Computer Network:

计算机科学导论：

网络是硬件和软件的组合，它把数据从一个地方发送到另一个地方。硬件是指把信号从网络中的一点传送到另一点的物理设备。软件由指令组成，这些指令使得我们希望从网络得到的服务成为可能。

Wiki:

A computer network or data network is a telecommunications network which allows computers to exchange data. In computer networks, networked computing devices exchange data with each other using a data link. The connections between nodes are established using either cable media or wireless media. The best-known computer network is the Internet.

Foundations of computer science：

A network is the interconnection of a set of devices capable of communication. In this definition, a device can be a host (or an end system as it is sometimes called) such as a large computer, desktop, laptop, workstation, cellular phone, or security system. A device in this definition can also be a connecting device such as a router which connects the net-work to other networks, a switch which connects devices together, a modem (modulator-demodulator) that changes the form of data, and so on. These devices in a network are connected using wired or wireless transmission media such as cable or air. When we connect two computers at home using a plug-and-play router, we have created network, although very small.

Local Area Network:

计算机科学导论：

局域网是为个人计算机或工作站间的资源共享而设计的。共享的资源包括硬件，软件或者数据。LAN 的大小可能有每个软件拷贝的许可用户数决定，或由访问操作系统的许可用户数决定，目前，LAN 局限于几公里内。

Wiki:

A local area network (LAN) is a computer network that interconnects computers within a limited area such as a residence, school, laboratory, university campus or office building and has its network equipment and interconnects locally managed. By contrast, a wide area network (WAN), not only covers a larger geographic distance, but also generally involves leased telecommunication circuits or Internet links.

Ethernet and Wi-Fi are the two most common transmission technologies in use for local area networks.

Foundations of computer science：

A local area network (LAN) is usually privately owned and connects some hosts in a single office, building, or campus. Depending on the needs of an organization, a LAN can be as simple as two PCs and a printer in someone's home office, or it can extend throughout a company and include audio and video devices. Each host in a LAN has an identifier, an address, that uniquely defines the host in the LAN. A packet sent by a host to another host carries both the source host's and the destination host's address.

Ethernet:

Wiki:

Ethernet /ˈiːθərnɛt/ is a family of computer networking technologies commonly used in local area networks (LANs) and metropolitan area networks (MANs). It was commercially introduced in 1980

and first standardized in 1983 as IEEE 802.3, and has since been refined to support higher bit rates and longer link distances. Over time, Ethernet has largely replaced competing wired LAN technologies such as token ring, FDDI and ARCNET.

Foundations of computer science：

Al though several wired LANs were invented in the past, only one has been survived. The Ethernet. May be the reason is that Ethernet was upgraded several times according to the need of the Internet community.

The Ethernet LAN was developed in the 1970s by Robert Metcalfe and David Boggs. Since then, it has gone through four generations: Standard Ethernet (10 Mbps), Fast

Ethernet (100 Mbps), Gigabit Ethernet (1 Gbps), ai1d 10 Gigabit Ethernet (10 Gbps). The data rate, the speed in which bits are sent in each second, has been increased ten times

in each generation.

Wi-Fi:

计算机科学导论：

Wiki:

Wi-Fi or WiFi is a technology that allows electronic devices to connect to a wireless LAN (WLAN) network, mainly using the 2.4 gigahertz (12 cm) UHF and 5 gigahertz (6 cm) SHF ISM radio bands. A WLAN is usually password protected, but may be open, which allows any device within its range to access the resources of the WLAN network.

Packets:

计算机科学导论：

Wiki:

A network packet is a formatted unit of data carried by a packet-switched network. Computer communications links that do not support packets, such as traditional point-to-point telecommunications links, simply transmit data as a bit stream. When data is formatted into packets, packet switching is possible and the bandwidth of the communication medium can be better shared among users than with circuit switching.

TCP/IP:

计算机科学导论：

为了分解完成任务所需的服务，因特网创建了一组规则，成为协议。这些协议允许使用不同技术的局域网和广域网互相连接到一起，从一点向另一点传送信息。控制因特网的一组（或族）协议成为 TCP/IP 协议族，包括应用层，传输层，网络差，数据链路层，物理层。

Wiki:

TCP/IP provides end-to-end data communication specifying how data should be packetized, addressed, transmitted, routed and received. This functionality is organized into four abstraction layers which are used to sort all related protocols according to the scope of networking involved. From lowest to highest, the layers are the link layer, containing communication methods for data that remains within a single network segment (link); the internet layer, connecting independent networks, thus providing internetworking; the transport layer handling host-to-host

communication; and the application layer, which provides process-to-process data exchange for applications.

Foundations of computer science：

The TCP/IP (Transmission Control Protocol/Internet Protocol). TCP/IP is a protocol suite (a set of protocols organized in different layers) used in the Internet today. lt is a hierarchical protocol made up of interactive modules, each of which provides a specific functionality. The term hierarchical means that each upper level protocol is supported by the services provided by one or more lower level protocols.

Router:

Wiki:

A router is a networking device that forwards data packets between computer networks. Routers perform the traffic directing functions on the Internet. A data packet is typically forwarded from one router to another through the networks that constitute the internetwork until it reaches its destination node.

