

MSIT 103

Operating Systems

Outline

1. Administrative details

- Class Schedule
- General Issues
- Assessment
- Syllabus
- Learning outcomes
- Objectives

2. Introduction

Administrative details

Class Schedule/ Meeting times

Saturday: 2-4 pm (lecture/ Lab)

Room: MSIT/CIT LAB or CET CPE LAB

Administrative details

General Issues:

Attendance at all lectures and lab is mandatory

Oral presentations and other assigned task are mandatory

Class social media site

All lectures, reports, homeworks, past exams, etc. can be found on:

FACEBOOK GROUP: MSIT 103- OPERATING SYSTEMS

Assessment

ORAL PRESENTATION- 30%

CASE STUDY- 30%

Assignment/ Class participation/ attendance -20%

Written Exam- 20%

Assessment Instruments: ORAL PRESENTATION

PRESENCE54 3 2 1 0

-body language & eye contact

-contact with the public

-poise

-physical organization

LANGUAGE SKILLS54 3 2 1 0

-correct usage

-appropriate vocabulary and grammar

-understandable (rhythm, intonation, accent)

-spoken loud enough to hear easily

ORGANIZATION

54

3

2

1

0

-clear objectives

-logical structure

-signposting

MASTERY OF THE SUBJECT

54

3

2

1

0

-pertinence

-depth of commentary

-spoken, not read

-able to answer questions

VISUAL AIDS 5 4 3 2 1 0

-transparencies, slides

-handouts

-audio, video, etc.

OVERALL IMPRESSION 5 4 3 2 1 0

-very interesting / very boring

-pleasant / unpleasant to listen to

-very good / poor communication



	SUPERIOR	ADEQUATE	MINIMAL	INADEQUATE
Content	The speaker provides a variety of types of content appropriate for the task, such as generalizations, details, examples and various forms of evidence. The speaker adapts the content in a specific way to the listener and situation.	The speaker focuses primarily on relevant content. The speaker sticks to the topic. The speaker adapts the content in a general way to the listener and the situation.	The speaker includes some irrelevant content. The speaker wanders off the topic. The speaker uses words and concepts which are inappropriate for the knowledge and experiences of the listener (e.g., slang, jargon, technical language).	The speaker says practically nothing. The speaker focuses primarily on irrelevant content. The speaker appears to ignore the listener and the situation.
Delivery	The speaker delivers the message in a confident, poised, enthusiastic fashion. The volume and rate varies to add emphasis and interest. Pronunciation and enunciation are very clear. The speaker exhibits very few disfluencies, such as "ahs," "uhms," or "you knows."	The volume is not too low or too loud and the rate is not too fast or too slow. The pronunciation and enunciation are clear. The speaker exhibits few disfluencies, such as "ahs," "uhms," or "you knows."	The volume is too low or too loud and the rate is too fast or too slow. The pronunciation and enunciation are unclear. The speaker exhibits many disfluencies, such as "ahs," "uhms," or "you knows." The listener is distracted by problems in the delivery of the message and has difficulty understanding the words in the message.	The volume is so low and the rate is so fast that you cannot understand most of the message. The pronunciation and enunciation are very unclear. The speaker appears uninterested.
Organization	The message is overtly organized. The speaker helps the listener understand the sequence and relationships of ideas by using organizational aids such as announcing the topic, previewing the organization, using transitions, and summarizing.	The message is organized. The listener has no difficulty understanding the sequence and relationships among the ideas in the message. The ideas in the message can outlined easily.	The organization of the message is mixed up and random. The listener must make some assumptions about the sequence and relationship of ideas.	The message is so disorganized you cannot understand most of the message.
Creativity	Very original presentation of material; captures the audience's attention.	Some originality apparent; good variety and blending of materials / media.	Little or no variation; material presented with little originality or interpretation.	Repetitive with little or no variety; insufficient use of materials / media.
Length of Presentation	Within two minutes of allotted time .	Within four minutes of allotted time.	Within six minutes of allotted time .	Too long or too short; ten or more minutes above or below the allotted time.

