Lesson 1

hardware platform - set of compatible hardware
platform - word extremely useful in IT
HARDWARE PLATFORM RELATED COMPONENTS
processor - an integrated electronic circuit
- found in many modern electronic devices
4 basic elements of processor:
ALU - arithmetic logic unit
FPU - floating-point unit
registers - store instructions
cache memories - store copies of data/similarly to RAM
CPU - fetch, decode, and execute
I/O devices - hardware used by a human operator/other system to communicate with a computer
- computers would not able to access/save date w/o it
examples of I/O
1. **User Input**
2. **Display**
3. **Sound**
4. **Storage**
5. **Printing**
6. **Memory**

bus interface - common hardware interface between CPU and peripheral devices
PCI express - (parallel/serial) current bus interface
Switched Architecture - Multiple lanes
- 32 independent, serial lanes (x1-x32) transfer in parallel
USB - (serial) permanently or temporarily attach almost anything
types of USB
1. **type b usb 3.0**
2. **type a usb 3.0**
3. **micro usb 3.0**
4. **micro usb 2.0**
5. **mini usb 2.0**

Device Class	**Typical Use**
Printer	*Printing*
Mass Storage	*USB storage drive*
Media Transfer	*Music transfer*
Hub	*USB hub*
Video	*Camera*
Wireless	*Bluetooth*

Lesson 2

platform - synonym of *operating system*
- underlying computer system (hardware/software)
3 categories of platforms:
Mainframe - industry term for a large computer
IBM(OS/390)
Midrange (server) - less computational power than mainframes
Sun(Solaris) IBM(AS/400)
Workstation - computer intended for individual/can also be connected to servers
Intel(Windows) Apple(Macintosh) Intel(Linux)

OS Terminology
Multitasking - ability of an OS to support multiple programs simultaneously
Time slicing - one microprocessor running the work station / simulated by time slicing
Single user system - personal comp / workstation intended to serve one person at a time
Multiuser system - has multiple workstations connected to it / can be accessed via local area network
Client/Server - server provides a resource ex. printer, database to clients
Processes/Threads - a task that competes for execution/share the resources of the parent process
Virtual memory - a computer design feature, permits software to use more main memory

OS Examples
OS/390 (MVS) OS/390 is the IBM OS most commonly installed on its S/390 line of mainframes
UNIX - originated at Bell Labs in 1969
Linux - a UNIX-like OS that was designed to provide free/very low-cost OS
Macintosh(Mac) - introduced in 1984 by Apple Computer/first widely-sold with GUI
Windows - generic name for Microsoft's family of OS/dominate the workstation & PC markets

Lesson 4

IT Infrastructure - composite hardware/software
- allows organization to deliver IT solutions/services to its employees/partners/customers
7 Main Components
Computer hardware platforms
ex. Dell, IBM, Sun, HP, Apple, Linux Machines
OS platforms
ex. MS Windows, Unix, Linux, Mac OS X, Chrome, Android, iOS
Enterprise software app
ex. SAP, Oracle, Microsoft, IBM
Data management & storage
ex. IBM DB2, Oracle, SQL Server, Sybase, MySQL, EMC, Apache, Hadoop
Networking/telecommunications platforms
ex. MS Windows Server, Linux, Novell, Cisco, Alcatel-Lucent, Nortel, AT&T Verizon

Internet platforms
ex. Apache, Microsoft IIS, .NET, Unix, Cisco, Java
Consulting system integration services
ex. IBM, HP, Accenture

Computer Hardware Platforms
Client Machines - Desktop PCs, mobile devices - PDAs, laptops
Servers - Blade servers: ultrathin computers stored in racks
Mainframes - IBM mainframe equivalent to thousands of blade servers
Top chip producers - AMD, Intel, IBM
Top firms - IBM, HP, Dell, Sun Microsystems

CONTEMPORARY HARDWARE PLATFORM TRENDS
The mobile Digital Platform
- Cell phones, smartphones
- Data transmission, web surfing, e-mail, IM duties

Netbooks
- small lightweight notebooks

Tablets(iPad)
Networked e-readers(Kindle and Nook)
BYOD (Bring your own device)
- Allowing employees to use personal device

CONSUMERIZATION OF IT
- New IT emerges in consumer markets
- Forces businesses and IT departments to rethink

GRID COMPUTING
- Connects geographically remote computers
- Provides cost savings,speed,agility

VIRTUALIZATION
- run multiple instances of OS
- reduces hardware and power expenditures

CLOUD COMPUTING
- On-demand computing services obtained over network
  Infrastructure as a service
  Platform as a service
  Software as a service
- cloud can be public or private
- allows companies to minimize IT investments
- Drawbacks:
  concerns of security, reliability
    - hybrid cloud computing model

OPEN-SOURCE SOFWARE:
ex. Apache web server, Mozilla Firefox browser, OpenOffice

LINUX
- Open-source OS
  used in mobile devices, local area networks, web servers, high-performance computing

WEB SERVICES
- XML: Extensible Markup Language
- More powerful and flexible than HTML

SOA: Service-Oriented Architecture
ex. an "invoice service" to serve whole firm for calculating and sending printed invoices

SOFTWARE OUTSOURCING AND CLOUD SERVICES PT1
Three external sources for software:
1. Software packages and enterprise software
2. Software outsourcing
   - Contracting outside firms to develop software
3. Cloud-based software services
   - Software as a service (SaaS)
   - Accessed with Web browser over Internet
   - Service Level Agreements (SLAs):formal agreement with service providers

Mashups
- combinations of 2 or more online app

Apps
- small pieces of software that run on the internet
- generally delivered over the internet