**Objectives**

1. Research information about software for a specific operating system (OS) environment. You will be assigned one of the operating systems form the list below. You will also be provided with a list of topics to investigate.
2. Organize your rough research information into a list of topics, sub-topics and facts. This process will involve identifying sub-topics, rearranging your rough research notes, and selecting (or highlighting) interesting facts.
3. Report a summary of your research in the form of a “concept map”. Use the PowerPoint template provided as a starting point. The concept map should only include the best and most interesting information from your organized research notes.
4. Your concept map can be created using: Smart Ideas, Prezi, PowerPoint or other similar applications.

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**Step 1 – Organized Research**

Research information about your assigned operating system (OS) environment.

* Guide your research according to the suggested topic list below
* Feel free to copy-and-paste as long as you keep track of your bibliographic references.
* Do not be too picky or concerned about formatting as you will organize this information later in step 2
* Select things that look interesting and don’t forget to include graphics images as well
* Upload your rough research notes to your repository when you are done.

Topic A – Application Software

Provide a summary of most important user application software targeted by this operating system and how it is similar to and deferent from standard PC software. Suggested sub-topics include:

* User (client) or network (server) applications
* Batch (run without user input) or interactive (user focused) processing
* Off-the-shelf (purchased) or custom developed applications
* Programming environment and languages supported

Rouse, Margaret, and Margaret Rouse. “What Is Windows NT? - Definition from WhatIs.com.” *SearchWindowsServer*, https://searchwindowsserver.techtarget.com/definition/Windows-NT.

* Windows NT is a Microsoft Windows personal computer operating system designed for users and businesses needing advanced capability
* Windows NT is two products: Microsoft NT Workstation and Microsoft NT Server
* It is also entirely 32 bit

Windows NT workstation

* The Workstation is designed for users, especially business users, who need faster performance and a system a little more fail-safe than Windows 95 and Windows 98
* Microsoft says that 32-bit applications run 20% faster on this system than on Windows 95

Windows NT server

* The Server is designed for business machines that need to provide services for network-attached computers
* The Server is required, together with an Internet server such as Microsoft's Internet Information Server (IIS), for a Windows system that plans to serve Web pages
* Microsoft claims that its NT servers are beginning to replace both NetWare and the various UNIX-based systems such as those of Sun Microsystems and Hewlett-Packard
* Windows NT server 5.0 was eventually renamed to Windows 200 and included features such as
* A fully-customizable administrative console that can be based on tasks rather than files, applications, or users
* A new file directory approach called Active Directory that lets the administrator and other users view every file and application in the network from a single point-of-view.
* Dynamic Domain Name Server (DNS), which replicates changes in the network using the Active Directory Services, the Dynamic Host Configuration Protocol (DHCP), and the Windows Internet Naming Service (WINS) whenever a client is reconfigured.
* The ability to create, extend, or mirror a disk volume without having to shut down the system and to back up data to a variety of magnetic and optical storage media.
* A Distributed File System (DFS) that lets users see a distributed set of files in a single file structure across departments, divisions, or an entire enterprise.
* Close integration with and support for Microsoft's Message Queue Server, Microsoft Transaction Server, and Internet Information Server (IIS).

<https://en.wikipedia.org/wiki/Windows_NT>

* Windows NT is written in C as well as C++. A bit is also written in assembly language. C is mostly used for kernel code while C++ is mostly used for user-mode code

<https://kb.iu.edu/d/abno>

* Contains the Windows 95 interface and features like the Start button, Taskbar, Explorer, Network Neighborhood, and Briefcase
* NetWare client and login script support
* Enhanced meta-file (EMF) spooling for improved network printing speed
* Support for 15 network protocols
* Peer-to-peer and FTP server capabilities
* Client software for both telnet and FTP services

Topic B – Hardware

Provide a summary of the hardware targeted by this operating system and how it is similar to and deferent from standard PC hardware. Suggested sub-topics include:

* Speed of processors / memory
* Capacity of memory / attached disks
* Is it designed for home / office / corporate data center / industrial use
* Is it designed for client / server / network use

<https://en.wikipedia.org/wiki/Windows_NT#Hardware_requirements>

|  |  |  |  |
| --- | --- | --- | --- |
| * **Windows NT minimum hardware requirements** | | | |
| * **Windows version** | * **CPU** | * **RAM** | * **Free disk space** |
| * NT 3.1 | * [i386](https://en.wikipedia.org/wiki/Intel_80386), 25 MHz | * 12 MB | * 90 MB |
| * NT 3.1 Advanced Server | * 16 MB |
| * NT 3.5 Workstation[[57]](https://en.wikipedia.org/wiki/Windows_NT#cite_note-KB132748-58) | * 12 MB |
| * NT 3.5 Server[[57]](https://en.wikipedia.org/wiki/Windows_NT#cite_note-KB132748-58) | * 16 MB |
| * NT 3.51 Workstation[[57]](https://en.wikipedia.org/wiki/Windows_NT#cite_note-KB132748-58) | * 12 MB |
| * NT 3.51 Server[[57]](https://en.wikipedia.org/wiki/Windows_NT#cite_note-KB132748-58) | * 16 MB |
| * NT 4.0 Workstation[[58]](https://en.wikipedia.org/wiki/Windows_NT#cite_note-KB126690-59) | * [i486](https://en.wikipedia.org/wiki/Intel_80486), 25 MHz | * 12 MB | * 124 MB |
| * NT 4.0 Server[[58]](https://en.wikipedia.org/wiki/Windows_NT#cite_note-KB126690-59) | * 16 MB |

