MINNESOTA TECH FOR SUCCESS

Week 5- 7: Software & Operating Systems

11/20/2024

Agenda

- **Announcements**
- **Classroom (1 – 1:30pm)**
  - Software & Operating Systems: Chad
- **Break (5 min)**
- **Classroom (1:35 – 2:30pm)**
  - HTML/CSS: Esther
- **Break (5 min)**
- **Warehouse (2:35 – 3:30pm)**
  - External Cleaning

ANNOUNCEMENTS

Announcements for 11/20

- **Schedule:**
  - No Session Wednesday, 11/27 – Fall Break (11/27 – 12/2)
  - Session on Wednesday, 12/4

- ***Week 5-7: Software and Operating Systems***
  - *November 20th; December 4th & 11th*

- Media Release forms

EXPECTATIONS

Expectations – Work Conduct

- **Communication**
  - Monitor language – no swearing/cursing, toxicity
  - Monitor actions – no harassment or bullying
- **Physical Contact**
  - No touching, hugging – respect boundaries
- **Help, support and encourage one another**

- **Office & Warehouse**
  - Clean up work areas and properly dispose of food & beverage containers
  - Please Recycle

Expectations - Attendance

- **If you will be late or miss a session:**
  - **Please send an email to –** Chad
  - **Include:** Reason and when you expect to be on site

  - Reminder: This is an official work internship at a professional organization. Inform MTFS ASAP if/when you are going to be late or be out for the day.

- **MTFS**
  - Tracks attendance and work hours
  - Sends attendance list to Great River School

Values

- **R**espect
- **A**ccountability
- **I**mprovement
- **S**teadfast
- **E**ncouragement

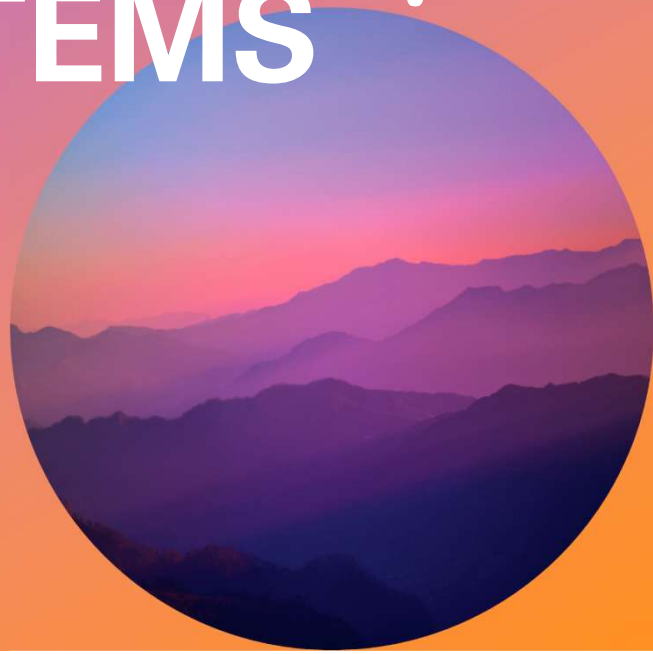
Our Websites

- **MTFS Website - https://techforsuccess.org**

- **MTFS-CAS Student Website –** https://mntechlearn.org

SOFTWARE & OPERATING SYSTEMS

Week 5



Software & Operating Systems: Objectives

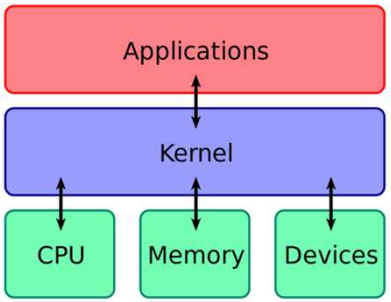
1. **What is software?**
   - Explanation of software, its role in computing, and the various types of software, including applications and operating systems
2. **Basics of operating systems**
   - Fundamental functions of operating systems and how they interact with hardware
3. **How to install and use software**
   - Guide on how to install and use software applications on a computer
4. **Simple software troubleshooting**
   - Basic troubleshooting steps for software-related issues, such as resolving software crashes.

What is Software?