Case study: Group work

Case study of Linux, Windows 8, Unix, Mac OS

History, Design Principles , Kernel Modules , Process management , Scheduling , Memory management , File Systems , Input and Output , Inter process communication , Network structure , Security

Syllabus

Course Description

This course includes different policies and strategies used by an operating system. Topics include operating systems structures, process management, storage management, file management and distributed systems.

Outcomes: Learner will be able to

1. Appreciate the role of operating system as System software.
2. Compare the various algorithms and comment about performance of various algorithms used for management of memory, CPU scheduling, File handling and I/O operations.
3. Apply various concept related with Deadlock to solve problems related with Resources allocation, after checking system in Safe state or not.
4. To appreciate role of Process synchronization towards increasing throughput of system.
5. Describe the various Data Structures and algorithms used by Different Oss like Windows XP , Linux and Unix pertaining with Process , File , I/O management.
6. To control the behavior of OS by writing Shell scripts.

Topics: (for oral presentation)

Chapter 1 Introduction

Chapter 2 Computer-System Structures

Chapter 3 Operating-System Structures

Chapter 4 Processes

Chapter 5 CPU Scheduling

Chapter 6 Process Synchronization

Chapter 7 Deadlocks

Chapter 8 Memory Management

Chapter 9 Virtual Memory

Chapter 10 File-System Interface

Chapter 11 File-System Implementation

Chapter 12 I/O Systems

Chapter 13 Secondary-Storage Structure

Chapter 14 Tertiary-Storage Structure

Chapter 15 Network Structures

Chapter 16 Distributed System Structures

Chapter 17 Distributed File Systems

Chapter 18 Distributed Coordination

Chapter 19 Protection

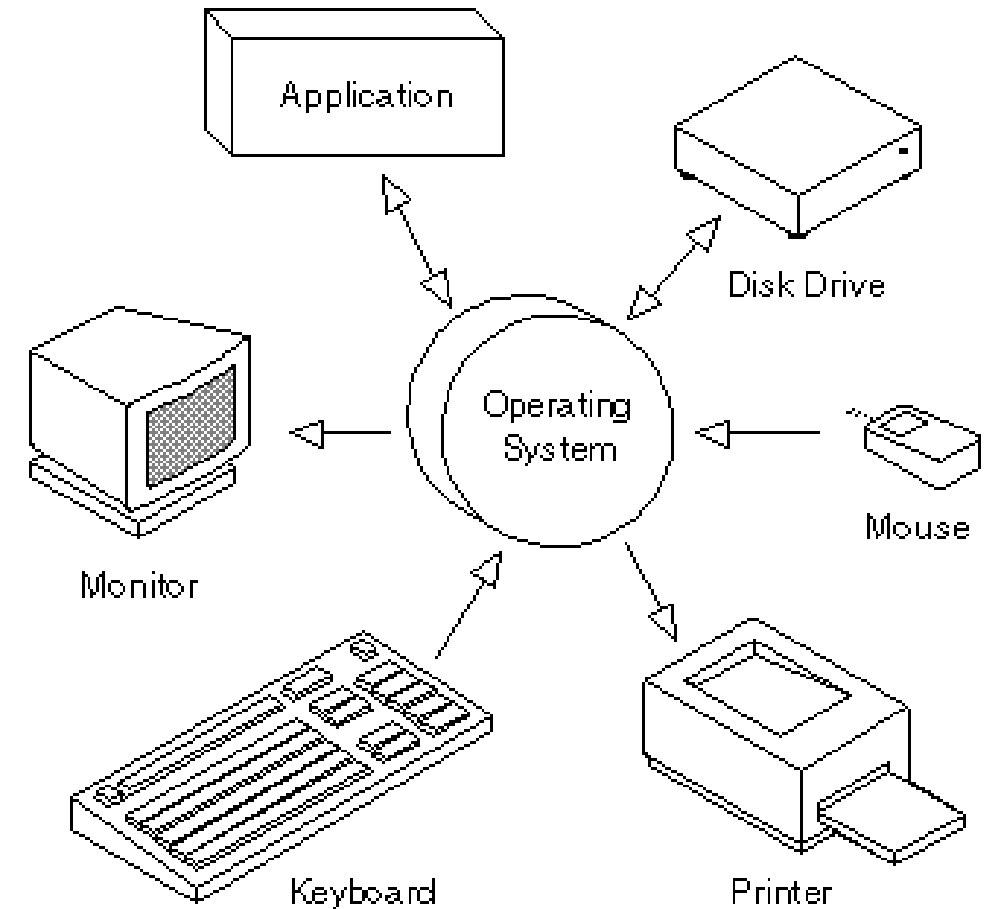
Chapter 20 Security

Objectives:

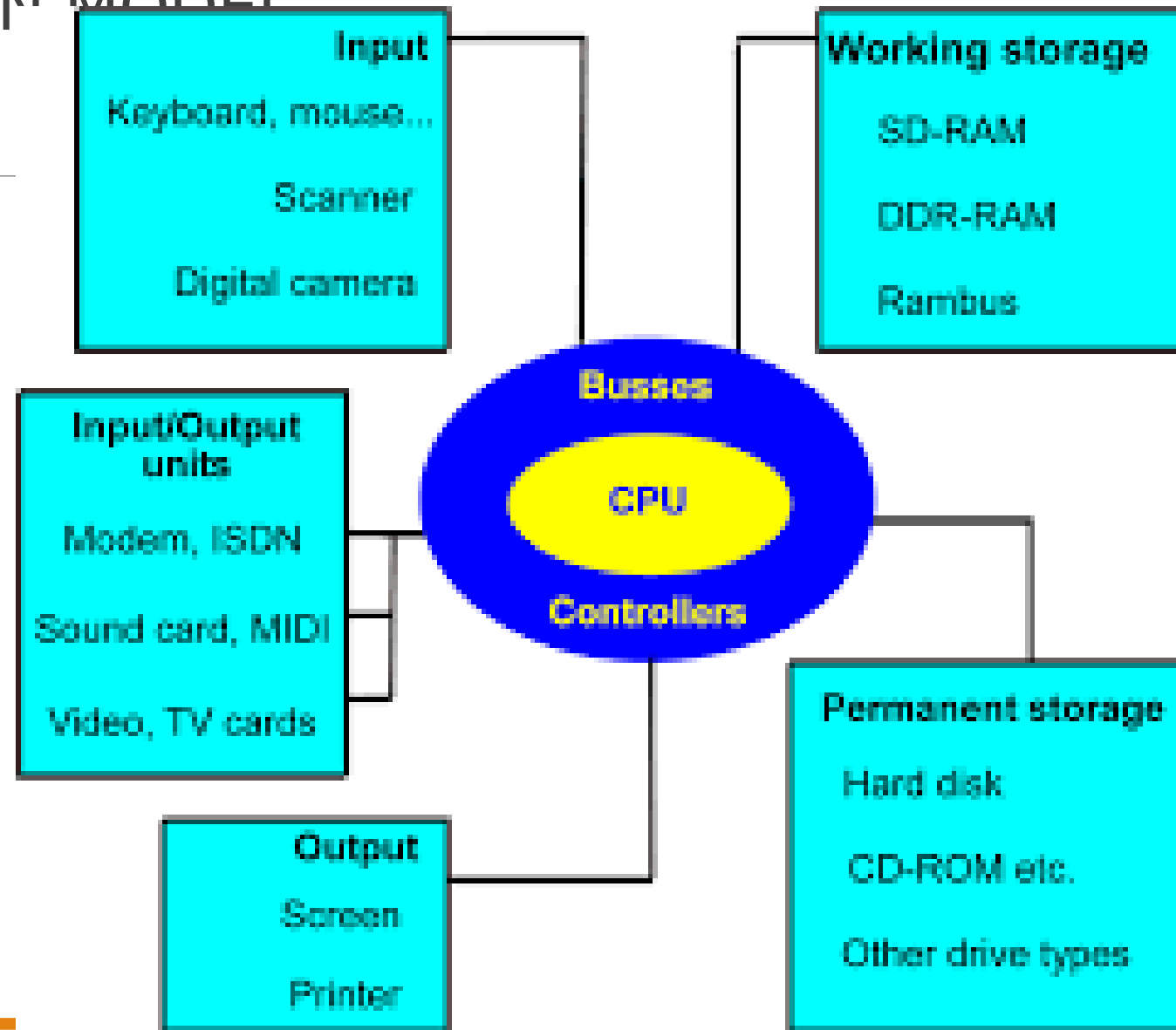
1. To introduce students with basic concepts of Operating System, its functions and services.
2. To familiarize the students with various views and management policies adopted by O.S. as pertaining with processes , Deadlock , memory , File and I/O operations.
3. To brief the students about functionality of various OS like Unix , Linux and Windows XP as pertaining to resource management.
4. To provide the knowledge of basic concepts towards process synchronization and related issues.

