Component 4: Introduction to Information and Computer Science

Unit 1: Basic Computing Concepts, Including History

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Version 1.0/Fall 2010   1

Personal Computers

- Up until 1970s, large computers and mainframes were used by government, large industries and universities
- Reduced size and cost of microprocessors led to computers for personal use
- People who had been programming large machines at work and school could now own their own computers at home!

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Version 1.0/Fall 2010   2

First Personal Computer
Altair 8800

MITS

BUILDING
YOUR OWN COMPUTER
WON'T BE A PIECE OF CAKE.

- Available in 1975 as a kit or fully assembled
- Programmed with switches
- Output was given with flashing lights
- Very popular with hobbyists
  – Bill Gates and Paul Allen started Microsoft with compiler for Altair

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Apple

Apple I computer
Computer History
Museum
Mountain View,
California

- Steve Jobs and Steve Wozniak started Apple Computer Company in 1976
- Apple I (1976) was a kit—user had to provide keyboard, power supply and monitor.
- Apple II (1977) came with keyboard, monitor and floppy drive

Apple II Computer

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IBM Personal Computers

- In 1981, IBM released its first personal computer
  - Based on Intel 8088 chip
  - Used off the shelf parts, software
- Because its architecture wasn't proprietary, led to the development of "clones"
- Used for business and personal use
- Launched success of Microsoft

IBM PC
http://en.wikipedia.org/wiki/File:I
BM_PC_5150.jpg

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Software

- These machines needed software to run programs
- The operating system is necessary for coordinating with the hardware
  - DOS was developed for Apple
  - QDOS was developed for Intel Chip
    - Bought by Microsoft
    - Became MS-DOS for IBM PC

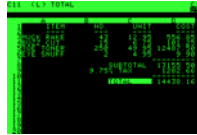Component 4/Unit 1 · Health IT Workforce Curriculum Version 1.0/Fall 2010 · 6

First Popular Software Program

- VisiCalc was developed by Harvard Business School students Dan Bricklin and Bob Frankston in 1978

VisiCalc

- Spreadsheet program for PC
- 100,000+ copies were sold the first year

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7

The Internet

- In the meantime, the beginnings of the Internet were starting
- In 1969, ARPANET connected 4 universities
  - Sponsored by the US Government for connecting researchers
  - Motivated by the Cold War
- By 1971 there were 15 sites on the network
- By 1980's there were over 1000 sites on the network and the term Internet is born

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Version 1.0/Fall 2010

8

The Internet

Historic World Wide Web Logo

- Other networks formed and eventually all merged to become the Internet
- In 1989, Tim Berners Lee developed the World Wide Web software
- In 1992, Congress votes to allow commercial activity on the Internet
- In 1993, first web browsers were released
- In 1997, PubMed was launched

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Version 1.0/Fall 2010

9

The Perfect Storm in the 1990's

- Personal computers became faster, cheaper and smaller as technology advanced
  - More households and people purchased computers
- Microsoft introduced Windows
  - Computer interaction easier with a mouse and graphical user interface
- The Internet was open to commercial use and browsers made exploring websites easy
- ➡ The Internet Boom!

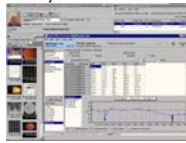Component 4/Unit 1   Health IT Workforce Curriculum Version 1.0/Fall 2010   10

Electronic Medical Records

- Become more pervasive in the 1990's
- In 1996, HIPAA was passed establishing rules for accessing and storing electronic medical records
- By 2000, 16% private physicians, < 10% hospitals used EMRs
- By 2005, 25% private physicians used EMRs

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Since Then...

- Personal Data Assistants introduce hand held computing
  - Smartphones replace PDAs
- Wireless networks are widely available
  - Mobile computing is now pervasive
- Social networking sites connect people
- Computers and the Internet are ubiquitous
- HITECH act passed in 2009 to provide incentives for EMR use starting in 2011

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The Future?

- Computing technology will continue to become faster, more powerful and smaller
- Mobile and cloud computing are hot topics
- More ubiquitous?
- More embedded computers?
- Difficult to say for sure…

Cloud Computing Diagram

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13