Nama : Andik Setyono

Pendidikan :
- S1-Sistem Informasi Udinus (lulus 2003)
- S2-Teknik Informtika Udinus (lulus 2005)
- S3-Teknologi Informasi MMU Malaysia (lulus 2012)

Research Interest : Mobile Multimedia Computing and Communication

Mata Kuliah Smt ini :
- PTI, Tata Tulis Karya Ilmiah, Metodologi Penelitian, Jaringan Komputer, PDK

HP : 081313909043
Nilai Tugas: 40%
Mid Test: 30%
Final Exam: 30%

TOLERANSI KETERLAMBATAN MAX 30 MENIT
Definition: *Information Technology (IT)* describes any technology that helps to produce, manipulate, store, communicate, and/or disseminate information

- Part 1: Computer Technology
- Part 2: Communication Technology

**Discussion Question:** How many times today did YOU use one of these technologies?
Why become computer savvy (intelligent)?

- Know how to use search engines
  - Boolean operators and advanced search
- Know how to make better buying decisions
- Know how to fix ordinary computer problems
- Know how to upgrade equipment
- Know how to guard against online villains
  - Virus/malware scanning
- Know how computer knowledge can advance your career

Discussion Question: What was your worst computer problem?
How is IT being used in Education?

- 99% of schools have internet access
- 1/5 of college students report they were using computers between ages 5 and 8
- All college students report using computers by the time they were 16-18 years old
- Many college classes are either taught online or have a class website

**Definition:** Distance Learning is online education

*Discussion Question:* Have you ever used the computer in your classroom for something other than the work in that class?
Rules for Computers in Classrooms

- Problem: Computers in the classroom can be *used* or *misused.*

- **What should they be used for?**
  - Following the lecture slides
  - Working along with the instructor
  - Performing instructor-assigned internet searches
  - Completing assignments for this class

- **What is misuse?**
  - Text messaging or emailing friends
  - Surfing the internet for entertainment
  - Doing assignments for other classes

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Health: High Tech for Wellness

- Telemedicine: Medical care via telecommunications lets doctors treat patients from far away
- 3D Computer models allow accurate tumor location inside a skull
- Robots permit precise microsurgery
- Health websites provide medical information
Money: Cashless Society?

- **Definition:** *Virtual* means something that is created, simulated, or carried on by means of a computer or a computer network
- **Virtual money**
  - Cash-value cards
  - “Electronic wallets” (e.g., PayPal)
  - Electronic payroll deposit
  - Online bill paying
  - Micropayments for online music

**Discussion Question:** How important is security if all your money is virtual?
Leisure: Infotech in Entertainment & the Arts

- Videogames
- Downloading
  - Music
  - Movies
- Digital animation
- Digital editing

Discussion Question: How are your leisure activities affected by information technology?
IT in Government & Democracy

- It helps governments deliver better services.
- It makes government operations more transparent.
- IT changes the nature of politics.
  - Easier fund raising from small donors
  - Gerrymandering—redraw voting districts for partisan advantage
- Voting machine problems

Discussion Question: How have computers changed government and politics? What could happen in the future?
Jobs & Careers

- **Hotels:** Desk clerks use computerized reservations systems
- **Law Enforcement:** Officers use computers
  - On patrol
  - To check stolen cars
  - To check criminal records
  - To check arrest warrants
- **Entertainment:**
  - Office uses such as budgets, payroll, ticketing
  - Also virtual set design, 3-D animation, special effects

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Jobs & Careers

- Office careers: Budget, payroll, letter-writing, email
- Teaching: Automated grading systems, emailing parents
- Fashion: Sales/inventory control systems, ordering, personnel
- Job-hunting:
  - Use word processor to create resumes
  - Post resumes online
  - Online job searches

Discussion Question: Can anyone think of a career that does NOT require computer skills at all?
Email’s Mass Impact

- Introduced in 1981
- Reached 10 million users in about one year
- Fastest growing technology
- 1998 surpassed hand-delivered mail
- In business, at least, email requires writing skills

Discussion Question: Is text messaging going to replace email?
Cyberspace

- Term coined by William Gibson in *Neuromancer* (1984)
- Described a futuristic computer network people “plugged” into directly with their brains

Now term *cyberspace* encompasses:

- The internet & the World Wide Web in particular
- The wired and wireless communications world in general
- Thus, cyberspace includes chat rooms, blogs, ATMs, etc.
- Two most important aspects: internet and web
Internet, World Wide Web, & Cyberspace

- Internet
  - The worldwide computer network that links thousands of smaller networks
  - Links educational, commercial, nonprofit, and military entities, plus individuals
  - Originally developed to share only text and numeric data
Internet, World Wide Web, & Cyberspace

- World Wide Web
  - The multimedia part of the internet
  - An interconnected system of servers that support specially formatted documents in multimedia form
  - Includes text, still images, moving images, sound
  - Responsible for the growth and popularity of the internet

Discussion Question: How much do you think the web influences your life?
Five Computer Types

- Supercomputers
  - Priced from $1 million to $350 million
  - High-capacity machines with thousands of processors
  - Multi-user systems
  - Used for U.S. Census, weather forecasting, designing aircraft, etc.