<https://kb.iu.edu/d/abno>

Windows NT workstation 4.0 requirements

Intel based Systems

* 486/25MHz (or faster) or Pentium based system
* 12MB memory (RAM); 16MB recommended
* 110MB available hard disk space
* CD-ROM drive or access to a CD-ROM over a network
* VGA or higher resolution display adapter
* Microsoft mouse or compatible pointing device

RISC-based Systems

* Workstation with Alpha AXP, MIPS R4x00, or PowerPC processor
* 16MB of memory
* 110MB of available hard disk space
* CD-ROM drive or access to a CD-ROM over a network
* VGA or higher resolution display adapter
* Microsoft mouse or compatible pointing device

<https://www.webopedia.com/DidYouKnow/Hardware_Software/history_of_microsoft_windows_operating_system.html>

* There are 2 versions which include Windows NT server which is designed to act as a server in networks and windows NT workstation for standalone or client workstation
* It is used by businesses

Topic C – User Interface

Provide a summary of the user interface and input devices targeted by this operating system and how it is similar to and deferent from a standard PC. Suggested sub-topics include:

* Does it support a windowed environment, command line, or network users
* Does it support multiple users at a time or single users
* Does it support multiple applications or a single application at a time
* Does it get rebooted (powered on / off) or is it always on

<https://en.wikipedia.org/wiki/Multi-user_software>

* some multi-user operating systems such as Windows versions from the Windows NT family support simultaneous access by multiple users (for example, via Remote Desktop Connection) as well as the ability for a user to disconnect from a local session while leaving processes running (doing work on their behalf) while another user logs into and uses the system

<https://en.m.wikipedia.org/wiki/Windows_NT>

* default user interface: Graphical (windows shell)

32 bit platforms

* In order to prevent Intel x86-specific code from slipping into the operating system by developers used to developing on x86 chips, Windows NT 3.1 was initially developed using non-x86 development systems and then ported to the x86 architecture.

Topic D – Device Management

Provide a summary of the devices (disks, printers, etc.) and memory managed by this operating system and how it is similar to and deferent from a standard PC. Suggested sub-topics include:

* What types of disk drives and file systems does it support
* What type of input devices does it support
* What type of output devices does it support

Topic E – Security

Provide a summary of the security features provided by this operating system and how it is similar to and deferent from a standard PC. Suggested sub-topics include:

* What types of user accounts and user permissions does it support
* How does it protect against conflicts / interference between legitimate application processes
* How does it protect against malicious software
* How does it support software updates and security updates

Topic F – Network Connectivity

Provide a summary of the network connectivity provided by this operating system and how it is similar to and deferent from a standard PC. Suggested sub-topics include:

* Is the computer stand-alone or part of a larger network
* What type of network and internet connections does it provide
* Does it provide other services such as backup, firewall, etc.

**Step 2 – Concept Map**

Create a “concept map” as a final report of your organized research.

* Use the diagram in the introduction as a starting point.
* You should have six (6) first level topics from “Application Software”   
  to “Network Connectivity”
* Each first level topic should have at least three (3) sub-topics
* Each sub-topic should be supported by a number of facts / items of interest

Select the best and most interesting information from your organized research.

* Summarize and edit your information to fit on the concept map.

Upload your Research Notes and Concept Map to your GitHub Repository

* Your concept map can be created using: Smart Ideas, Prezi, PowerPoint or other   
  similar applications.
* Option1: Create and upload a PDF of your concept map
* Option2: Include a link to your Concept Map in your Student Questions
  + Make sure that your link is Sharable so Mr. Nestor can open your map

**Appendix A**

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| **Operating System** | **Student 1** | **Student 2** |
| Ubuntu  (Linux) |  |  |
| z/OS  (IBM) |  |  |
| Solaris  (Oracle) |  |  |
| HP-UX  (Hewlett Packard) |  |  |
| Windows NT  (Windows Server) |  |  |
| Red Hat Enterprise (IBM Summit) |  |  |
| QNX  (Blackberry) |  |  |
| VxWorks  (Wind River) |  |  |
| AOSP  (Android Alphabet) |  |  |
| Ubuntu  (Linux) |  |  |
| z/OS  (IBM) |  |  |
| Solaris  (Oracle) |  |  |
| HP-UX  (Hewlett Packard) |  |  |
| Windows NT  (Windows Server) |  |  |
| Red Hat Enterprise (IBM Summit) |  |  |
| QNX  (Blackberry) |  |  |
| VxWorks  (Wind River) |  |  |
| AOSP  (Android Alphabet) |  |  |
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