STUDY MATERIAL

VIVEKANANDA COLLEGE
THAKURPUKUR
KOLKATA-700063

NAAC ACCREDITED 'A' GRADE

TOPIC : **The INTERNET and WWW**
COURSE TITLE : **E-Commerce**
PAPER : **SEC-B**
COURSE CODE : **CMS-A-SEC-B-4-2-TH**
SEMESTER : **4**
NAME OF THE TEACHER : **Bodhisattwa Das**
NAME OF THE DEPARTMENT : **Computer Science**

1 Evolution Of Internet

1.1 The earliest days

The internet traces its roots to a US defense department project in the 1960s born out of (pdf) the Cold War, and a desire to have armed forces communicate over a connected, distributed network. The military's research arm, the Advanced Research Projects Agency (ARPA), began work on a communication project, which led to the creation of ARPANET, one of the earliest iterations of computers talking to each other on a network. ARPANET eventually connected military installations, third-party contractors, and a handful of universities in the US. By the mid-1970s, ARPANET had connected to NORSAR, a US-Norwegian system designed to monitor seismic activity from earthquakes or nuclear blasts, over satellite. The Norwegian system then connected to computers in London, and eventually, other parts of Europe.

The computers used to connect this nascent network together were gargantuan by today's standards. The SDS Sigma 7, which cost $700,000 in the mid - 1960s$(4.8 million in today's dollars) was used by the University of California, Los Angeles to send the first message over ARPANET to Stanford University. SDS, or Scientific Data Systems, an early US computer company staffed by Packard Bell alums, built that first computer that connected to the network. The machine, like its offspring that helped the first people land on the Moon, was not like the computer we know today: It took up a large portion of the room it was in and consisted of a series of cabinets with reel-to-reel tapes, flashing buttons, and toggle switches. There would've been a small station with a keyboard and a very basic monitor, but much of the data for the machine would've been stored on punch cards. The first message sent was the word "lo;" the researchers were trying to type the word "login" and the system crashed after two letters. (Remember that next time Facebook goes down for a few minutes.)

In the early days, these systems used Interface Message Processors (IMPs), which were computers designed to organize and receive the data coming in and out of the network. Essentially, they were the earliest versions of the modern router. ARPANET relied on leased telephone lines, much like the commercial internet did in the years that followed. Around the same time, computer scientist Ray Tomlinson, working at the research firm Bolt, Beranek and Newman (now part of Raytheon), created the original version of email; then-Stanford professor and future "father of the internet" Vint Cerf coined the term "internet" to talk about this growing network of interconnected computers.

Over the 1980s, a grant from the US National Science Foundation allowed smaller universities to connect to ARPANET to share information with those who couldn't directly connect to the network. By the late-1980s, schools in around 25 countries had connected to the network—in 1983, the US military was given its own branch of ARPANET, called MILNET, for secure communications, allowing other research and communication to take place on ARPANET.

1.2 Dial-up

The earliest days of the consumer internet were soundtracked by a cacophony of digital hisses and beeps.

As internet protocols and technologies were standardized, in the late 1980s and early 1990s, universities, businesses, and even regular people started to connect over the internet. But before the invention of the World Wide Web, accomplishing anything was a real chore. Information on the internet was difficult to search for, and almost impossibly dense. "The pre-Web Internet was an almost entirely text-based world,"

We may not have moved beyond the internet of the early 1990s were it not for Tim Berners-Lee, who was looking for an easier way to find and share research. Berners-Lee, who in 1989 was a researcher working at CERN, the Swiss nuclear research facility, came up with the concept of the World Wide Web, a decentralized repository of information, linked together and shareable with anyone who could connect to it. He built the first webpage in 1993. Seeing the value in what Berners-Lee and his team had created, CERN opened up the software for the web to the public domain, meaning anyone could use it and build upon it.

