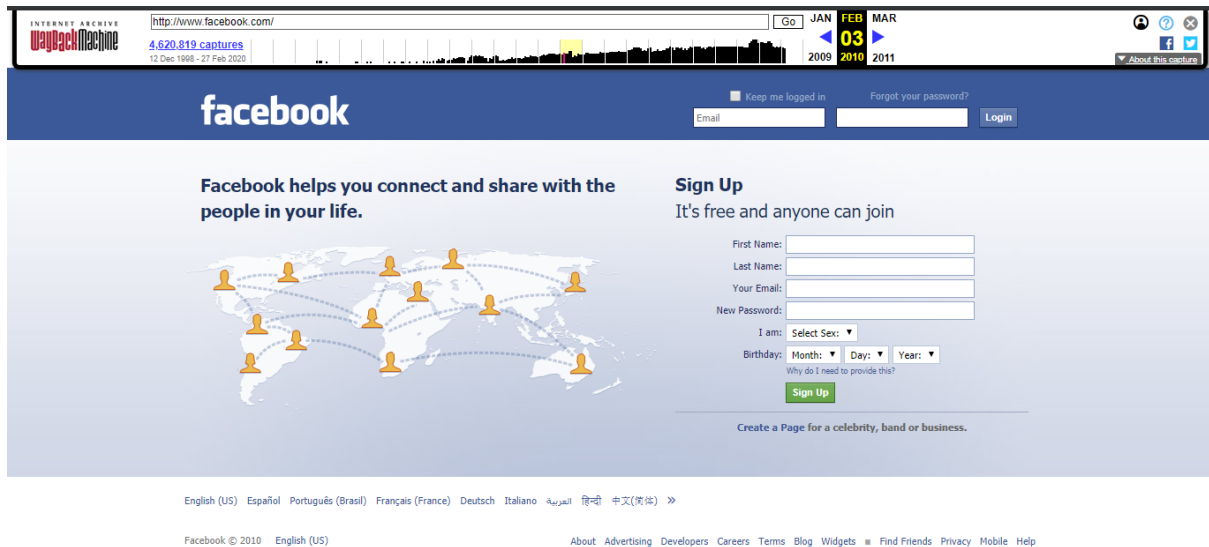


Figure12: Facebook on Feb, 03, 2010

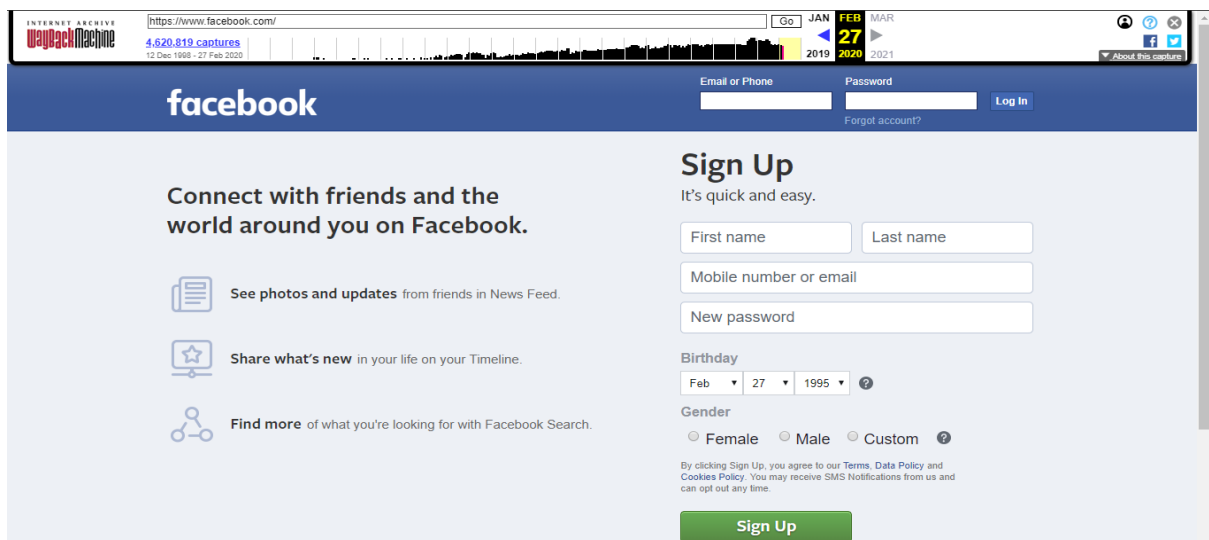


Figure 13: Facebook on Feb, 27, 2020

- Facebook also make some changes. As we see on the figures above fig 12 and 13 there is some change on the login part (they removed the placeholder inside the text field and make it above the field as solid text labels. They also work with font, like size and font

type. The signup form is also changed with suitable form with additional information to be added which is gender using radio buttons.

