**CSCI.258 - Introduction to Operating Systems Using UNIX**

**List of Project Topics**

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**UNIX Clients and Servers Operating Systems**

There are several vendors supplying **UNIX** products. Here are a few:

1. HP-UX (HP UNIX operating system)
2. AIX (IBM UNIX operating system)
3. Solaris (Sun Microsystems UNIX operating system)
4. Free BSD (Berkley Software Distribution, Berkley University)

**Linux Clients and Servers Operating Systems**

There are several distributions of Linux operating systems. Here are a few Linux versions:

1. SuSE
2. Debian
3. Other Linux distributions

You can also identify other vendors supplying UNIX and or Linux and select it for the project.

**Windows Operating Systems**

Microsoft provides several types of operating systems for client PCs and servers.

1. Windows 10
2. Windows 2008 for servers
3. Later versions of Windows server

**Operating Systems for Apple Computers**

Apple supplied operating systems for their Mac computers. You can choose an operating system from Apple.

**Standard OS API Based on UNIX**

1. **POSIX:** POSIX is a standard specification for operating system interface (API) provided to application developers. The standard was created by IEEE (Institute for Electrical and Electronics Engineer), which is the largest professional organization in the world. Applications written using POSIX standard will run on any POSIX compliant operating system so that application developers need not have to rewrite their applications for different operating systems. You can make a presentation on POSIX features.
2. **Single UNIX Specification:** Another API standard specification for UNIX like POSIX

Today, merged version of the above two standards is used as guidance for development work on UNIX.

**Personal Gadgets Operating Systems and Applications**

There are several special operating systems. Some of them are stored in the read-only memory (ROM) and they are called real-time embedded operating systems. For example, the operating systems in the cell phones, PDAs, iPhone, Gphone, game machines are embedded operating systems. The following are some of the special and embedded operating systems topics.

1. iPhone operating system and iPhone user interface (menu) features and applications supported
2. iPOD
3. Android from Google
4. Gphone from Goggle
5. Blackberry operating system and Blackberry user interface (menu) features and applications supported
6. Microsoft game machine (X-box) operating system
7. Sony game station operating system
8. Cell phone operating system (many vendors: AT&T, Sprint, Verizon, and others) and cell phone applications and user interface

**Medical Devices Operating Systems**

Several medical devices such as patient monitoring systems have operating systems. Siemens is one of several companies supplying medical products. They are real-time operating systems, however, not all of them are embedded operating systems. You can identify products from many vendors and propose an appropriate topic.

**Distributed Operating Systems**

Some operating systems are called distributed operating systems. You can present general information about distributed operating system characteristics or about a specific vendor product.

**Mainframe and Super Computer Operating Systems**

IBM is the largest supplier of mainframe computers. There are vendors from Japan also. Super computer are larger than mainframes. There are super computer suppliers too. You can identify super computer and mainframe operating systems from IBM and other vendors and select a topic.

**Networking Features of Operating Systems**

UNIX, Linux and Windows operating systems have rich networking features. You can present the networking features of a specific type of operating system as shown below:

1. Windows 7 networking features
2. Windows 2008 server networking features or later versions
3. Network File System (NFS) details including all daemons associated with it such as mountd daemon, portmap daemon, statd deaemon and lockd daemon

**Security**

The course covers basic aspects of UNIX security. There is lot more on security. Many vendors provide security products. You could choose a topic on security for presentation.

1. VPN (Virtual Private Network) and its support in Windows operating systems
2. Windows security features and vulnerabilities
3. UNIX security features and vulnerabilities (beyond classroom coverage)
4. Internet specific security threats
5. Encryption and products and Internet protocols employing encryption
6. Network utilities
7. RSA security and products applying RSA
8. Firewall products
9. Wireless network security
10. Securities and vulnerabilities in personal gadgets

**Operating Systems for Clusters**

A cluster is a group of server systems closely working together providing services to users. The operating system running on the servers in the cluster has special features to support cluster operations. Companies such as HP and Sun Microsystems supply cluster systems. You can make a presentation on the special features of operating system for cluster computing.

**Could Computing**

1. Microsoft cloud computing
2. Amazon cloud computing
3. Yahoo cloud computing
4. Other cloud computing

**Virtualization**

1. Server and client host computer virtualization
2. VMware
3. Network virtualization
4. Storage virtualization

**Your own operating system topic**

You can propose your own operating system related topic of your choice to the instructor for approval.