Operating systems –Lecture3

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Text Book :

Modern Operating Systems

Andrew S Tanenbaum and Herbert Bos

Operating System Concepts

Avi Silberschatz, Peter Baer Galvin, Greg Gagne

Operating systems –introduction

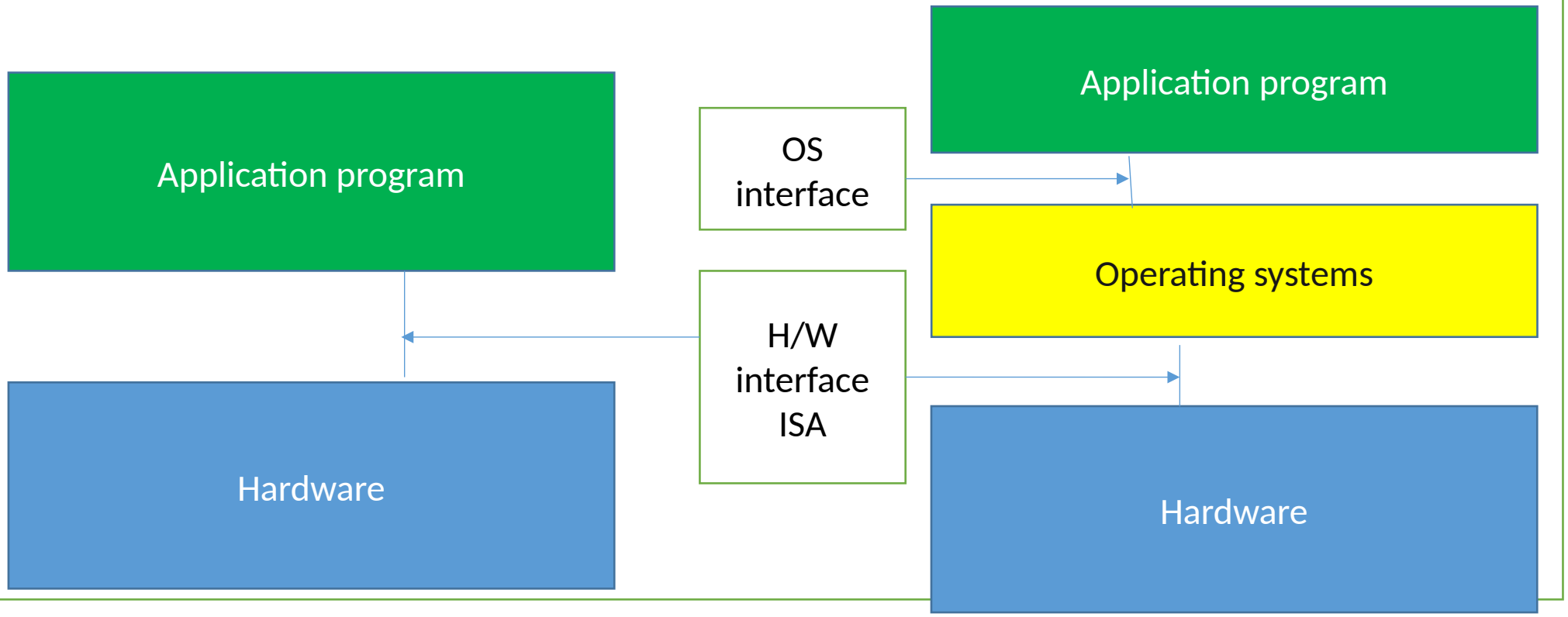
```
……..
a=10;
b=20;
c=a+b;
……..…
……..…
printf(“%d”, c);
……..
```

```
fd=open(“file name”, mode);
……..
int read(fd, buffer, n);
……..
int write(fd, buffer, size);
……..
```