- **Software:** Instructions that tell a computer, electronic device, or system what to do
- Collection of programs, procedures, and routines associated with the operation of a computer system
- Written in a programming language – executed by a **CPU**

What is Software?

```
15
16  const LOCALE = globalThis.navigator.language
17
18  const div = document.body.appendChild(document.createElement('div'))
19  const list = div.appendChild(document.createElement('ol'))
20
21  const dayNames = new Map()
22
23  for (let i = 0; i < 7; ++i) {
24      const d = Temporal.PlainDate.from({
25          year: Temporal.Now.plainDateISO().year,
26          month: 1,
27          day: i + 1,
28      })
29
30      dayNames.set(d.dayOfWeek, d.toLocaleString(LOCALE, { weekday: 'long' }))
31  }
32
33  for (const num of [ ...dayNames.keys()].sort((a, b) => a - b)) {
34      list.appendChild(Object.assign(
35          document.createElement('li'),
36          { textContent: dayNames.get(num) },
37      ))
38  }
39
```

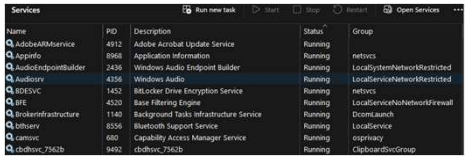


- **Program** - a specific set of instructions designed to accomplish a particular function or task through a programming language
- Software can be made up of multiple programs and programming languages
  - Windows: C++, kernel is in C
- **Kernel** - core part of an operating system (OS) that manages system hardware resources
  - Acts as a bridge between **software applications** and the **computer's hardware**

3 Types of Software

System

- Internal functions through OS
- Controls peripherals



Application

- Execute commands by the **user**
- Any program that processes data

Network

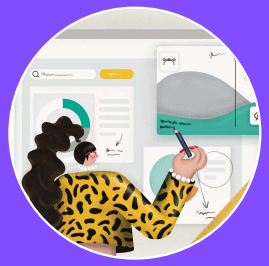
- Coordinates Communication between computers linked in a network

Operating System

- **Operating System (OS)** software that manages and controls a computer's hardware and software resources
- Allows user to interact with computer
- Most of the time, several different computer programs running at the same time
  - Access computer's CPU, memory (RAM), and storage (SSD/HHD)
- Provides interface between hardware, application software, and user

Software Interaction

User



Application

Operating System

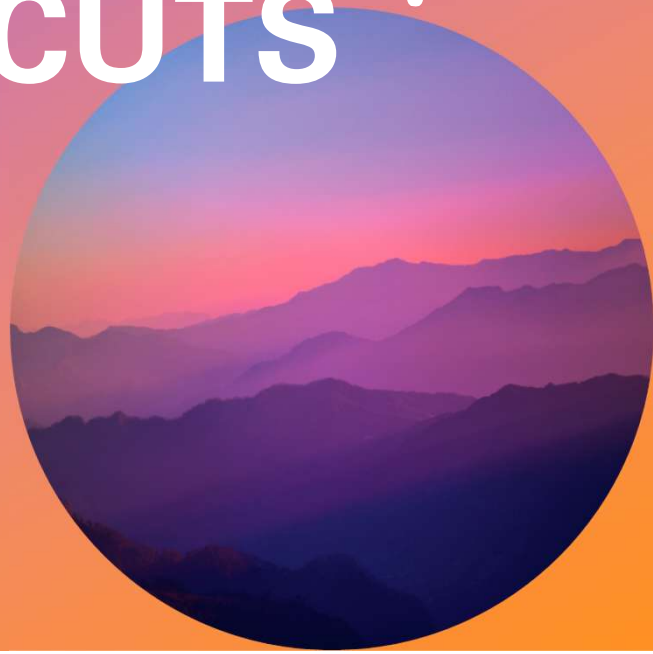
Hardware

Question:

Can you navigate around your OS using only a keyboard?

ACTIVITY: SHORTCUTS

Windows 11



Shortcuts - Tasks

1. Quick Link menu - Press: ⊞ **+ X**
2. Select: **Task Manager** (or press: "T")
   - Optionally, Press: ⊞ **+ R,** Type: taskmgr

3. Answer:
   1. How many applications are running?
   2. What % of CPU, RAM and Storage are in use?
   3. Bonus: Press: ⊞ **+ [Pause/Break]**
      1. What is the make & model of your laptop?

Shortcuts - Navigation

1. Display & Hide Desktop - Press: **+ D**
2. Search - Press: **+ S**
3. Switch tabs - Press:**[Alt] + [Tab]**

Question:

Can you navigate around your OS using only a **Mouse**?