4. List of webs using web category

There are about twelve categories of website; I will try to list five websites with some description and URL for each category.

4.1. News

- Yahoo News : <https://news.yahoo.com/>
 - Yahoo! News is a news website that originated as an internet-based news aggregator by Yahoo! The site was created by a Yahoo! software engineer named Brad Clawsie in August of 1996.
- Google News: <https://news.google.com/>
 - Google News is a news aggregator app developed by Google. It presents a continuous, customizable flow of articles organized from thousands of publishers and magazines.
- Huffington Post: <https://www.huffpost.com/>
 - Huffington Post is an American news and opinion website and blog, with localized and international editions. It is edited from a left wing political perspective. It was founded in 2005 by Andrew Breitbart, Arianna Huffington, Kenneth Lerer, and Jonah Peretti.
- CNN: <http://www.cnn.com/>
 - CNN is an American news-based pay television channel owned by AT&T's Warner Media. CNN was founded in 1980 by American media proprietor Ted Turner as a twenty four hours cable news channel.
- New York Times: <https://www.nytimes.com/>
 - The New York Times is an American newspaper based in New York City with worldwide influence and readership. Founded in 1851, the paper has won one hundred twenty seven Pulitzer Prizes, more than any other newspaper. The site has latest news in front with more details and headings.

4.2. Informational

- Wikipedia.org: www.wikipedia.org

- Wikipedia.org is a well-known free internet encyclopaedia. It has been a trusted source of information on various subjects. I added wikipedia.org because of its objectives, large numbers of related sources and references.
- CNET.com: www.cnet.com
 - CNET.com provides tech news; product review, and prices, offer software downloads. This is listed as one of the most informative websites categorized in technology news and information.
- WHO: who.int
 - Website of WHO (World Health Organization) is one of the top ten most informative websites. It provides disease outbreak news, information about emergencies and disasters, factsheets and related information.
- Nobelprize.org: www.nobelprize.org
 - Nobelprize.org one of the informative websites, it is recommended for a student to visit this website to be encouraged.
- Stack overflow: stackoverflow.com
 - Stack Overflow is a question and answer site for professional and enthusiast programmers. It is a privately held website, the flagship site of the Stack Exchange Network, created in 2008 by Jeff Atwood and Joel Spolsky. It features questions and answers on a wide range of topics in computer programming.

4.3. Educational

- Coursera: <https://www.coursera.org/>
 - Coursera is an American online learning platform founded in 2012 by Stanford professors Andrew Ng and Daphne Koller that offers massive open online courses, specializations, and degrees. The site is very easy for someone to register or to sign up.
- Khan Academy : <https://www.khanacademy.org/>
 - Khan Academy is a non-profit educational organization created in 2008 by Salman Khan with the goal of creating a set of online tools that help educate students. The organization produces short lessons in the form of videos. Its website includes supplementary practice exercises and materials for educators.
- Udemy: <https://www.udemy.com/>
 - Udemy is an online learning platform aimed at professional adults and students, developed in May 2010. As of Jan 2020, the platform has more than fifty million

students and fifty seven thousand instructors teaching courses in over sixty five languages.

- Udacity: <https://www.udacity.com/>
 - Udacity, Inc. is a for-profit educational organization founded by Sebastian Thrun, David Stavens, and Mike Sokolsky offering massive open online courses. Its website contains free and paid courses with interactive and nice looking pages.
- EDX: <http://www.edx.org>
 - edx is a massive open online course provider. It hosts online university-level courses in a wide range of disciplines to a worldwide student body, including some courses at no charge using its website.

