

ADDIS ABABA UNIVERSITY

ADDIS ABABA INSTITUTE OF TECHNOLOGY

CENTER OF INFORMATION TECHNOLOGY AND SCIENTIFIC COMPUTING

**Fundamental of Web Development**

**Assignment 1**

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# The History of the Internet

## The Early Days of internet

The first mention of interaction between computers was on a series of memos written by JCR Licklinder from MIT. The concept behind his “Galactic Network” was very much like the internet of today, but he didn’t detail any of the implementation behind his vision. Licklider was the first head of the computer research program at DARPA at 1962.

The first step towards internet in academic literature was made by Leonard Kleinrock from MIT on his paper on packet switching theory in July 1961 and his book on the same topic in 1964. To explore this, in 1965, Roberts connected the TX-2 computer in Mass to the Q-32 in California with a low speed dial-up telephone line creating the first (however small) wide-area computer network ever built.

In late 1966 Roberts went to DARPA to develop the computer network concept and quickly put together his plan for the “ARPANET”, publishing it in 1967. At the conference where he presented the paper, there was also a paper on a packet network concept from the UK by Donald Davies and Roger Scantlebury of NPL. The RAND group had also written a paper on packet switching networks for secure voice in the military in 1964. It happened that the work at MIT (1961-1967), at RAND (1962-1965), and at NPL (1964-1967) had all proceeded in parallel without any of the researchers knowing about the other work. The word “packet” was adopted from the work at NPL.

Due to Kleinrock’s early development of packet switching theory and his focus on analysis, design and measurement, his Network Measurement Center at UCLA was selected to be the first node on the ARPANET. All this came together in September 1969 when BBN installed the first IMP at UCLA and the first host computer was connected. Doug Engelbart’s project on “Augmentation of Human Intellect” (which included NLS, an early hypertext system) at Stanford Research Institute (SRI) provided a second node. SRI supported the Network Information Center, led by Elizabeth (Jake) Feinler and including functions such as maintaining tables of host name to address mapping as well as a directory of the RFC’s.

One month later, when SRI was connected to the ARPANET, the first host-to-host message was sent from Kleinrock’s laboratory to SRI. By the end of 1969, four host computers were connected together into the initial ARPANET, and the budding Internet was off the ground. Computers were added quickly to the ARPANET during the following years, and work proceeded on completing a functionally complete Host-to-Host protocol and other network software.

In December 1970 the Network Working Group (NWG) working under S. Crocker finished the initial ARPANET Host-to-Host protocol, called the Network Control Protocol (NCP). In October 1972, Kahn organized a large, very successful demonstration of the ARPANET at the International Computer Communication Conference (ICCC). This was the first public demonstration of this new network technology to the public. In March, 2022 Ray Tomlinson at BBN wrote the basic email message send and read software, motivated by the need of the ARPANET developers for an easy coordination mechanism. In July, Roberts expanded its utility by writing the first email utility program to list, selectively read, file, forward, and respond to messages. From there email took off as the largest network application for over a decade.

## The Beginning of the Internet

One of the core components of the Internet is the Transmission Control Protocol (TCP) gateway. Proposed in a 1974 paper, the TCP gateway acts “like a postal service.” Without knowing a specific physical address, any computer on the network can ask for the owner of any IP address, and the TCP gateway will consult its directory of IP address listings to determine exactly which computer the requester is trying to contact. The development of this technology was an essential building block in the interlinking of networks, as computers could now communicate with each other without knowing the specific address of a recipient; the TCP gateway would figure it all out. In addition, the TCP gateway checks for errors and ensures that data reaches its destination uncorrupted. Today, this combination of TCP gateways and IP addresses is called TCP/IP and is essentially a worldwide phone book for every host on the Internet.

In 1989, Tim Berners-Lee, a graduate of Oxford University and software engineer at CERN (the European particle physics laboratory), had the idea of using a new kind of protocol to share documents and information throughout the local CERN network. Instead of transferring regular text-based documents, he created a new language called hypertext markup language (HTML). This new language required a new communication protocol so that computers could interpret it, and Berners-Lee decided on the name hypertext transfer protocol (HTTP). Through HTTP, hypertext documents can be sent from computer to computer and can then be interpreted by a browser, which turns the HTML files into readable web pages. The browser that Berners-Lee created, called World Wide Web, was a combination browser-editor, allowing users to view other HTML documents and create their own.

