

Causes of Errors

Improper synchronization

- a program must wait until the data are available in a buffer
- improper design of the signaling mechanism can result in loss or duplication

Failed mutual exclusion

- more than one user or program attempts to make use of a shared resource at the same time
- only one routine at a time allowed to perform an update against the file

Nondeterminate program operation

- program execution is interleaved by the processor when memory is shared
- the order in which programs are scheduled may affect their outcome

Deadlocks

- it is possible for two or more programs to be hung up waiting for each other
- may depend on the chance timing of resource allocation and release