- Mainframe Computers
- Workstations
- Microcomputers
- Microcontrollers
Five Computer Types

- Supercomputers
- Mainframe Computers
  - Priced from $5,000 to $5 million
  - Water-cooled or air-cooled
  - Used by banks, airlines, colleges for millions of transactions
- Workstations
- Microcomputers
- Microcontrollers
Five Computer Types

- Supercomputers
- Mainframe Computers
- Workstations
  - Introduced in early 1980s
  - Expensive, powerful personal computers
  - Required for scientific, mathematical, engineering, computer-aided design (CAD), computer-aided manufacturing (CAM)
  - Used for designing cars, drugs, movie special effects
- Microcomputers
- Microcontrollers

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Five Computer Types

- Supercomputers
- Mainframe Computers
- Workstations
- Microcomputers
  - Personal computers that cost $500 to $5000
  - Used either stand-alone or in a network
  - Types include: desktop, tower, notebooks, netbooks, mobile internet devices (MIDs), personal digital assistants (PDAs)
- Microcontrollers
Five Computer Types

- Supercomputers
- Mainframe Computers
- Workstations
- Microcomputers
- Microcontrollers
  - Also called embedded computers
  - Tiny, specialized microprocessors inside appliances & automobiles
  - They are in: microwaves, programmable ovens, blood-pressure monitors, air bag sensors, vibration sensors, MP3 players, digital cameras, keyboards, car engines, etc.
Servers

- Server name describes the way a computer—whether mainframe, workstation, or PC—is used.
- A central computer
- Purpose: Hold data and programs to connect to and supply services for clients
  - Clients are other computers, such as PCs or workstations, on which users run applications

Discussion Question: Are you currently in a lab that uses a server?
Understanding Your Own Computer

- 3 key concepts
  - Purpose of a computer
    - Turn data into information
    - Data: the raw facts and figures
    - Information: data that has been summarized and manipulated for use in decision making
  - Hardware vs. Software
    - Hardware is the machinery and equipment in the computer
    - Software is the electronic instructions that tell the computer how to perform a task

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Understanding Your Own Computer

- 3 key concepts (continued)
  - The basic operations
    - Input: What goes in to the computer system
    - Processing: The manipulation a computer does to transform data into information
  - Storage:
    - *Primary storage*, or *memory*, is temporary storage.
    - *Secondary storage* is permanent storage: media such as DVDs and CDs
  - Output: What comes out
    - Numbers or pictures on the screen, printouts, sounds
  - Communications: Sending and receiving data
Building Your Own PC

- What would you need?
  - Keyboard & Mouse
  - Inside the system cabinet
    - Case and power supply
    - Processor chip – the Central Processor Unit (CPU)
    - Memory chips – Random Access Memory (RAM)
    - Motherboard – the system board
      - Memory chips plug in
      - Processor chip plugs in
      - Motherboard attaches to system cabinet
      - Power supply is connected to system cabinet
      - Power supply wire is connected to motherboard
Building Your Own PC

- **Storage Hardware**: Floppy, Hard Drive, CD/DVD Drive
  - Storage capacity is represented in bytes
    - 1 byte = 1 character of data
    - 1 kilobyte = 1,024 characters
    - 1 megabyte = 1,048,576 characters
    - 1 gigabyte = over 1 billion characters
    - 1 terabyte = over 1 trillion characters
    - 1 petabyte = about 1 quadrillion characters
  - Permanently installed: floppy-disk drives, hard drives, CD/DVD drives
  - Removable media: floppy disks, CDs, DVDs
Building Your Own PC

- Output hardware
  - Video
  - Sound cards
  - Monitor
  - Speakers
  - Printer
- Communications hardware
  - Modem
Software

- System Software—performs essential operating tasks
  - Most important part: operating system
  - Operating system options
    - Windows
    - Unix
    - Linux
    - Mac OS
- Application Software—enables user to perform tasks
  - Install after the OS
  - Application depends on OS, for example
    - Linux applications won’t work on Windows
    - Windows applications won’t work on Linux
Future of Information Technology

- 3 directions of Computer Development
  - Miniaturization
  - Speed
  - Affordability

- 3 directions of Communications Development
  - Connectivity
  - Interactivity
  - Multimedia
When Computers & Communications Combine: Five Results

- Convergence--the combination of 5 industries
  - Computers
  - Communications
  - Consumer electronics
  - Entertainment
  - Mass media
- Portability
- Personalization
- Collaboration
- Cloud computing
Ethics

- Definition: *Ethics is the set of moral values or principles that govern the conduct of an individual or group.*
- 3 ethical considerations resulting from development of IT:
  - Speed & scale
  - Unpredictability
  - Complexity

Discussion Question: How important is ethics if all your personal information, health information, AND virtual money is stored on computers?