In 1991, the same year that Berners-Lee created his web browser, the Internet connection service Q-Link was renamed America Online, or AOL for short. This service would eventually grow to employ over 20,000 people, on the basis of making Internet access available (and, critically, simple) for anyone with a telephone line.

Observations from web archive

Reddit ([www.reddit.com](http://www.reddit.com/))

First save was on 18 July, 2002. At this time the domain was only reserved and no business was created just yet. It wasn’t until 2005 that the site was active and running. Even if the site isn’t as old as some of the other more popular sites, Reddit has ultimately stayed true to its purpose. The site has undergone pivots as a result of the user base changing over time. For example, during October 01, 2005 (<https://web.archive.org/web/20051001005719/http://reddit.com/>) the site was basically serving as a news aggregator for tech related feeds. This is in contrast to now where there is a lot more diverse content out on the page. All in all through time Reddit has continuously strived to earn the title of “front page of the Internet” with a consistent user interface.

One additional thing to note is that on late 2019 Reddit had a major design overhaul with an option to return to the “original” look.

Hacker News ([https://news.ycombinator.com](https://news.ycombinator.com/))

First save was on 2007. Ever since its inception, it hasn’t changed one bit in terms of visuals. Not a very attractive for starters, it catered and it continues to cater to users who prefer content over presentation and that lends it to a unique old school ad-free, spam-less channel look which adds to its appeal over other websites over-saturated with clutter and ads.

In conclusion, the only features that have been added to the website over time have all been functional instead of aesthetic. As for functional improvements, a search feature, ask thread, and jobs section are some of the improvements that have been added.

Yahoo! ([www.yahoo.com](http://www.yahoo.com/))

First save was from 1995. At the time it was a very straight forward website with a search bar and a huge wealth of information cleanly organized into categories. At the time where the save happened it was a huge online encyclopedia. While there is a search bar at the top, it was possible to visit the different websites using categories to group them and this shows the small size of the web during that time. For example, this was under the [algorithms](https://web.archive.org/web/19961128135015/http://www8.yahoo.com/Science/Computer_Science/Algorithms/) subcategory of computer science.

It was readily apparent that Yahoo! dreamed of being more than a search engine and content aggregator. And to this end by 2001, it had a shop, auction, job application, financial quotes, messenger, calendar, photo storage, email client, astrology site, game player, search engine and had various local websites for countries and cities[[source](https://web.archive.org/web/20010601021654/http://www.yahoo.com/)].

After a point, the email client side of Yahoo! was the only viable source of user engagement and for various reasons Yahoo declined in fame resulting in its acquirement by Alibaba.

Amazon ([www.amazon.com](http://www.amazon.com/))

First save was from 1998. The sites has a lot of errors and redirects within web.archive around the first years of indexing so I was unable to see the earliest days of amazon but from the early 2005 saves it is easy to see that things are hard to find. It has a lot of products and extensive descriptions but lack in organizational quality as it feels really cluttered [[example](https://web.archive.org/web/20050706075551/http://www.amazon.com/exec/obidos/tg/detail/-/0439784549?v=glance)]. They have huge amounts of relevant content but no simple structure to organize it.

They kept with this general style for some time afterwards adding new features as they go. But at around the end of 2007, they had began a remodeling that involved a beta version for interested users to look at [top right [corner](https://web.archive.org/web/20071031005457/http://amazon.com/)]. The design has been given much more attention since and has significantly improved to become what it is now.