4.4. Social Networks

- Facebook: <https://www.facebook.com/>
 - Facebook, Inc. is an American social media and technology company based in Menlo Park, California. It was founded by Mark Zuckerberg along with fellow Harvard college students and roommates.
- Twitter: <https://twitter.com/>
 - Twitter is an American micro blogging and social networking service on which users post and interacts with messages known as "tweets". Registered users can post, like, and retweet tweets, but unregistered users can only read them
- Instagram: <https://www.instagram.com/>
 - Instagram is an American photo and video-sharing social networking service owned by Facebook, Inc. It was created by Kevin Systrom and Mike Krieger, and launched in October 2010 exclusively on iOS.
- QZone: qzone.qq.com
 - QZone is a social networking website based in China which was created by Tencent in 2005. It allows users to write blogs, keep diaries, send photos, listen to music, and watch videos.
- Telegram: <https://web.telegram.org/>
 - Telegram is a cloud-based instant messaging and voice over IP service. Users can send messages and exchange photos, videos, stickers, audio and files of any type.

4.5. Marketing/Business

- Hubspot: <https://www.hubspot.com/>

- Hubspot is a developer and marketer of software products for inbound marketing and sales. It was founded by Brian Halligan and Dharmesh Shah in 2006. Its products and services aim to provide tools for social media marketing, content management, web analytics, and search engine optimization.
- Gemius: <https://gde.gemius.com/>
 - Gemius website is a source of insight into the internet. It offers interesting facts about the Polish online audience, websites and market trends, but also data and analysis from abroad.
- ManyChat: <https://manychat.com/>
 - ManyChat is a service that allows a person to create chatbots for Facebook Messenger. One can use these chatbots for a range of purposes, such as marketing and customer care.
- Amazon: <https://www.amazon.com/>
 - Amazon.com, Inc. is an American multinational technology company based in Seattle that focuses on e-commerce, cloud computing, digital streaming, and artificial intelligence. The site is easy and nice looking for a user.
- zemanta.com: <https://www.zemanta.com/>
 - Zemanta One is the only cross-channel media buying platform specifically designed for the promotion and distribution of marketing content. The world's largest brands and leading digital agencies use Zemanta's programmatic platform to scale, automate and optimize their entire native advertising programs.

4.6.Entertainment

- YouTube: <https://www.youtube.com/>
 - YouTube is an American video-sharing platform headquartered in San Bruno, California. Three former PayPal employees Chad Hurley, Steve Chen, and Jawed Karim created the service in February 2005. Google bought the site in November 2006 for one point six five billion US dollars; YouTube now operates as one of Google's subsidiaries.
- Netflix: <https://www.netflix.com/>
 - Netflix, Inc. is an American media-services provider and production company headquartered in Los Gatos, California, founded in 1997 by Reed Hastings and Marc Randolph in Scotts Valley, California.
- IMDb: <https://www.imdb.com/>

- IMDb is an online database of information related to films, television programs, home videos, video games, and streaming content online; including cast, production crew and personal biographies, plot summaries, trivia, fan and critical reviews, and ratings.
- Bilibili: <https://www.bilibili.com/>
 - Bilibili, also nicknamed B site, is a Chinese video sharing website based in Shanghai, themed around animation, comic, and game, where users can submit, view and add commentary subtitles on videos
- Spotify: <https://www.spotify.com/>
 - Spotify Technology S.A. is an international media services provider. Launched on seven October 2008, the Spotify platform provides access to over fifty million tracks. Users can browse by parameters such as artist, album, or genre, and can create, edit, and share playlists.

4.7. Blog

- WordPress.org: <https://wordpress.org/>
 - WordPress (WordPress.org) is a free open source content management system (CMS) written in PHP and paired with a MySQL or MariaDB database.
- Wix: <https://www.wix.com/>
 - Wix.com Ltd. is a Israeli software company, providing cloud-based web development services. It allows users to create HTML5 websites and mobile sites through the use of online drag and drop tools.
- Blogger.com: <https://www.blogger.com/>
 - Founded in 1999, it is one of the oldest blogging platforms still active. Blogger site is relatively easy to use. It is completely free and someone can somewhat monetize it through ads. Customization options are limited.
- Squarespace: <https://www.squarespace.com/>
 - Squarespace, Inc. is a private American company, based in New York City that provides software as a service for website building and hosting. Its customers use pre-built website templates and drag and drop elements to create webpages.
- Weebly: <https://www.weebly.com/>
 - Weebly is a web hosting service specifically oriented for online shopping, headquartered in San Francisco. Its parent company is Square, Inc. On acquisition

in April 2018, Weebly had more than six hundred twenty five thousand paid subscribers.

