for — for (exp1; exp2; exp3) stmt

Description

for is equivalent to

\[
\begin{align*}
\text{exp}_1 \\
\text{while (exp}_2\{ \\
\text{stmt(s)} \\
\text{exp}_3 \\
\}\end{align*}
\]

stmt(s) is executed zero or more times. The loop continues as long as exp2 is not equal to zero.

Syntax

\[
\begin{align*}
\text{for (exp}_1\;\text{exp}_2\;\text{exp}_3\) stmt} \\
\text{for (exp}_1\;\text{exp}_2\;\text{exp}_3\) \{ \\
\text{stmts} \\
\}\end{align*}
\]

where exp1 and exp3 are optional, and exp2 must evaluate to a real scalar.

Remarks and examples

To understand for, enter the following program

\[
\begin{align*}
\text{function example(n)} \\
\{ \\
\text{for (i=1; i<=n; i++)} \{ \\
\text{printf("i=%g
", i)} \\
\text{printf("done
")} \\
\}\end{align*}
\]

and run example(3), example(2), example(1), example(0), and example(-1).

Common uses of for include

\[
\begin{align*}
\text{for (i=1; i<=rows(A); i++)} \{ \\
\text{for (j=1; j<=cols(A); j++)} \{ \\
\text{...} \\
\}\end{align*}
\]
Also see

[M-2] **break** — Break out of for, while, or do loop

[M-2] **continue** — Continue with next iteration of for, while, or do loop

[M-2] **do** — do ... while (exp)

[M-2] **Semicolons** — Use of semicolons

[M-2] **while** — while (exp) stmt

[M-2] **Intro** — Language definition