

9 - Synchronisation

Tutor version

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Question 1

The way the *make* command normally works is simple. When the programmer has finished changing all the source files, he runs *make*, which examines the times at which all the source and object files were last modified. If the source file `input.c` has time 2151 and the corresponding object file `input.o` has time 2150, *make* knows that `input.c` has been changed since `input.o` was created, and thus `input.c` must be recompiled. Provide an example of a clock synchronisation problem that can occur in a distributed implementation of our *make* routine. The student should assume that the compiler and the editor are running on two different machines.

Question 2

Define the Universal Coordinated Time UTC.

Question 3

Explain how the GPS determines one's geographical position anywhere on Earth.

Question 4

Describe Lamport's logical clocks.

Question 5

Describe the Network Time Protocol and the The Berkeley Algorithm.