Definition

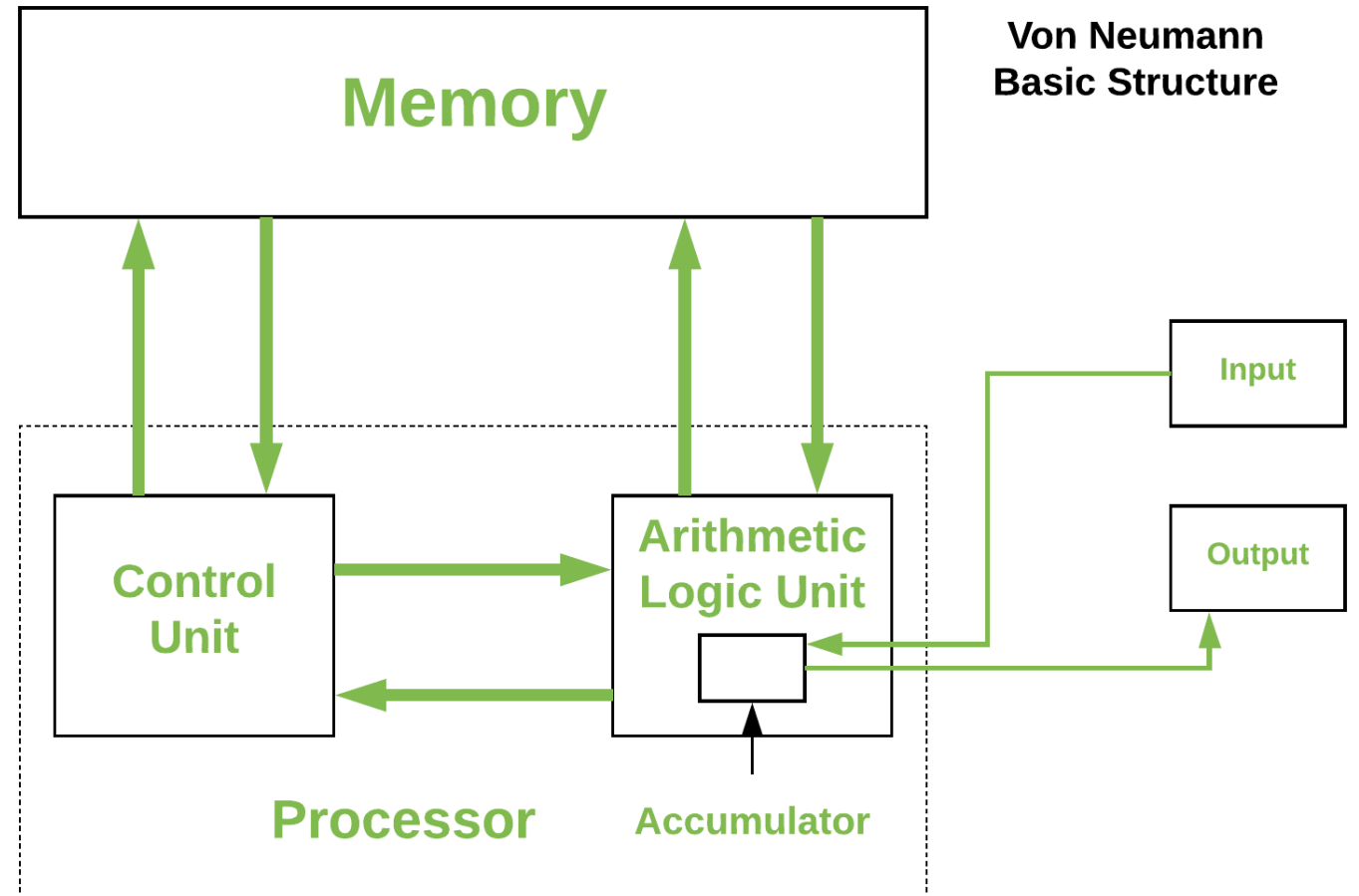
- An Operating System, or OS, is low-level software that enables a user and higher-level application software to interact with a computer's hardware and the data and other programs stored on the computer.
- An OS performs basic tasks, such as recognizing input from the keyboard, sending output to the display screen, keeping track of files and directories on the disk, and controlling peripheral devices such as printers.