4.8. Personal

- Ximena Vengoechea: <http://www.ximenavengoechea.com/>
 - The simple, clean design of this site makes the colours of Vengoechea's illustrations and user design screenshots really pop; helping her work shine even more.
- Devon Stank: <https://www.devonstank.com/>
 - In addition to the simple, clear welcome screen, Stank does a stellar job of integrating information about his skills and abilities with just enough personality to stand out.
- Red Russak: <http://redrussak.com/>
 - This site has no lots of information, but it gives for one just enough to know who he is, additionally a visual someone will never forget. And with ample ways to reach out to him or learn more, he really has enough about him in his website and doesn't need much else.
- Sarah Chang: <http://www.sarahlichang.com/>
 - This minimalist site does a great job of making everything Chang has done incredibly digestible. She has listed all the critical information in few lines with her simple and nice logo.
- Ian Enders: <http://ianenders.com/>
 - This basic one-pager shows just enough of Enders' work to pique someone's interest, and just enough of his personality to make a person laugh out loud. Really liked his website!

4.9. Content Aggregator

- Alltop: <https://alltop.com/>
 - Founded by start-up legend Guy Kawasaki, Alltop is one of the biggest names in content aggregation and deservedly sits in first place on this list. Alltop aggregates all of the top news and information in real time. Find a topic and learn what's happening from trusted sources
- Popurls: <http://popurls.com/>:

- Popurls encapsulates headlines from the most popular websites on a single page. Also known as the mother of all news aggregators, Popurls was invented 2005 and today (thirteen years later), they are as popular as ever.
- The Web List: <https://theweblist.net/>
 - The Web List functions similarly to Popurls in that it's a one-page content aggregator website that collects content from a huge variety of sources. But it's highly customizable and uses some cool technology. And for that reason, I thought it was a great example of how far one can take content aggregation.
- WP News Desk: <http://wpnewsdesk.com/>
 - WP News Desk is a content aggregator website that focuses specifically on WordPress. It automatically pulls in content from a variety of WordPress blogs and companies and displays posts on the front page.
- The Blog Engage: <http://www.blogengage.com/>
 - Blog Engage is a blogging community where all bloggers submit their latest blog articles for exposure, backlinks and traffic. All articles submitted are sent to the upcoming page where users read and vote on the submissions.

4.10. Wiki

- Wikitravel: https://wikitravel.org/en/Main_Page
 - Wikitravel is a web-based collaborative travel guide based on the wiki model and owned by Internet Brands. It was most active from 2003 through 2012, when most of its editing community left and brought their contributions to the non-profit Wikivoyage guide.
- WikiHow: <https://www.wikihow.com/Main-Page>
 - WikiHow is an online wiki-style community consisting of an extensive database of how-to guides. Founded in 2005 by Internet entrepreneur Jack Herrick, the website aims to create the world's most helpful how-to instructions to enable everyone in the world to learn how to do anything.
- Wikibooks: https://en.wikibooks.org/wiki/Main_Page
 - Wikibooks is a wiki-based Wikimedia project hosted by the Wikimedia Foundation for the creation of free content e-book textbooks and annotated texts that anyone can edit.
- Wiktionary: https://en.wiktionary.org/wiki/Wiktionary:Main_Page

- Wiktionary is a multilingual, web-based project to create a free content dictionary of terms in all natural languages and a number of artificial languages. These entries may contain definitions, pronunciation guides, inflections, usage examples, related terms, images for illustration, among other features.
- Stranger Things Wiki: https://strangerthings.fandom.com/wiki/Stranger_Things_Wiki
 - Stranger Things is a television-format series created by The Duffer Brothers. It was released as a Netflix original series on July 15, 2016.

4.11. Portals

- Santander Bank: <https://www.santanderbank.com/us/>
 - Their site includes several retail banking features and ability to open new accounts and manage day-to-day banking operations.
- Copper Point: <https://www.copperpoint.com/>
 - Copper Point is Arizona's largest provider of workers compensation insurance and their site offers a flexible web design that enables payments and account management for clients, in addition to mobile notifications, push messages, email alerts, and more.
- Allianz Insurance: <https://www.allianz.com/en.html>
 - Allianz Group, with a customer base of over seventy five million, offers a site that is both dynamic and personal. With the "My Insurance Portfolio" customer site, users have the ability to retrieve historical records of purchased products and services along with integrated features to facilitate policy payments and renewals. The site also features easy-to-update contact information and communication preferences.
- UAB Medicine: <http://www.uabmedicine.org/>
 - Their site hosts a free patient portal with a directory of various healthcare providers categorized by specialty, gender and location. It also features various subsections for knowledge about conditions and treatments, locations, contact info and FAQs.
- Grants.gov: <https://www.grants.gov/>
 - The mission of Grants.gov is to allow applicants for federal grants to apply for and manage grant funds online through a common website. With a fully-functional government portal, the government could simplify grant management and eliminate redundancies. Grants.gov is unique in that it sends over one million email notifications at the public's request and receives over four million page views weekly.