Wikipedia ([www.wikipedia.com](http://www.wikipedia.com/))

First save was on 2003. From the main page of wikipedia at the time

[Welcome](https://web.archive.org/web/20040804045211/http://en.wikipedia.org/wiki/Wikipedia:Welcome%2C_newcomers) to [Wikipedia](https://web.archive.org/web/20040804045211/http://en.wikipedia.org/wiki/Wikipedia)! We are building an [open-content](https://web.archive.org/web/20040804045211/http://en.wikipedia.org/wiki/Wikipedia:Copyrights) [encyclopedia](https://web.archive.org/web/20040804045211/http://en.wikipedia.org/wiki/Encyclopedia) in [many languages](https://web.archive.org/web/20040804045211/http://en.wikipedia.org/wiki/Main_Page" \l "Wikipedia_in_other_languages). In the English version, started in January 2001, we are now working on [318542](https://web.archive.org/web/20040804045211/http://en.wikipedia.org/wiki/Special:Statistics) [articles](https://web.archive.org/web/20040804045211/http://en.wikipedia.org/wiki/Wikipedia:What_is_an_article). Learn [how to edit pages](https://web.archive.org/web/20040804045211/http://en.wikipedia.org/wiki/Wikipedia:How_to_edit_a_page), experiment in the [sandbox](https://web.archive.org/web/20040804045211/http://en.wikipedia.org/wiki/Wikipedia:Sandbox), and visit our [Community Portal](https://web.archive.org/web/20040804045211/http://en.wikipedia.org/wiki/Wikipedia:Community_Portal) to find out how you can participate in the development of Wikipedia.

This was a clear statement of purpose that can be said to be successfully accomplished. Aside from that everything else visually and in terms of functionality is almost identical to today’s Wikipedia highlighting the clear clean design used by the Wikipedia team.

Observation on various websites of each category

Portal

A portal is a page designed to aggregate content about a specific thing from various different places like emails, forums and search engines. There are various types of portals including:

Personal portal

Government portal

Cultural portal

Stock portal

Corporate portal

websites:

[https://portal.aait.edu.et](https://portal.aait.edu.et/) – Site for AAIT students to view information about their academics

[https://portal.aau.edu.et](https://portal.aau.edu.et/) – Site for AAU studnets to keep track of their assets (grades, cost, etc…) from one portal

<https://sis.manipal.edu/>- Student Information System(SIS) has been conceived to meet the information needs of the students/parents of the Manipal Academy of Higher Education

<http://www.ethiopia.gov.et/> - Government portal to get services like driver’s license and resources like the Ethiopian constitution

<https://www.usa.gov/> - It’s USA’s government portal with a mission to create and organize timely, needed government information and services and make them accessible anytime, anywhere, via your channel of choice.

News

News websites are newspapers of the digital age. They aggregate news feeds and present to the user in a friendly user-readable manner. Most websites of this manner get their revenue from ads and premium content for paying users.

Websites:

[www.bbc.com](http://www.bbc.com/) - The British Broadcasting Corporation (BBC) is a British news broadcaster.

[www.cnn.com](http://www.cnn.com/) - CNN is an American news-based pay television channel owned by AT&T's WarnerMedia.

[www.nytimes.com](http://www.nytimes.com/) - The New York Times is an American newspaper based in New York City with worldwide influence and readership.

[www.huffpost.com](http://www.huffpost.com/) - HuffPost is an American news and opinion website and blog, with localized and international editions. It is edited from a left wing political perspective.

[www.washingtonpost.com](http://www.washingtonpost.com/) - The Washington Post is a major American daily newspaper published in Washington, D.C.

Informational

Informational websites are present to elaborate on their areas of expertise. These sites provide are mostly domain specific even though there are some websites that span multiple domains.

Websites:

[www.wikipedia.org](http://www.wikipedia.org/) - Wikipedia is a multilingual online encyclopedia created and maintained as an open collaboration project by a community of volunteer editors using a wiki-based editing system.

[www.who.int](http://www.who.int/)- The World Health Organization is a specialised agency of the United Nations that is concerned with world public health.

[www.nobelprize.org](http://www.nobelprize.org/) - The Nobel Prize is a set of annual international awards bestowed in several categories by Swedish and Norwegian institutions in recognition of academic, cultural, or scientific advances.

[www.w3.org](http://www.w3.org/) - The W3 has a main international standards organization called the W3.org or W3C. Its actual name is World Wide Web Consortium. This organization was founded and led by WWW creator, Tim Berners-Lee.

[www.aol.com](http://www.aol.com/)- AOL is an American web portal and online service provider based in New York City. It is a brand marketed by Verizon Media.

Business/ Marketing

Business websites are self-explanatory. Their sole purpose is to promote a specific business as a marketing outlet. Most oft these websites didn’t provide their services through the web but now are using the platform in more ways than marketing and user engagement.