VON NEUMAN' MODEL



The modern computers are based on a stored-program concept introduced by John Von Neumann. In this stored-program concept, programs and data are stored in a separate storage unit called memories and are treated the same. This novel idea meant that a computer built with this architecture would be much easier to reprogram.



Historically there have been 2 types of Computers:

FixedProgram Computers -Their function is very specific and they couldn't be programmed, e.g. Calculators.

Stored Program Computers -These can be programmed to carry out many different tasks, applications are stored on them, hence the name.

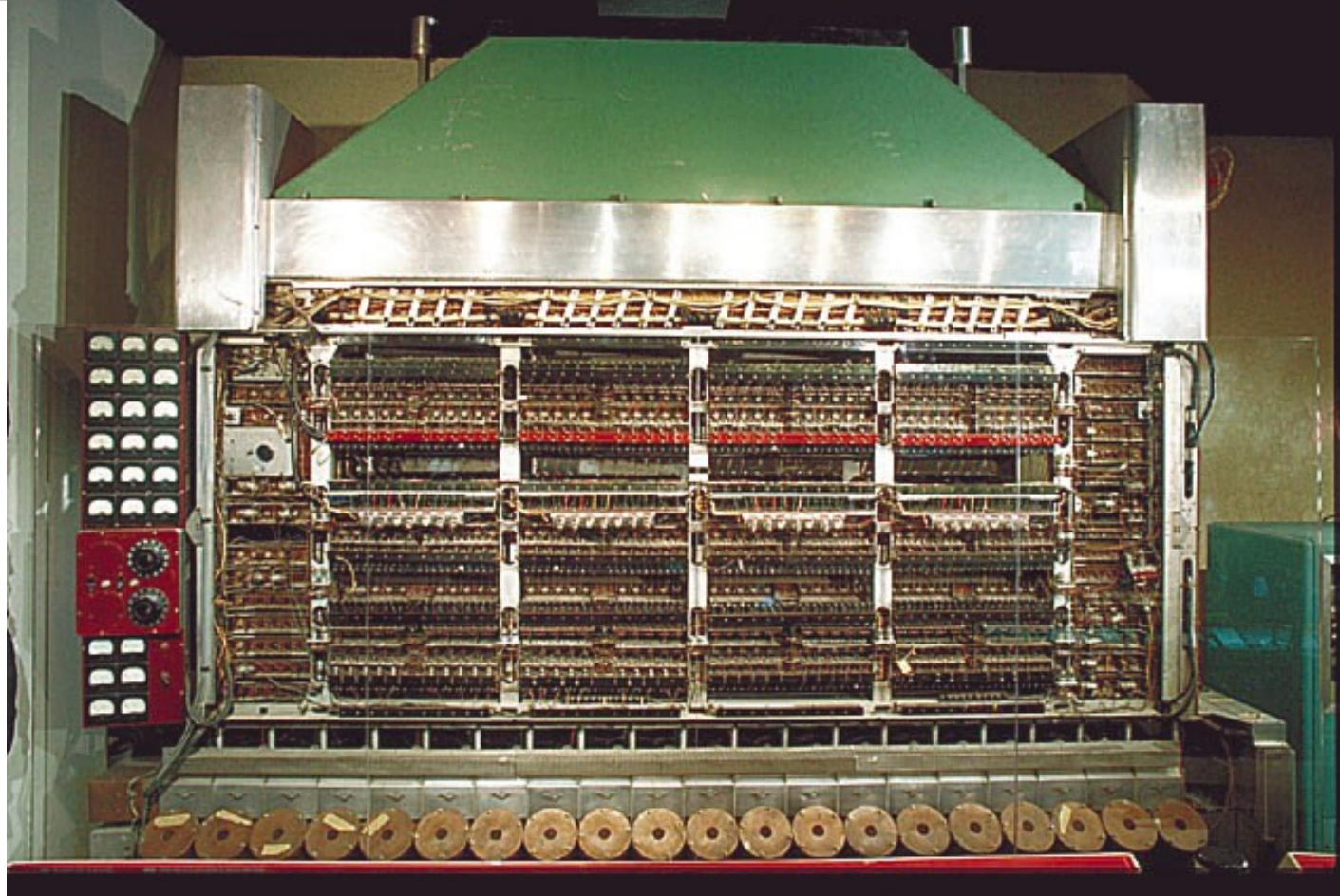
It is also known as **IAS** computer and is having three basic units:

The Central Processing Unit (CPU)

