# Operating System and its Functions

*Lecture №3*
*Subject: ICT*

## The goal of lecture

- Examine the purpose and functions of operating systems.

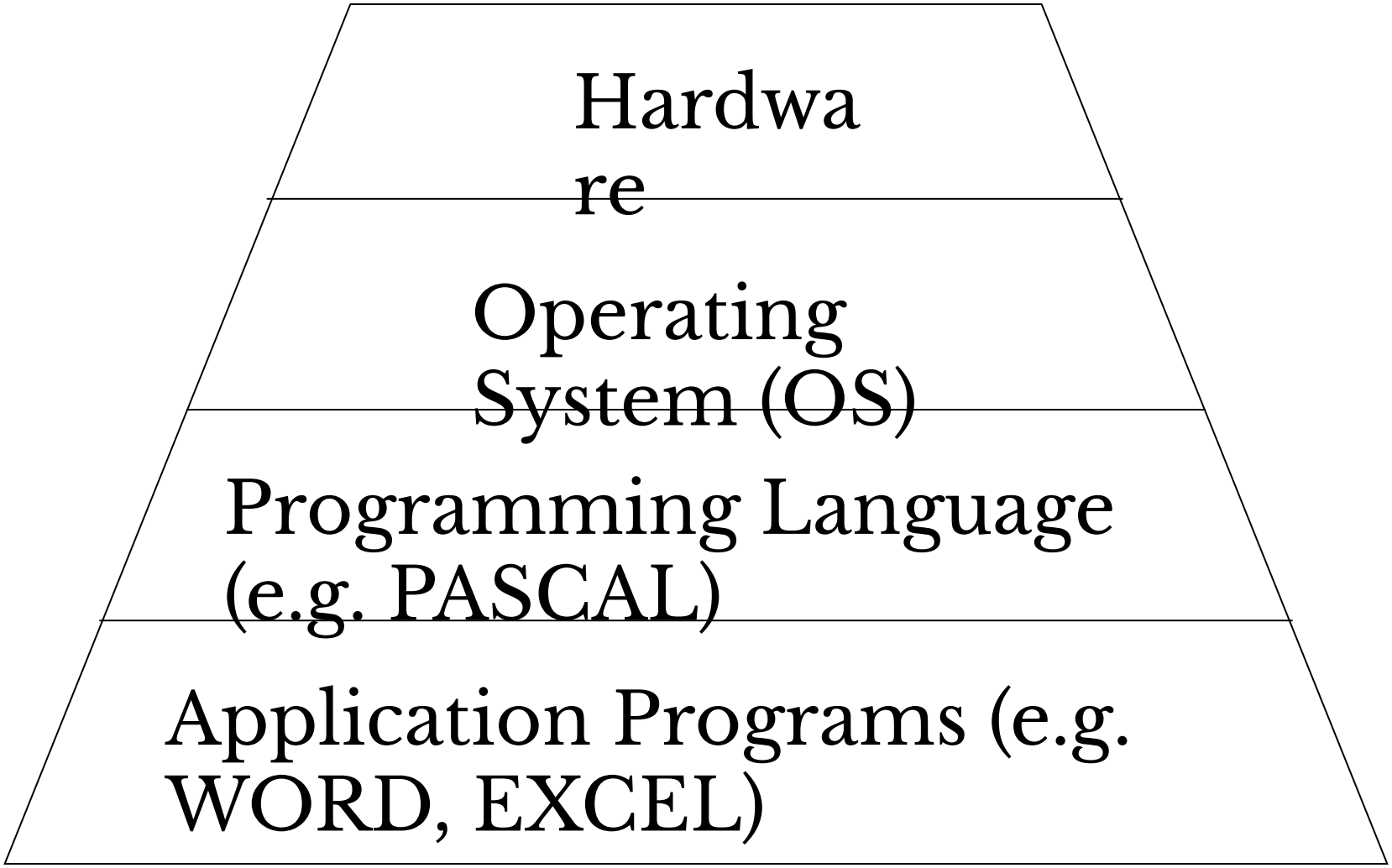
# Lesson plan

- Architecture of Computer System
- Operating System and its Functions
- Common Operating Systems and Their Differences

# Main terms of lesson

| English | Русский |
|---|---|
| Device configuration | Конфигурация устройств |
| File management | Управление файлами |
| Memory management | Управление памятью |
| Process management | Управление процессами |
| Command Inerpreter | Интерпретатор команд |
| load | Загрузка |
| Protection | Защита |
| Allocate | Распределение |
| Deallocate | Перераспределение |
| Space | Место |
| Available | Доступно |

# Architecture of Computer System




- -An Operating system(OS) is a program that manages the computer hardware.
- -It also provides a basis for Application Programs and acts as an intermediary between computer User and computer Hardware