Berners-Lee also created the first website browser (initially called WorldWideWeb and then renamed Nexus). But it wasn't until a team of former students at the University of Illinois at Urbana–Champaign (UIUC), led by Marc Andreessen, created the Mosaic web browser in 1993 that the web started to take off. Andreessen and his

team left the research facility at UIUC to start Netscape, the company that produced the first web browser many people ever used: Netscape Navigator.

1.3 Broadband

At some point in 2004, for the first time ever, there were more people in the US who had access to broadband internet than dial-up, according to the Pew Research Center. The price of broadband connections had begun to fall as more users signed up. Broadband modems act a little differently than their dial-up predecessors in that they do not need to call out over the phone line to your internet service provider to establish a connection to the internet—they stay connected unless they're turned off. In the US today, most broadband connections come into homes through the same connections used for cable TV, and don't tend to require access to a telephone line to connect.

Broadband speeds are generally faster than dial-up. In the US, the Federal Communications Commission (FCC) considers a broadband connection—at least for a fixed line, rather than a cellular connection—one that can achieve speeds of 25 Mbps for downloads and 3 Mbps for uploads. This could certainly change in the future—the definition has changed in the past—but for now, it accurately portrays what most of the country has access to.

These speeds helped make the internet what it has become: in the early web years, loading web pages even with simple graphics could take several minutes. With higher speeds, websites could load faster, and developers could add more content to their sites without fear that it would crash their user's computers. Even streaming videos became possible; YouTube first launched in 2005. Websites evolved from simple destinations to interactive places where people could buy things and communicate with each other in real-time.

1.4 Cellular data

Mobile broadband—connecting to the internet through a cell phone—has exploded in popularity over the last five years. At the end of 2013, there were about 1.9 billion smartphone subscriptions in the world, and by the end of 2018, there were about 5.3 billion—that's a jump of about 180% in five years.

Smartphones are getting cheaper—the global average price for a phone is around $368, but there are dozens of smartphones that will get the job done for less than $50—and access is improving every day.

It's a far cry from the earliest iterations of the mobile internet, like WAP (Wireless Application Protocol). Introduced in 1999 and seen in such phones as the Nokia 7110 (which many incorrectly associate with being featured in the year's smash-hit film The Matrix), WAP was sort of like the early dial-up of mobile internet. You could look at rudimentary pages of the internet, to check things like sports scores or news headlines. But getting too deep into the internet would likely burn through whatever overpriced data plan you had at the time.

The first truly useful mobile data standard was 3G in 2003, when radio technology first allowed for more than calls and texts to be sent over the air. (In the western world in 2019, it's often the connection type your smartphone will fall back to when it can't connect to LTE; in other countries, it's still the standard.)

2 Domain Names and Internet Organization

In the Domain Name System... there is a hierarchy of names. The root of system is unnamed. There are a set of what are called "top-level domain names" (TLDs). These are the generic TLDs (EDU, COM, NET, ORG, GOV, MIL, and INT), and the two letter country codes from ISO-3166. It is extremely unlikely that any other TLDs will be created.

Internet domain names come in four main types – top-level domains, second-level domains, third-level domains, and country domains.

Internet domain names are the alphanumeric identifiers we use to refer to hosts on the Internet, like "LivingInternet.com". The structure of Internet domain names was first described in RFC 819, and their syntax was first described in RFC 822. You can look up existing Internet domain names with the whois service, and get your own domain name from an accredited registrar.

3 Types of Network

1. LAN(Local Area Network)
2. PAN(Personal Area Network)
3. MAN(Metropolitan Area Network)
4. WAN(Wide Area Network)

4 Internet Service Provider(ISP)

Stands for "Internet Service Provider." An ISP provides access to the Internet. Whether you're at home or work, each time you connect to the Internet, your connection is routed through an ISP.

Early ISPs provided Internet access through dial-up modems. This type of connection took place over regular phone lines and was limited to 56 Kbps. In the late 1990s, ISPs began offering faster broadband Internet access via DSL and cable modems. Some ISPs now offer high-speed fiber connections, which provide Internet access through fiber optic cables.