

INFORMATION SYSTEMS IN HEALTH CARE

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Lesson 4 – Winter Term 2014

Schedule

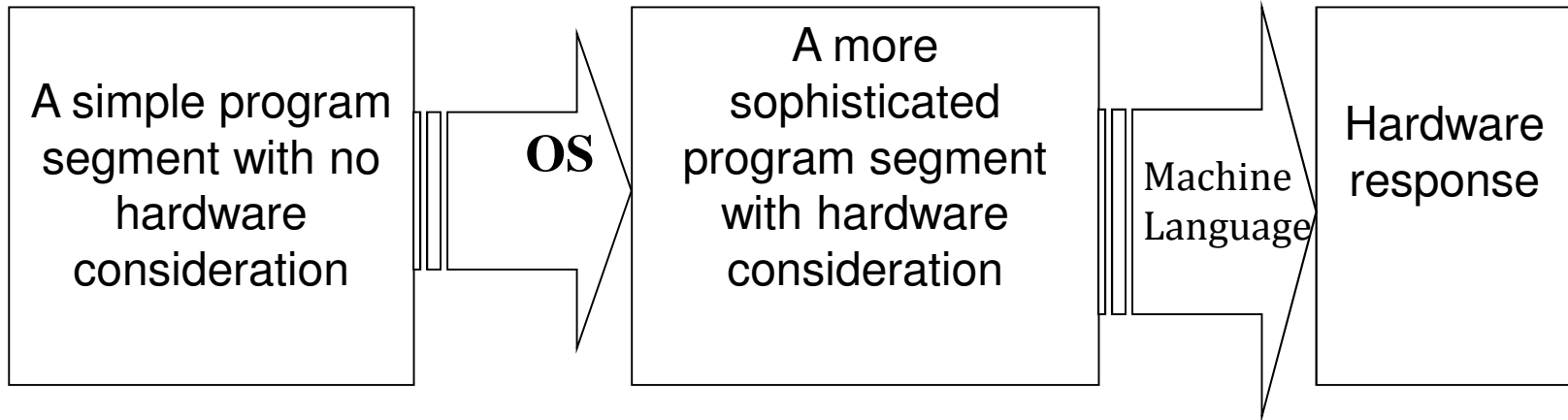
1. **Operation systems**
2. **GaiaEHR**
3. **Conclusion**

Operation systems

Operating systems

- ❑ An Operating System (OS) is a program which acts as an *interface* between computer system users (& their software) and the computer hardware (& the BIOS).
- ❑ An OS provides services for
 - ▣ Processor Management
 - ▣ Memory Management
 - ▣ File Management
 - ▣ Device Management
 - ▣ Concurrency Control





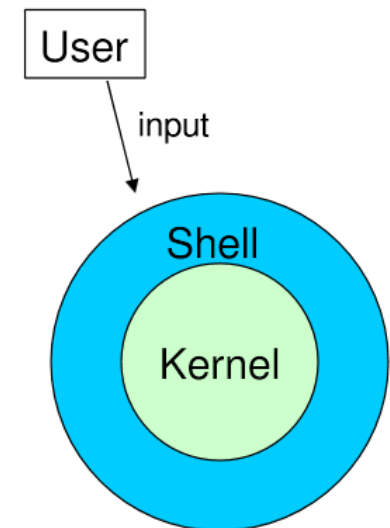
`c = a + b ;`

LDAA \$80 → Loading the number at memory location 80
LDAB \$81 → Loading the number at memory location 81
ADDB → Adding these two numbers
STAA \$55 → Storing the sum to memory location 55



Operating systems - Linux

- Linux is an operating system
 - ▣ Linux is described as kernel & shell
 - The kernel controls the hardware (CPU, RAM, hard disks, etc.)
 - The Shell is the interface between the user and the kernel
 - ▣ Linux supports multi-tasking
 - ▣ The directory structure starts with the root „/“
 - ▣ Important directories are /bin, /mnt, /home, /var, /etc
 - ▣ Linux distributions: Red Hat, Debian, SuSE, Mandrake
 - ▣ Basic commands
 - cd, ls, touch, cp, rm, pwd, mkdir, rmdir, cat, ps



