Race Condition & Critical Sections

```c
do {  
    entry section
    critical section
    exit section
    remainder section
} while (TRUE);
```
Semaphores

Semaphore $S$ – integer variable

Can only be accessed via two indivisible (atomic) operations:

- \texttt{wait()} and \texttt{signal()}, originally called \texttt{P()} and \texttt{V()} respectively

- \texttt{wait (S) \{ \%}
  \begin{verbatim}
  while (S <= 0) ; // do nothing while (S<=0)
  S--; \\
  \}
- \texttt{signal (S) \{ \%}
  \begin{verbatim}
  S++; \\
  \}

Paper “Monitors”
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• Examples:
  – Condition variables
  – Bounded Buffer
  – Scheduled Waits
  – Readers and Writers