

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 (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

News

Informational

Business/ Marketing

Educational

Entertainment

Advocacy

Blog

Wiki

Social Network

Content Aggregator

Personal

Guidelines for Evaluating the Value of a Website

Evaluations of Various Websites