Windows Linux Ubuntu Mac OS X iOS Android

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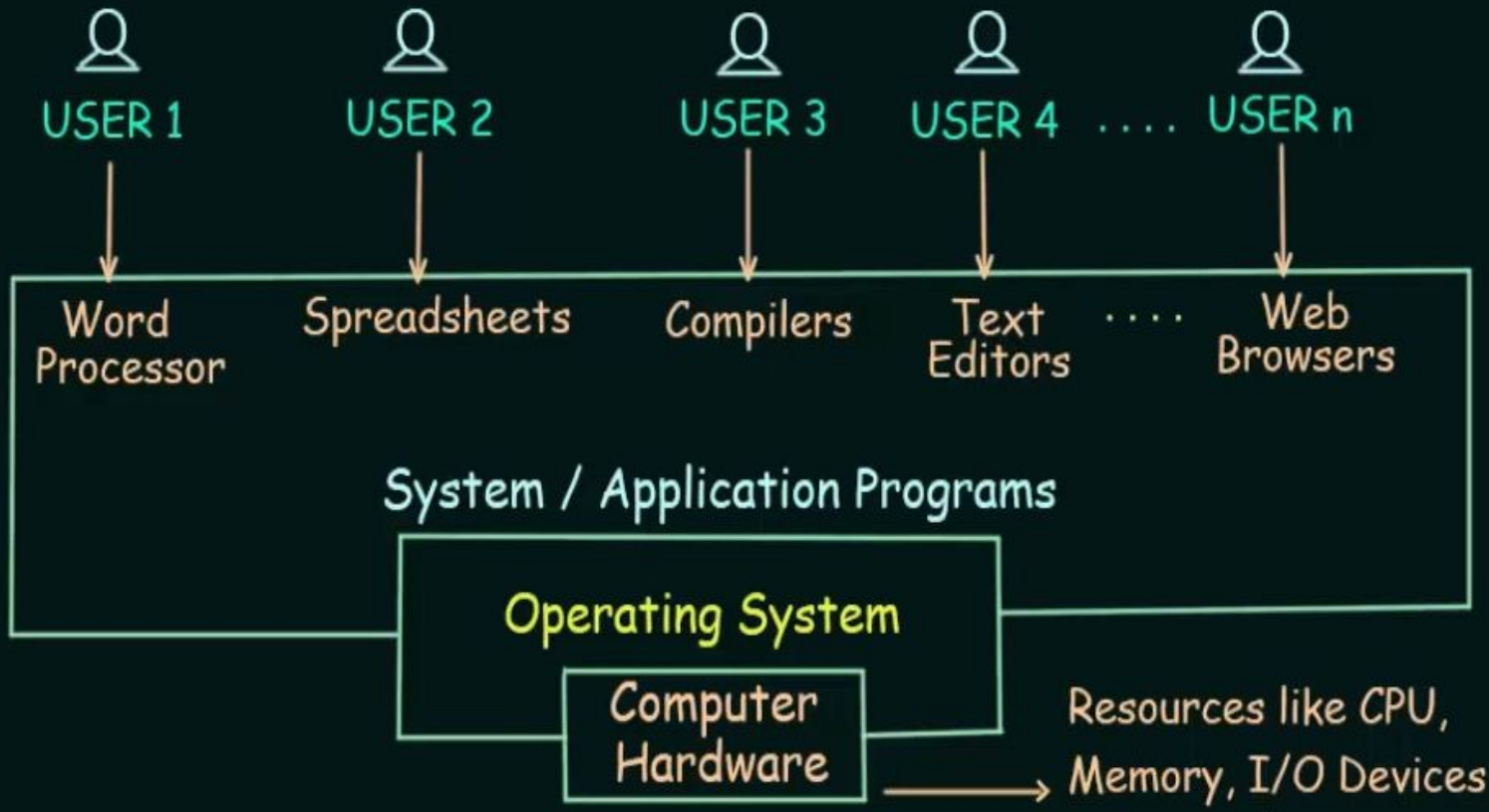


# System Software, Application Software and Driver Programs

- System Software- Performs essential operation tasks
  - Operating system
  - Utility programs
- Application Software - Performs specific tasks for users
  - Business application
  - Communications application
  - Multimedia application
  - Entertainment and educational software
- Driver Programs (Device Driver)
  - small program that allows a specific input or output device to communicate with the rest of the computer system

# 3 type of programs

- user / application programs
  - programs used by the users to perform a task
- system programs
  - an interface between user and computer
- driver programs
  - communicate I/O devices with computer

## Operating System

- a collection of programs which control the resources of a computer system
- written in low-level languages (i.e. machine-dependent)
- an interface between the users and the hardware
- when the computer is on, OS

# Basic functions of the operating system


**Device configuration**

Controls peripheral devices connected to the computer

**File management**

Transfers files between main memory and secondary storage, manages file folders, allocates the secondary storage space, and provides file protection and recovery

**Memory management**

Allocates the use of random access memory (RAM) to requesting processes

**Interface platform**

Allows the computer to run other applications

# Functions of Operating system

- Process Management
- Memory Management
- File Management
- Security management
- Command Interpreter

# 1.Process management

- **By process management OS manages many kinds of activities :-**
  - All process from start to shut down
  - Creation and deletion of user and system processes.