Examples:

[www.icbc.com](http://www.cnbc.com/) - The Insurance Corporation of British Columbia is a provincial crown corporation in British Columbia created in 1973 by the NDP government of Premier Dave Barrett.

[www.bloomberg.com](http://www.bloomberg.com/) - Bloomberg L.P. is a privately held financial, software, data, and media company headquartered in Midtown Manhattan, New York City.

[www.wellsfargo.com](http://www.wellsfargo.com/) - Wells Fargo & Company is an American multinational financial services company headquartered in San Francisco, California, with central offices throughout the United States.

[www.ethiopianairlines.com](http://www.ethiopianairlines.com/) - Ethiopian Airlines, formerly Ethiopian Air Lines and often referred to as simply Ethiopian, is Ethiopia's flag carrier and is wholly owned by the country's government.

[www.africa118.com](http://www.africa118.com/) – Africa118 is a digital marketing company located in various cities in Africa

Educational

Educational websites can include websites that have games, videos or topic related resources that act as tools to enhance learning and supplement classroom teaching. These websites help make the process of learning entertaining and attractive to the student, especially in today's age.

Websites:

[www.edx.org](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.

[www.academicearth.org](http://www.academicearth.org/) - Academic Earth is a website launched on March 24, 2009, by Richard Ludlow and co-founders Chris Bruner and Liam Pisano, which offers free online video courses and academic lectures.

[www.archive.org](http://www.archive.org/) - The Internet Archive is an American digital library with the stated mission of "universal access to all knowledge." It provides free public access to collections of digitized materials, including websites, software applications/games, music, movies/videos, moving images, and millions of public-domain books.

[www.abcmouse.com](http://www.abcmouse.com/)- ABCmouse.com Early Learning Academy is a subscription-based digital education program for children ages 2–8, created by Age of Learning, Inc. Subscribers can access learning activities on the ABCmouse.com website or mobile app.

[www.bigthink.com](http://www.bigthink.com/)- Big Think is a multimedia web portal founded in 2007 by Victoria Brown and Peter Hopkins. The website is a collection of interviews, presentations, and roundtable discussions with experts from a wide range of fields.

Entertainment

Find all the celebrity gossips and entertainment news websites which are at the top to update their audience with lots of Hollywood spices whether you are willing to know what’s happening in your celebrity personal life or its about fashion, celebrities lifestyle, music, and albums.

Websites:

[www.netflix.com](http://www.netflix.com/) - Netflix, Inc. is an American media-services provider and production company headquartered in Los Gatos, California.

[www.imdb.com](http://www.imdb.com/) - IMDb (Internet Movie Database) 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.

[www.spotify.com](http://www.spotify.com/) - Spotify Technology S.A. is an international media services provider.

[www.pogo.com](http://www.pogo.com/)- Pogo.com is a free online gaming website that offers over 100 casual games from brands like Hasbro and PopCap Games. It offers a variety of card and board games like First Class Solitaire and Monopoly to puzzle, sports and word games like Scrabble.

[www.tmz.com](http://www.tmz.com/)- TMZ is a tabloid news website that debuted on November 8, 2005. It was a collaboration between AOL and Telepictures Productions, a division of Warner Bros.

Advocacy

Advocacy websites are sites designed to inspire change and to inspire you to push for that change. In addition to that, advocacy sites also acts as statements of purpose for large movements that constitute of multiple people geographically distant from one another. These sites can advocate for women’s rights, net neutrality or free speech.

Websites:

<http://www.naacp.org/> - The National Association for the Advancement of Colored People is a civil rights organization in the United States, formed in 1909 as a bi-racial endeavor to advance justice for African Americans.

<http://www.now.org/> - As the grassroots arm of the women's movement, NOW's purpose is to promote feminist ideals, lead societal change, eliminate discrimination.

<https://preventchildabuse.org/>- Prevent Child Abuse America works to promote the healthy development of children and prevent child abuse before it occurs.

<http://www.faireconomy.org/>- United for a Fair Economy (UFE) is a national, nonpartisan, nonprofit Boston, Massachusetts-based movement support organization that highlights the detriments of uneven wealth distribution.

