

Generic Checklist for Code Reviews

Structure

- + Does the code completely and correctly implement the design?
- ☐ Does the code conform to any pertinent coding standards?
- + Is the code well-structured, consistent in style, and consistently formatted?
- + Are there any uncalled or unneeded procedures or any unreachable code?
- ☐ Are there any leftover stubs or test routines in the code?
- ☐ Can any code be replaced by calls to external reusable components or library functions?
- ☐ Are there any blocks of repeated code that could be condensed into a single procedure?
- ☐ Is storage use efficient?
- + Are symbolics used rather than “magic number” constants or string constants?
- ☐ Are any modules excessively complex and should be restructured or split into multiple routines?

Documentation

- ☐ Is the code clearly and adequately documented with an easy-to-maintain commenting style?
- ☐ Are all comments consistent with the code?

Variables

- + Are all variables properly defined with meaningful, consistent, and clear names?
- + Do all assigned variables have proper type consistency or casting?
- ☐ Are there any redundant or unused variables?

Arithmetic Operations

- ☐ Does the code avoid comparing floating-point numbers for equality?
- ☐ Does the code systematically prevent rounding errors?
- ☐ Does the code avoid additions and subtractions on numbers with greatly different magnitudes?
- ☐ Are divisors tested for zero or noise?

Loops and Branches

- + Are all loops, branches, and logic constructs complete, correct, and properly nested?
- + Are the most common cases tested first in IF- -ELSEIF chains?
- + Are all cases covered in an IF- -ELSEIF or CASE block, including ELSE or DEFAULT clauses?
- ☐ Does every case statement have a default?
- + Are loop termination conditions obvious and invariably achievable?
- + Are indexes or subscripts properly initialized, just prior to the loop?
- + Can any statements that are enclosed within loops be placed outside the loops?
- + Does the code in the loop avoid manipulating the index variable or using it upon exit from the loop?

Defensive Programming

- ☐ Are indexes, pointers, and subscripts tested against array, record, or file bounds?
- ☐ Are imported data and input arguments tested for validity and completeness?
- + Are all output variables assigned?
- + Are the correct data operated on in each statement?
- + Is every memory allocation deallocated?
- ☐ Are timeouts or error traps used for external device accesses?
- ☐ Are files checked for existence before attempting to access them?
- + Are all files and devices left in the correct state upon program termination?