

Princeton University

COS 217: Introduction to Programming Systems

"Flattened" C Programs

C Code	"Flattened" C Code
<pre> if (expression) { statement1; ... statementN; } </pre>	<pre> if (! expression) goto endif1; statement1; ... statementN; endif1: </pre>
<pre> if (expression) { statementT1; ... statementTN; } else { statementF1; ... statementFN; } </pre>	<pre> if (! expression) goto else1; statementT1; ... statementTN; goto endif1; else1: statementF1; ... statementFN; endif1: </pre>
<pre> while (expression) { statement1; ... statementN; } </pre>	<pre> loop1: if (! expression) goto endloop1; statement1; ... statementN; goto loop1; endloop1: </pre>
<pre> for (expression1; expression2; expression3) { statement1; ... statementN; } </pre>	<pre> expression1; loop1: if (! expression2) goto endloop1; statement1; ... statementN; expression3; goto loop1; endloop1: </pre>

A loop pattern that is more efficient is described in Section 3.2 of *ARM 64-bit Assembly Language* by Pyeatt with Ughetta.