<http://www.commoncause.org/>- Common Cause is a nonpartisan grassroots organization dedicated to upholding the core values of American democracy.

Blog

A blog (shortening of “weblog”) is an online journal or informational website displaying information in the reverse chronological order, with the latest posts appearing first. It is a platform where a writer or even a group of writers share their views on an individual subject.

Websites:

[www.medium.com](http://www.medium.com/)- Medium is an online publishing platform developed by Evan Williams and launched in August 2012.

[www.weebly.com](http://www.weebly.com/)- Weebly is a web hosting service specifically oriented for online shopping, headquartered in San Francisco.

[www.blogger.com](http://www.blogger.com/)- Blogger is a blog-publishing service that allows multi-user blogs with time-stamped entries.

[www.wordpress.com](http://www.wordpress.com/)- WordPress.com is a platform for self-publishing that is popular for blogging and other works.

[www.wix.com](http://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.

Wiki

A wiki is a Web site that allows users to add and update content on the site using their own Web browser. This is made possible by Wiki software that runs on the Web server. They are used to create static Websites, manage online communities, and connect businesses with their customers. A great example of a large wiki is the Wikipedia, a free encyclopedia in many languages that anyone can edit.

Websites:

[www.encyclopediaofmath.com](http://www.encyclopediaofmath.com/)- The Encyclopedia of Mathematics wiki is an open access resource designed specifically for the mathematics community.

[www.encyclopediadramatica.wiki](http://www.encyclopediadramatica.wiki/)- Encyclopedia Dramatica (often abbreviated ED and æ) is a parody-themed wiki website launched on December 10, 2004, that uses MediaWiki software to lampoon encyclopedia topics and current events, especially those related or relevant to contemporary Internet culture.

[www.fanlore.org](http://www.fanlore.org/) - Fanlore is a wiki created to preserve the history of transformative works, as well as that of fans, and fandoms, with a focus on people and their activities.

[www.wikihow.com](http://www.wikihow.com/) - WikiHow is an online wiki-style community consisting of an extensive database of how-to guides.

[www.wikionary.org](http://www.wikionary.org/)- 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.

Social Network

Websites:

[www.instagram.com](http://www.instagram.com/) - Instagram is an American photo and video-sharing social networking service owned by Facebook, Inc.

[www.facebook.com](http://www.facebook.com/)- Facebook, Inc. is an American social media and technology company based in Menlo Park, California.

[www.twitter.com](http://www.twitter.com/) - Twitter is an American microblogging and social networking service on which users post and interact with messages known as "tweets".

[www.reddit.com](http://www.reddit.com/)- Reddit is an American social news aggregation, web content rating, and discussion website.

[www.tumblr.com](http://www.tumblr.com/)-

Content Aggregator

A content aggregator website is a site that collects data from other sources across the internet and puts the information in one place where users can access it. The data collected is based on a keyword or a group of related keywords. It is common for people to confuse content aggregation with plagiarism.

Websites: [www.news360.com](http://www.news360.com/)-

[https://news.ycombinator.com](http://news.ycombinator.com/)-

[www.alltop.com](http://www.alltop.com/)- Tumblr is an American microblogging and social networking website founded by David Karp in 2007 and currently owned by Automattic.

[www.fark.com](http://www.fark.com/)- Fark is a community website created by Drew Curtis that allows members to comment on a daily batch of news articles and other items from various websites.

Personal

Personal web pages are primarily used for informative or entertainment purposes but can also be used for personal career marketing (by containing a list of the individual's skills, experience and a CV), social networking with other people with shared interests, or as a space for personal expression.

Websites:

<http://www.laurenicolesmith.com/> - his lovely site has consistent branding and design through and through, thanks, in part, to the fact that Smith designed and coded it herself to strut her skills.

<http://ianenders.com/>- This basic one-pager shows just enough of Enders’ work to pique your interest—and just enough of his personality to make you laugh out loud.

<http://www.allisonstadd.com/>- Stadd’s copy is delightfully fun to read and gives you a perfect sense of her voice and personality—which is great, since she’s selling herself as a writer.

<https://jimramsden.com/>- Ramsdem does a great job of simply summarizing himself above the fold, with his graphic photo/logo and simple tagline.