Activity: Shortcuts – On Screen Keyboard

1. Accessibility - Press: **+ U**
2. On Screen Keyboard - Press: **+ [CTRL] + O**
3. Lock Screen - Press: **+ L**

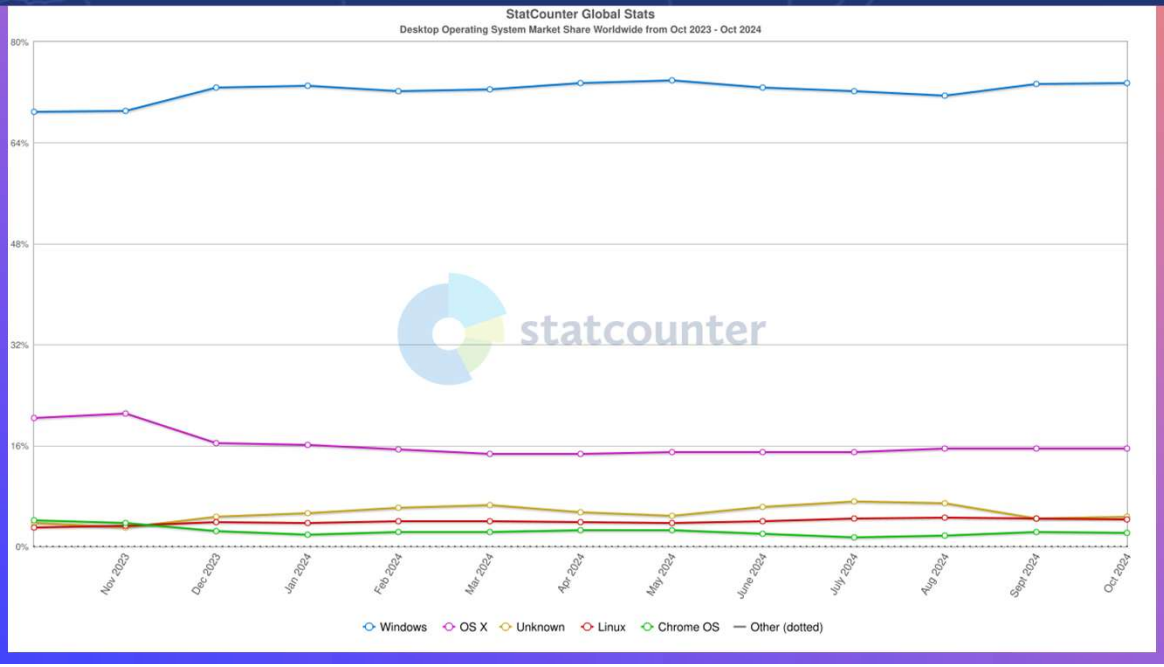
Activity: Other Helpful Shortcuts

1. Quick Settings – Press: ⊞ **+ A**
2. File Explorer - Press: ⊞ **+ E**
3. Screen Cast - Press: ⊞ **+ K**
4. Screen Shot - Press: ⊞ **+ [SHIFT] + S**