4.12. Advocacy

- Advocates for Children in Therapy: <http://www.childrenintherapy.org/>
 - Advocates for Children in Therapy is a U.S. advocacy group founded by Jean Mercer and opposed to attachment therapy and related treatments. The organization opposes a number of psychotherapeutic techniques which it considers potentially or actually harmful to children who undergo treatment.
- Alliance for Human Research Protection: <https://ahrp.org/about/>
 - The Alliance for Human Research Protection is non-profit and tax-exempt organization with a group of professional people who aim: to develop practices of ethical medical research to minimize the risks related to those practices and to ensure the protection of human rights, welfare, and dignity.
- Barefoot Collage: <https://www.barefootcollege.org/>
 - The Social Work and Research Centre, widely known as the Barefoot College is a voluntary organisation working in the fields of education, skill development, health, drinking water, women empowerment and electrification through solar power for the upliftment of rural people, which was founded by Bunker Roy in 1972.
- Alliance for Justice: <https://www.afj.org/>
 - Alliance for Justice is a progressive judicial advocacy group in the United States. Founded in 1979 by current president Nan Aron, AFJ monitors federal judicial appointments. AFJ represents a coalition of one hundred politically liberal groups that have an interest in the federal judiciary.
- American Bar Association Center on Children and the Law: <https://www.americanbar.org/>
 - The Center promotes access to justice for children and families. It works on a diverse portfolio on national, regional and local projects in the children's law field throughout the country. Its projects are unified by two complementary goals: improving legal representation and improving the legal systems that impact children and families.

5. Guideline for Website

There are about six guidelines to evaluate a website.

5.1. Authority

- It should be clear that who is responsible for the contents of the page
- There should be a way of verifying the legitimacy of the organization, group, company or individual
- There should be any indication of the author's qualifications for writing on a particular topic
- The information should be from reliable source

5.2. Accuracy

- The sources for the actual information should be clearly listed so they can be verified in another source
- The information should be free of grammatical, spelling, and other typographical errors

5.3. Objectivity

- If there is any advertising on the page, it should clearly differentiated from the informational content
- There should also be a link to a page describing the goals or purposes of the sponsoring organization or company
- The content should appear to contain any evidence of bias

5.4.Currency

- There should be dates on the page to indicate when the page was written, when the page was first placed on the web, or when the page was last revised

5.5. Coverage

- The website should successfully address the topics, covered with clearly presented arguments and adequate support to substantiate them.
- The work should update other sources, substantiate other materials one have read or add new information
- The target audience should be identified

5.6. Appearance

- The site should look well organized
- The links should work

- The site should appear well maintained

Let's now try to evaluate two websites using the above guidelines!

Facebook

- If we see the authority guideline for Facebook, in my view it doesn't fulfil it. Because there is no way for indication of the author's qualification for writing on particular topic like politics since anyone using Facebook can write whatever he/she wanted to write on their desired issue.
- Accuracy of Facebook is also not good, because usually the sources for the actual information are not clearly known; this is like fake news from anyone.
- Generally Facebook in my view is a good and most powerful social network with some limitations. Fake news is among cons on using Facebook, There must have a quick solution for those limitations so that everyone can use without hesitations of verifying who have written the contents.

YouTube

- I think YouTube have fulfilled many of the guidelines listed above. The contents are well known from who they are released. This is the basis for Accuracy. The appearance is also nice as they well organized the look.
- I appreciate on their fulfilment of guideline Coverage, which is on section 4.5. They have made some restrictions on their videos based on several community guidelines. I think this should also apply for some other websites.

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- <https://liferay.dev/blogs/-/blogs/15-awesome-web-portal-examples>
- <http://www.ebizmba.com/articles/news-websites>
- <https://www.similarweb.com/top-websites/category/business-and-consumer-services/online-marketing>
- <https://firstsiteguide.com/tools/blogging/>
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