<http://andrevv.com/>- Go to this website and scroll down really fast. Sure, you’ll miss all of the information about McCarthy, but you’ll see some really impressive animation—and then probably want to scroll back up and read all about the guy who created it.

Guidelines for Evaluating the Value of a Website

Authority

The authority of a website is related to the reliability of the website and the authority that it has established through time. The same effect can be achieved through an authoritative organization backing the websites. Authority reveals that the person, institution or agency responsible for a site has the qualifications and knowledge to do so.

What credentials are listed for the authors?

Where is the document published?

Coverage

The coverage of a website is the compatiblity of the website with the current time, for different locales and for different user types. It is difficult to assess the extent of coverage since depth in a site, through the use of links, can be infinite. One author may claim comprehensive coverage of a topic while another may cover just one aspect of a topic.

Does the site claim to be selective or comprehensive?

Are the topics explored in depth?

Compare the value of the site’s information compared to other similar sites.

Do the links go to outside sites rather than its own?

Does the site provide information with no relevant outside links?

Currency

Currency of the site refers to: 1) how current the information presented is, and 2) how often

the site is updated or maintained. It is important to know when a site was created, when it was

last updated, and if all of the links are current. Evaluating a web site for currency involves

finding the date information was:

first written

placed on the web

last revised

Objectivity

Objectivity of the site should be clear. Beware of sites that contain bias or do not admit its bias

freely. Objective sites present information with a minimum of bias. Evaluating a web site for

objectivity:

Is the information presented with a particular bias?

Does the information try to sway the audience?

Does site advertising conflict with the content?

Is the site trying to explain, inform, persuade, or sell something?

Accuracy

There are few standards to verify the accuracy of information on the web. It is the responsibility

of the reader to assess the information presented. Evaluating a web site for accuracy:

Reliability: Is the author affiliated with a known, respectable institution?

References: do statistics and other factual information receive proper references as to

their origin?

Does the reading you have already done on the subject make the information seem

accurate?

Is the information comparable to other sites on the same topic?

Does the text follow basic rules of grammar, spelling and composition?

Is a bibliography or reference list included?

Evaluations of Various Websites

Hacker news (news.ycombinator.com)

Accuracy – Site only mentions the websites, it is up to users to determine the accuracy of the posts

Authority – The site has no authoritative backing but the site has gained good traction by its use of anti spam detection and consistent good feeds.

Objectivity – The site had a goal of aggregating tech related news from all over and to that end it allows users to post news articles and with great anti spam filtering and absolutely no ads whatsoever the content delivered on the site everyday meets the standards of the users consistently without fail.

Currency – When it comes to design the site keeps to its original feel and look. Even though this deters new users with a drive for elegant current design, it keeps its old user base with an eye on consistency and better usage.

Coverage – The site relies on simplistic html making it easy for special assistive software to access the site and return useful content to the users. This said it doesn’t mean that it is entirely user friendly as it requires a lot of getting used to.

Overall, the site ranks good in all but currency of its design. Hacker news fails at this almost intentionally as it hasn’t updated its site from its first creation.

Medium ([www.medium.com](http://www.medium.com/))

Accuracy – As this is a blogging site, the accuracy of the information posted here is completely unmonitored. This makes it unreliable as a source of facts, but an invaluable source of opinions and practices which is its primary objective.

Authority- Some of the website’s authors are authorities in the fields they write on. Other that there is no authoritative figure behind the website and hence is open to possible misinformation and the like.

Objectivity – The site is clearly open to spam content and sponsored content due to the wide variety of articles. This website receives a bad score in regards to the objectivity of the content presented. In addition to this, the website is a host to personal opinions from authors making it ever harder to distinguish facts from opinions.

Currency – The design and content of this site is up to the time with great attention to presenting relevant information to the user. There appear to be no dead links within the site.

Coverage – The design and content seem to be user friendly and able to be read from the browser with no additional software and the complementing app also adds to the coverage of the website.

Overall, the site only lacks in objectivity, because it exists primarily to share subjective takes on new trends, practices, and news. Even though this makes for an interesting read from time to time, it also creates a lot of sponsored content throughout the site decreasing the quality of user experience.