DESKTOP OS MARKET SHARE

Windows	OS X	Unknown	Linux	Chrome OS	FreeBSD
73.41%	15.49%	4.66%	4.31%	2.12%	0%

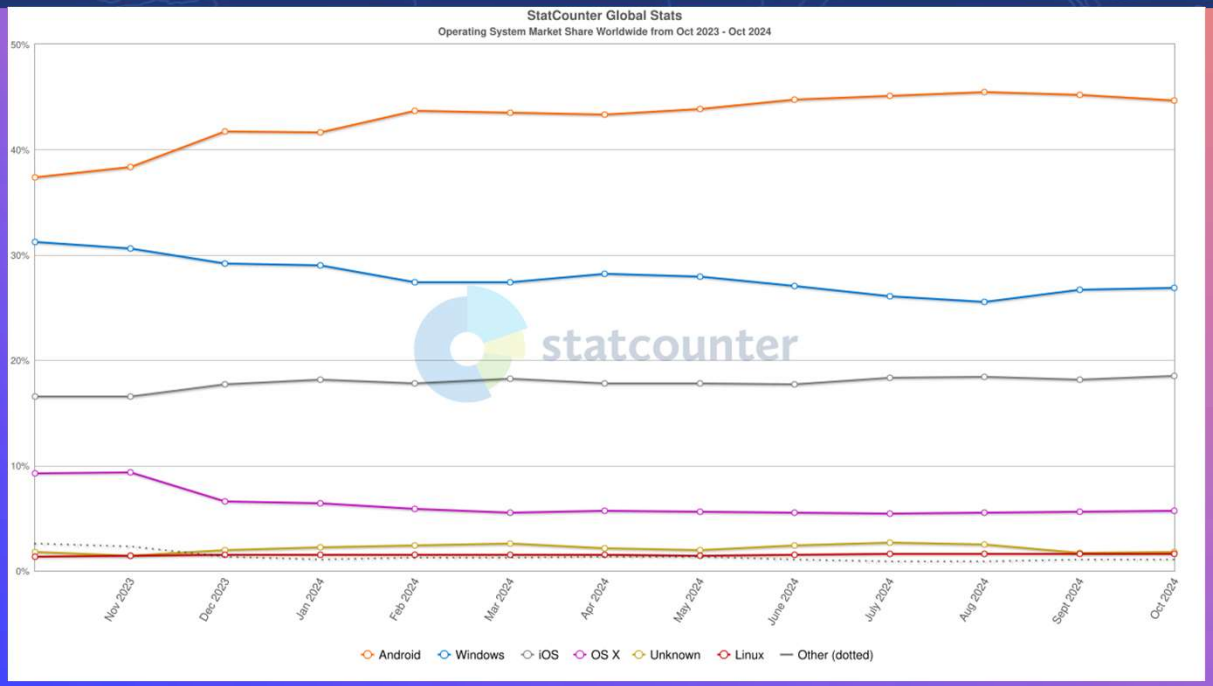
Desktop Operating System Market Share Worldwide - October 2024



OS MARKET SHARE

Android	Windows	iOS	OS X	Unknown	Linux
44.69%	26.81%	18.47%	5.66%	1.77%	1.58%

Operating System Market Share Worldwide - October 2024



Troubleshooting Methodology

1. Identify the problem

- Gather information from the user, identify user changes, and, if applicable, perform backups before making changes
- Inquire regarding environmental or infrastructure changes

2. Establish a theory of probable cause (question the obvious)

- If necessary, conduct external or internal research based on symptoms

3. Test the theory to determine the cause

- Once the theory is confirmed, determine the next steps to resolve the problem
- If the theory is not confirmed, re-establish a new theory or escalate

4. Establish a plan of action to resolve the problem and implement the solution

- Refer to the vendor's instruction for guidance

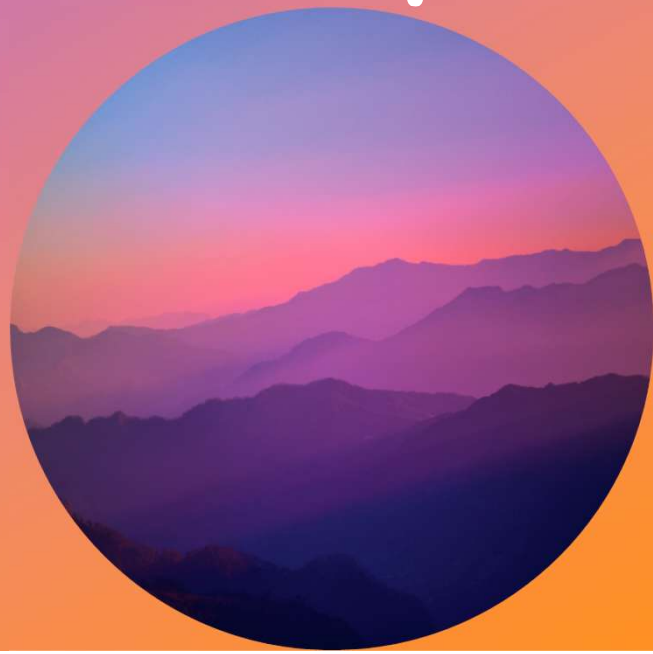
5. Verify full system functionality and, if applicable, implement preventive measures

6. Document the findings, actions, and outcomes

CompTIA

BREAK

5 minutes



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Activity – Life and Technology

Answer the following questions about:

1. Yourself
   - Hometown, family, and ethnic background?
   - Interests & hobbies, talents?
   - Any clubs/organizations you are a part of?
2. What got you interested into IT/technology/computers?
3. What are you looking to get out of your internship?
4. What are your life and career interests & goals?
5. Go to indeed.com
   1. Find an IT role/job you are interested in
   2. Include the following:
      1. Title, responsibilities, salary, experience/education/certification requirements

- Email – Chad at cphaengdara@techforsuccess.com
- Due by: Wednesday, 12/4