Operating systems - Linux

□ Tutorial

- ▣ Download PuTTY remote client
- ▣ Connect to a linux server, port 22
- ▣ Create a subdirectory ,clinic'
 - mkdir clinic
- ▣ Change to the newly created subdirectory
 - cd clinic
- ▣ Create a patients directory file (name and age)
 - vi patients.txt
 - ▣ ESC+i for editing
 - ▣ ESC+:+wq for saving and exiting
- ▣ Display the content of the file
 - cat patients.txt

Operating systems - Linux

□ Tutorial

▣ Display only the patients names

- `awk '{print $1;}' patients.txt`

▣ Find patients older than 40 years

- `awk '$2>40' patients.txt`

▣ Calculate the average patient age

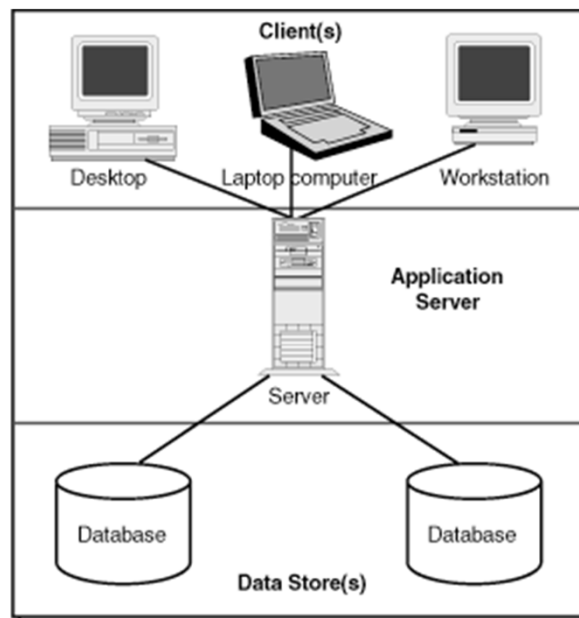
- `awk 'BEGIN {totalAge=0; countPatient=0;}
 {totalAge=totalAge+$2; countPatient=countPatient+1;}
 END {print "Average patient age is ",totalAge/countPatient;}
 ' patients.txt`

▣ Find the oldest patient

GaiaEHR

GaiaEHRArchitecture

- GaiaEHR is a web-based 3-tier application
 - ▣ The client sends a request using a web browser
 - ▣ The web and application server receives a processes the request
 - ▣ The database server executes queries against a database



GaiaEHR

- <http://gaiaehr.org/demo/> (admin/pass)
- Tutorial
 - Create a new patient
 - Enter demographics, contact, provider, employment, primary insurance with the employer as subscriber
 - Manage patient pool area
 - Add the patient to the arrival log
 - Move the patient to the triage, and to physician area
 - Open a new encounter for first visit
 - Enter a brief description, allergies
 - Enter system checks, vitals
 - Add current vaccines, allergies, medial problems, medications and past surgeries
 - Checkout the encounter
 - Open a new encounter for establish patient
 - Enter a brief description
 - Create a prescription, an immunoglobulin laboratory order, a chest x-ray order
 - Checkout the encounter
 - Move the patient to the checkout area
 - Schedule your patient for next Tuesday
 - Send a message to another health provider in your clinic
 - Print a clinical report, an immunization registry report and a billing report

Homework

- ❑ Compare two Linux distributions of your choice.
- ❑ Name 5 different operating systems and for each of them, a healthcare information system that can run on the top.
- ❑ What are the major differences in operating systems on smartphones and those on personal computers regarding:
 - ▣ Memory and storage management
 - ▣ Processes and threads management
 - ▣ Multi-users management
 - ▣ Graphical user interface
- ❑ Send your essay as editable document (e.g. MS Word format) by Oct 19

Plan for next week

- Databases