Introduction

Hardware interface: ISA of the machine

OS interface: system calls



What is an OS

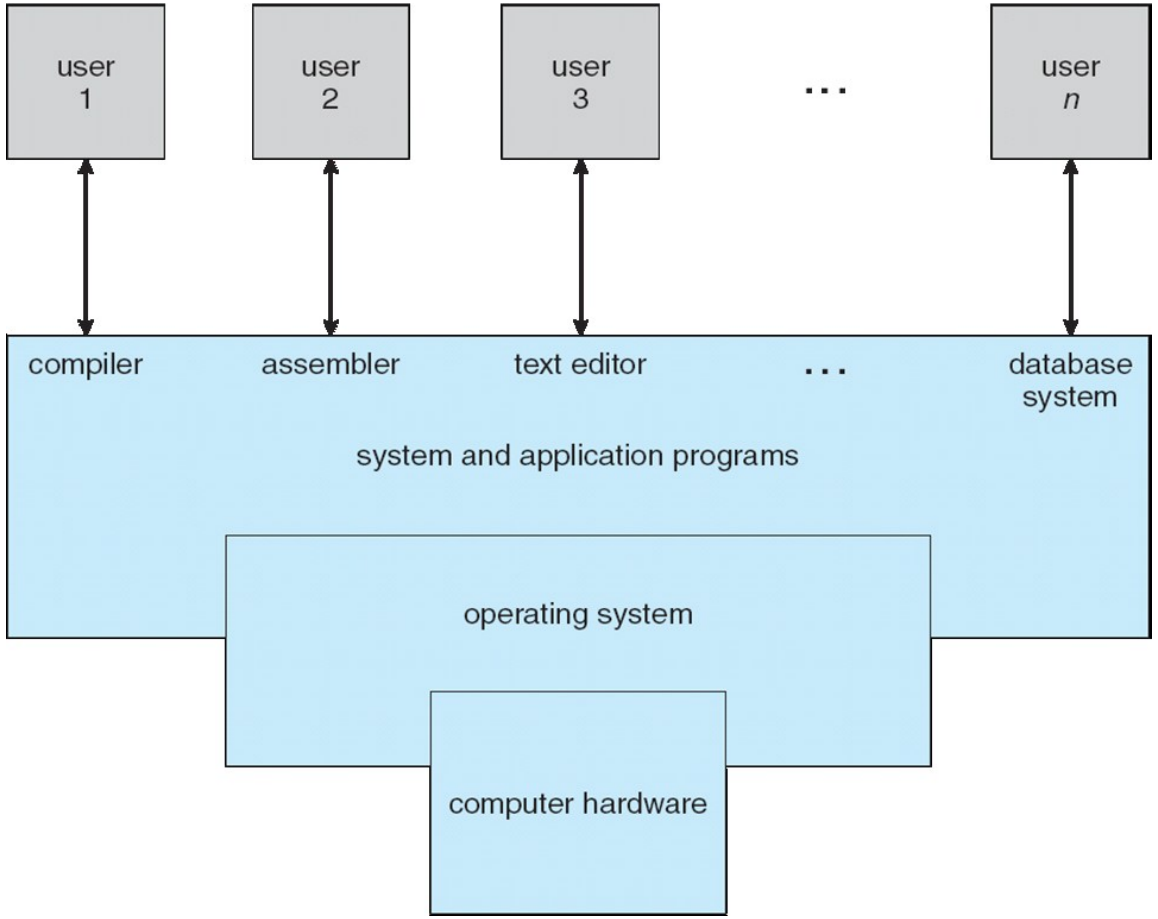
- An OS is a program that acts an intermediary between the user of a computer and computer hardware.
- Operating system goals:
  - Execute user programs and make solving user problems easier
  - Make the computer system convenient to use
  - Use the computer hardware in an efficient manner

- Major cost of general purpose computing is software.
  - OS simplifies and manages the complexity of running application programs efficiently.

Computer System Structure

- Computer system can be divided into four components
  - Hardware – provides basic computing resources
    - CPU, memory, I/O devices
  - Operating system
    - Controls and coordinates use of hardware among various applications and users
  - Application programs – define the ways in which the system resources are used to solve the computing problems of the users
    - Word processors, compilers, web browsers, database systems, video games
  - Users
    - People, machines, other computers

Computer System Structure



Operating System Definition

- OS is a **resource allocator**
  - Manages all resources
  - Decides between conflicting requests for efficient and fair resource use
- OS is a **control program**
  - Controls execution of programs to prevent errors and improper use of the computer

- No universally accepted definition
- "Everything a vendor ships when you order an operating system" is good approximation
  - But varies wildly
- "The one program running at all times on the computer" is the **kernel.** Everything else is either a system program (ships with the operating system) or an application program