Introduction to Computing

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The Computing Industry

- **Computing industry** - the sector that encompasses the development, maintenance, and use of computer systems, software, and networks for processing and distributing data.
- includes a wide range of activities from hardware manufacturing to software development and IT services.

Major sectors

Software Development

- Involves creating software applications and systems

Hardware Manufacturing

- Focuses on the design and production of physical computer components.

IT Services

- Provides support and management of IT infrastructure

Key players

Dominates the search engine market and has expanded into mobile operating systems (Android), cloud computing, and AI

Known for its innovation in personal devices like the iPhone, iPad, and Mac computers.

A leader in software development, particularly with its Windows OS and Office Suite, as well as cloud services through Azure.

Although primarily an e-commerce company, Amazon Web Services (AWS) is a major player in cloud computing.

The Computing Profession

Software Engineer/Developer

- Role: Design, develop, test, and maintain software applications.
- Skills: Proficiency in programming languages, problem solving, and software development methodologies.

Data Scientist

- Role: Analyze and interpret complex data to help organizations make informed decisions.
- Skills: Strong background in statistics, machine learning, and data visualization tools.

The Computing Profession

IT consultant

- Role: Advise organizations on how best to use IT to achieve their business goals.
- Skills: Deep understanding of IT infrastructure, project management, and communication skills.

Network administrator

- Role: Manage and maintain computer networks, ensuring security and connectivity.
- Skills: Expertise in network protocols, security, and troubleshooting.

Key Organizations and Standards

Importance:

- Organizations - Play a critical role in setting industry standards, promoting best practices, fostering innovation, and providing professional development resources.
- Standards - Ensure interoperability, security, and quality across different technologies, making it easier for systems to work together efficiently and securely.

Key Professional Organizations:

- ACM (Association for Computing Machinery)
- IEEE (Institute of Electrical and Electronics Engineers)
- ISO (International Organization for Standardization)
- W3C (World Wide Web Consortium)