A router is connected to two or more data lines from different networks. When a data packet comes in on one of the lines, the router reads the address information in the packet to determine the ultimate destination. Then, using information in its routing table or routing policy, it directs the packet to the next network on its journey. This creates an overlay internetwork.

The World Wide Web:

计算机科学导论：

万维网，是连接分布在世界各地信息的知识库。不同于因特网提供的其他服务，WWW 是同时具有灵活性，可移植性和用户友好等特点的服务。现在 WWW 是一种分布式客户/服务器服务，其中客户使用浏览器访问服务器的服务。

Wiki:

The World Wide Web (WWW) is an information space where documents and other web resources are identified by URLs, interlinked by hypertext links, and can be accessed via the Internet. The World Wide Web was invented by English scientist Tim Berners-Lee in 1989. He wrote the first web browser in 1990 while employed at CERN in Switzerland. It has become known simply as the Web. When used attributively (as in web page, web browser, website, web server, web traffic, web search, web user, web technology, etc.) it is invariably written in lower case. Otherwise the initial capital is often retained ('the Web'), but lower case is becoming increasingly common ('the web').

Foundations of computer science:

The Web today is a repository of information in which the documents, called Web pages, are distributed all over the world and related documents are linked together. The popularity and growth of the Web can be related to two terms in the above statement: distributed and linked. Distribution allows the growth of the Web. Each web server in the world can add a new web Page to the repository and announce it to all Internet users without overloading a few servers. Linking allows one web page to refer to another web page stored in another sever somewhere else in the world. The linking of web pages was achieved using a concept called hypertext which was introduced many years before the advent of the Internet. The idea was to use a machine automatically retried another document stored in the system when a link to it appeared in the

document. The Web implemented this idea electronically. to allow the linked document to be retrieved when the link was clicked by the user. Today, the term hypertext, coined to mean linked text documents, has been changed to hypermedia, to show that a web page can be a text document, an image, an audio file, or a video file.

The WWW today is a distributed client-server service, in which a client using a browser can access a service using a server. However, the service provided is distributed over many locations called sites. Each site holds one or more documents, referred to as web pages. Each web page, however, can contain some links to other web pages in the same or other sites. In other words, a web page can be simple or composite. A simple web page has no links to other web pages; a composite web page has one or more links to other web pages. Each web page is a file with a name and address.

HTML:

计算机科学导论：

超文本标记语言，适用于常见 Web 页面的语言。允许我们在文件本身中嵌入格式化指令。

Wiki:

HyperText Markup Language (HTML) is the standard markup language for creating web pages and web applications. With Cascading Style Sheets (CSS), and JavaScript, it forms a triad of cornerstone technologies for the World Wide Web. Web browsers receive HTML documents from a webserver or from local storage and render them into multimedia web pages. HTML describes the structure of a web page semantically and originally included cues for the appearance of the document.

HTTP:

计算机科学导论：

超文本传输协议，是主要用来存取万维网中数据的协议。该协议用纯文本，超文本，音频，视频等形式传输数据。

Wiki:

The Hypertext Transfer Protocol (HTTP) is an application protocol for distributed, collaborative, hypermedia information systems. HTTP is the foundation of data communication for the World Wide Web

Foundations of computer science:

The HyperText Transfer Protocol (HITP) is a protocol that is used to define how the client-server programs can be written to retrieve web pages from the Web. An HTTP client sends a request; an HTTP server returns a response. The server uses the port number 80; the client uses a temporary port number.

Javascript:

计算机科学导论：

一种脚本语言。动态文档中的脚本思想也可以用在活动文档中。如果文档的活动部分较小，可以用脚本语言编写它，然后由客户端解释和运行。脚本是源码格式的文本，而不是二进制格式的。这种情况使用的脚本技术通常是 Java Script.

Wiki:

JavaScript (/ˈdʒɑːvəˌskrɪpt/) is a high-level, dynamic, untyped, and interpreted programming language. It has been standardized in the ECMAScript language specification. Alongside HTML and CSS, it is one of the three core technologies of World Wide Web content production; the majority

of websites employ it and it is supported by all modern Web browsers without plug-ins.

URL:
Wiki:

A Uniform Resource Locator (URL), commonly informally termed a web address (a term which is not defined identically) is a reference to a web resource that specifies its location on a computer network and a mechanism for retrieving it. A URL is a specific type of Uniform Resource Identifier (URI), although many people use the two terms interchangeably. A URL implies the means to access an indicated resource, which is not true of every URI. URLs occur most commonly to reference web pages (http), but are also used for file transfer (ftp), email (mailto), database access (JDBC), and many other applications.

Foundations of computer science:

A web page, as a file, needs to have a unique identifier to distinguish it from other web pages. To define a web page, we need three identifiers: host, port, and path. However, before defining the web page, we need to tell the browser what client-server application we want to use, which is called the protocol. This means we need four identifiers to define the web page. The first is the type of vehicle to be used to fetch the web page; The last three make up the combination that defines the destination object (web page)

Web Server:
Wiki:

A web server is a computer system that processes requests via HTTP, the basic network protocol used to distribute information on the World Wide Web. The term can refer to the entire system, or specifically to the software that accepts and supervises the HTTP requests.