Operating Systems WT 2019/20

Unit 1 – Checkpoint

Q

Terminology

What is an Operating System?

Q

History

Why did Operating Systems emerge?

Q

History

Which of the following statements is false?

a) Operating Systems evolution required Hardware changes
b) Hardware evolution required Operating Systems changes
c) Hardware and OS evolved independently
d) There was strong influence in both directions

Q

History

Describe three critical early inventions in Operating Systems.

Q

History

What is UNIX?

Q

History

What is POSIX?

Q

History

Discuss whether POSIX is still relevant today.

Q

Terminology

Describe the relation between the terms Process, Program, Thread and File.

Q

Terminology

What is a shell?

Q

Processes and Threads

Describe briefly what happens when you type ‘ls’ into a UNIX shell and press enter.

What would have happened if you had typed ‘cd’ instead?

Q

Processes and Threads

In Pseudo-Code, write a program that executes ‘ls’ in a child process, and waits in the parent process for the termination of the child process.

Which system calls would you use?

Q

Concepts

Briefly describe five tasks of an Operating System.

Q

Concepts

Briefly describe three design goals of an Operating System.

Q

Concepts

Discuss the reasoning behind the separation of User- and Kernel Mode. Identify advantages and disadvantages.

Q

Concepts

What is an Interrupt?

Q

Concepts

What can cause an Interrupt?

Q

Concepts

Describe how the Operating System handles incoming Interrupts.

Q

Concepts

What is the purpose of a System Call?

Q

Concepts

Describe what happens when at runtime when a program uses the function ‘getpid’.

Q

Concepts

What are Windows “Personalities”?

a) Independent operating modes of the CPU

b) Distinguished Engineers at the Microsoft Campus in Redmond

c) Separate classes of applications, and their corresponding subsystems

d) Groups of Users in the System with different Privileges

Q

Concepts

Describe the anatomy of a Windows Subsystem.

Q

Concepts

Compare the three types of Subsystem Service Calls.

Name an example for each.

Q

Structure

Name three Operating System components usually located in User- and Kernel Mode (three each).

Discuss the reasoning for the placement.

Q

Structure

What is the role of a System Thread in Windows?

Name two examples.

Q

Structure

What is a Service / Daemon?

Q

Concepts

Compare the concepts “Microkernel” and “Monolithic Kernel”.

Which one would you use to describe Windows? Linux?

Q

Concepts

The Windows Kernel is Object Oriented. What is a Handle, and what is its role?

Q

Concepts

Can you share handles between separate Processes?

Q

Concepts

Describe four types of Windows Kernel Objects.

Q

Concepts

What is the Basic Input/Output System (BIOS)?

Q

What?

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