24 Lecture - CS410

Important Subjective

Question 1: What is a Dynamic Link Library (DLL)?

Answer: A DLL is a modular file format used in Windows operating systems to store executable code and resources that multiple programs can share, enabling code reusability and efficient memory usage.

Question 2: How does a DLL promote code reusability?

Answer: A DLL allows multiple programs to share the same code and resources, reducing redundancy and making it easier to update and maintain the shared functionality.

Question 3: Explain the process of dynamically loading a DLL in a program.

Answer: Dynamically loading a DLL involves using functions like LoadLibrary and GetProcAddress to load the DLL into memory and retrieve function addresses, enabling the program to call functions from the DLL at runtime.

Question 4: What is the difference between static linking and dynamic linking?

Answer: Static linking includes all required code in the final executable, while dynamic linking references external DLLs at runtime. DLLs facilitate dynamic linking, leading to smaller executable sizes and more efficient memory usage.

Question 5: How can version compatibility issues arise when using DLLs?

Answer: Different versions of a DLL might have changes in function signatures or behavior, causing programs to malfunction if they're linked to an incompatible version.

Question 6: What is the role of the "GetProcAddress" function in working with DLLs?

Answer: GetProcAddress retrieves the memory address of a function within a loaded DLL, allowing the program to call that function dynamically.

Question 7: How can memory leaks occur when using DLLs?

Answer: If a program does not properly release the resources allocated by a DLL after usage, it can lead to memory leaks as those resources remain allocated.

Question 8: Explain the term "DLL Hell."

Answer: DLL Hell refers to compatibility issues arising from conflicts between different versions of DLLs, potentially causing errors or crashes in applications that rely on them.

Question 9: Can DLLs be used in other operating systems besides Windows?

Answer: While DLLs are primarily associated with Windows, similar concepts (e.g., shared libraries) exist in other operating systems like Linux (with .so files) and macOS (with .dylib files).

Question 10: What are the advantages of using DLLs over statically linking code?

Answer: DLLs promote code reusability, reduce redundancy, and allow for easier updates without recompiling the entire program, resulting in smaller executable sizes and efficient memory usage.