# 2. Memory Management

- **The major activities of an operating regard to memory-management are:-**
  - Decide which process are loaded into memory when memory space becomes available.
  - Allocate and deallocate memory space as needed

# 3.File Management

- **The file management system allows the user to perform such tasks:-**
  - Creating files and directories
  - Renaming files
  - Coping and moving files
  - Deleting files

# 4.Security Management

- **By security management OS manages many tasks such as:-**
  - Alert messages
  - Dialogue boxes
  - Firewall
  - Passwords

# 5.Command Interpreter

- **A command interpreter is an interface between system and the user. There are two types of user interface:-**
  - Command line
  - Graphical user interface

# Contd.....

- With a **command line user interface** the user interact with the OS by typing command to perform specific tasks

- With a **graphical user interface** the user interacts with the OS by using a mouse to access windows icons and menus

# Other function of Operating System

- best use of the computer resources
- provide a background for user's programs to execute
- display and deal with errors when it happens
- control the selection and operation of the peripherals
- act as a communication link

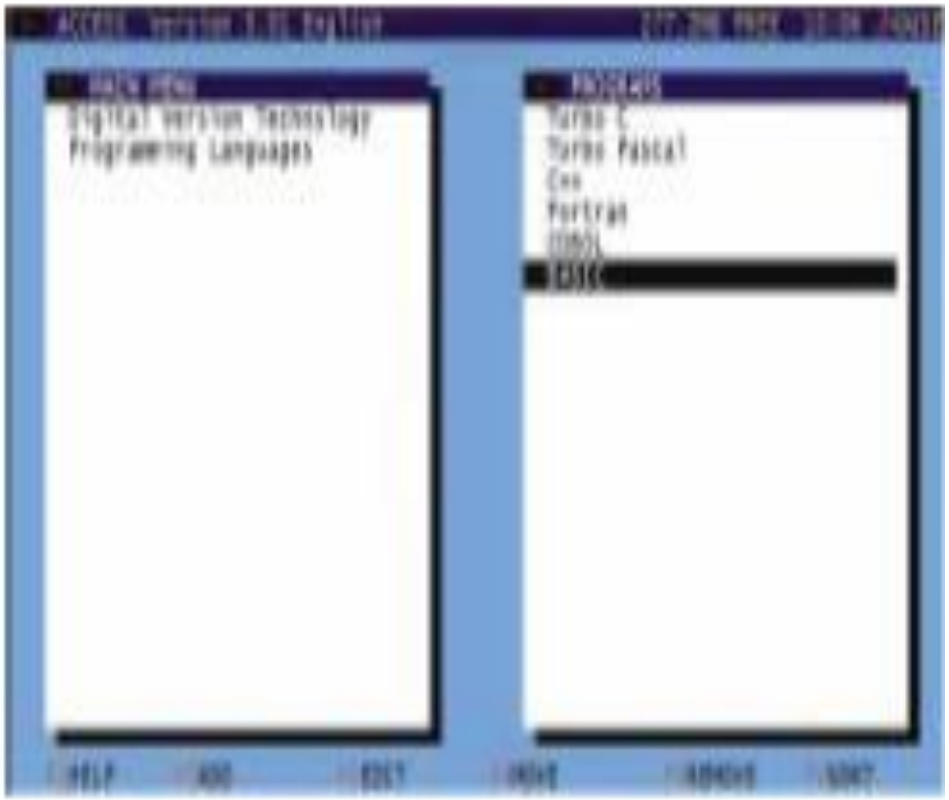
# Common Operating Systems and Their Differences

- Network Operating System
  - UNIX / Linux / MS Windows2000 Server
- Desktop Operating System
  - MS Windows 9X/Me / Mac OS / DOS
- Mobile Operating System
  - Palm OS and Pocket PC

# Examples

- Common operating systems
  - WINDOW
    - used in IBM compatible microcomputers
  - UNIX
    - multi-user, multi-tasking OS used in minicomputers and microcomputers
  - VAX/VMS

# DOS interface



# Disk Operating System (DOS)

- a part of operating system to control disk operation
- 2 parts
  - small system data
    - keep track of key information of the disk
  - data area
    - where data file is stored

# Different Types of Operating System

| UNIX | DOS | Mac OS | MS Windows | Linux | Palm OS/Pocket PC |
|---|---|---|---|---|---|
| Multi-user, multi-tasking | Single-user, single-tasking | Single-user, multi-tasking | Single-user, multi-tasking | Multi-user, multi-tasking | Single-user, multi-tasking |
| Command-line user interface | Command-line user interface | GUI | GUI | Command-line user interface, GUI | GUI |
| UNIX has serveral versions but they lack interoperability. | DOS has been replaced by MS Windows OS. | Mac OS has easy-to-use GUI. | The first true MS Windows OS is MS Windows 95. | Linux is an open-source software. | They are specifically designed for PDA. |
| Network OS | Desktop OS | Desktop OS | Desktop OS | Network OS | Mobile OS |

# Some Examples of Operating System






# SIW

- Human-computer interaction.
- The user interface, as a means of human-computer interaction. Interface Usability.
- Types of interfaces: a command line interface, text-based, graphical user interface.
- Physical and mental characteristics of the user. Stages of development of the user interface.


Thank
you