The Main Memory Unit

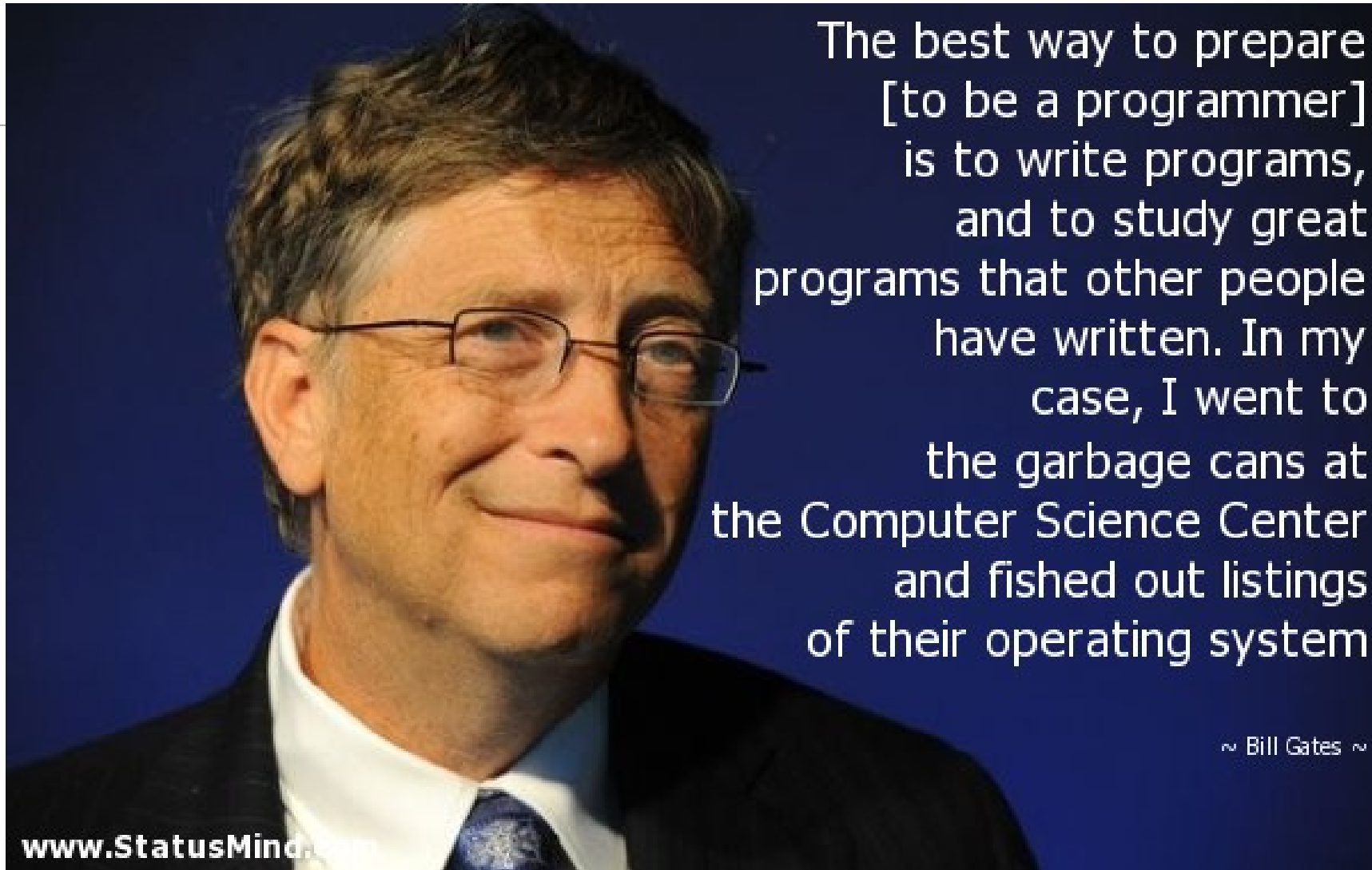
The Input/Output Device

IAS computer at the Smithsonian National Museum of American History



Quotes

“Nokia and Research In Motion needed a modern operating system. They could have bought Palm or Android before Google did, but they didn't. Today, it's probably too late, and at the time they would have been criticized for overpaying, but as they say - shift happens.”



The best way to prepare
[to be a programmer]
is to write programs,
and to study great
programs that other people
have written. In my
case, I went to
the garbage cans at
the Computer Science Center
and fished out listings
of their operating system

~ Bill Gates ~

“This planet came with a set of instructions, but we seem to have misplaced them. Civilization needs a new operating system.”- Paul Hawken

“UNIX is basically a simple operating system, but you have to be a genius to understand the simplicity.”

Dennis **Ritchie**

References

1. SilberschatzA., Galvin P., Gagne G. “Operating Systems Principles”, Willey Eight edition
2. AchyutS.Godbole,AtulKahate“Operating Systems” McGraw Hill Third Edition
3. “OperatingSystemInternal& Design Principles”, William Stallings, Pearson
4. Andrew S.Tanenbaum, “Modern Operating System”, Prentice Hall.

▪ReferenceBooks:

- “Linux Command Line & Shell Scripting”, Richard Blum and ChristineBresnahan,
- 2nd edition, Wiley.
- “The Design of Unix Operating System”, Maurice J. Bach, Prentice Hall.
- Unix and Shell Programming by B. M.HarwaniOxford
- Unix Concept and Application 4th Edition bySumitabhaDas 'McGrawHill'
- Thomas Rebecca : Yates A user guide to the Unix system.

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