**moduule 1: a brief review of computer science conceptS**

1. **Computers and the Concept of Internet** 
   * 1. ***Computers Architecture:***

A computer is a programmable machine that can be instructed to carry out calculations through arithmetical and logical operations. This is a device that is capable of solving calculations, storing, transmitting and processing data. Servers are computers that allow other computers to have access to its computational power or send and retrieve data. Typical Server systems are very efficient data storage systems due to the way their performance is optimized.

There are serval aspects of Computer Science such as Computer Systems Architecture, Computer Applications and Software, Theory of Computation etc. Computer scientist and Engineers design systems that have high performance statistics, deep security and are energy efficient.

* + 1. ***Internet Protocols and Network Connections:***

A computer network is simply a set of connected computers and these connected computers are referred to as nodes. These computers can share their network through several types of means like cables (like Ethernet or Fiber Optics cables) and Radio-waves. There are different techniques of connecting computers and the internet is just the most common. In this technique, the network first component is the hardware which includes the computers, cell phone towers, routers, servers and satellites. These components communication with each other over a certain set of rules known as protocol. The Two most prominent protocols are the *Transmission Control Protocol (TCP)* and the *Internet Protocol (IP).*

Computer networks support an enormous number of applications such as World Wide Web (WWW), Digital Video, Digital Audio, Instance Messaging and Email, and Fax machines. Today, among others application is the Blockchain. The blockchain (also known as Web3.0) is a network which is different from the World Wide Web (also referred to as Web2.0) but there are certain applications of the blockchain that can be made possible because of Web2.0.

**Further Reading:**

[Computer Science](https://en.wikipedia.org/wiki/Computer_science)

[Computer Networks](https://en.wikipedia.org/wiki/Computer_network)

[Computer Science Courses on edX](https://www.edx.org/course/subject/computer-science)

1. **Programming Skills and Languages:**

There are varieties of computer skills to be learnt. The most common of these skills revolves around Software Engineering, Computer Networking and Telecommunication. On the part of becoming a Blockchain developer, it is very important you focus on the Software Engineering skills.

As an Ardor Blockchain developer, you need to have understanding of Java, JavaScript, and Database languages like H2 or SQL. Having knowledge of Java Libraries will help.

1. **Open-Source Software (OSS)**

In today’s world, the use of computing has become so inevitable that the society needs to protect the use of free software, create network neutrality and stopping surveillance on people. Open-source Software is a type of free software in which the source code is released under a license and the copyright holder of the source code grant users the right to study, change, contribute, and distribute the software to anyone and for any purpose. Open-source is known for its collaborative public development style. This collaborative style might lead to slow development process but it helps build robust and resilient software systems. OSS can innovate faster, spread faster and can work faster and better than what any single company can do.

Since blockchain is design to be decentralized, i.e. without a central authority, the idea of making it open source makes it censorship resistant. Also, Blockchain as an OSS leaves the technologies more advance than anything any single company or institution can build.

**Further Reading:**

[Funding Open Source](https://www.youtube.com/watch?v=rVcADOjLimA)

[Free software, free society: Richard Stallman](https://www.youtube.com/watch?v=Ag1AKIl_2GM) (at TEDx Geneva, 2014)