

- Code Reviews

## Exercise

```
( 1)      DOUBLE PRECISION FUNCTION SIN(X, E)
( 2) C    THIS DECLARATION COMPUTES SIN(X) TO ACCURACY E
( 3)      DOUBLE PRECISION E, TERM, SUM
( 4)      REAL X
( 5)      TERM=X
( 6)      DO 20 I=3,100,2
( 7)      TERM=TERM*X**2/(I*(I-1))
( 8)      IF (TERM.LT.E) GO TO 30
( 9)      SUM=SUM+(-1**(I/2))*TERM
(10)     20 CONTINUE
(11)     30 SIN=SUM
(12)      RETURN
(13)      END
```

.LT. is less than  
\*\* is exponentiation  
C is comment to end of line

CONTINUE is an empty statement  
DO lno var=begin, end, incr  
Return value is held in function name

## Inspections

- Also called *reviews* and *walkthroughs*
- Complements other verification techniques such as testing
- Cost-effective way of finding faults
- Redundant inspections by different teams may find even more faults

## Purpose

- Detection of *faults* (*bugs* or *defects*) not *errors* or *failures*
- Adherence to standards
- Not education of staff
- Not problem solving or fault correction
- Not status reporting

## Scope

- Requirements documents
- Specifications
- Architectural designs
- Detail designs
- New code
- Fixes
- Test plans
- Documentation

## Inspection Process

- **Planning:** select participants, schedule, assign roles, partition activity, organize and distribute materials (-5 days)
- **Preparation:** individual study noting potential defects (~10 pages of text or ~100 LOC per hour)
- **Inspection:** (same rate; two hours maximum)
- **Rework:** confirm and remove defects
- **Follow-up:** verify corrections; analyze results; update database; improve process

## Roles

- **Moderator:** (see next slide)
- **Recorder:** records defects and issues on form during reading
- **Reader:** paraphrases document systematically
- **Inspectors:** (3-6)

## Moderator Responsibilities

- Evaluates preparedness of inspection team prior to commencement. Aborts inspection if team is not prepared
- Evaluates entry criteria (actual completion of work to be inspected)
- Should be trained
- Must run meeting effectively and arbitrate differences
- Must be technically competent; might not be expert on work being inspected
- Selects participants
- Responsible for completion of follow-up

## Inspection Meeting

- Introduction of participants
- Statement of objectives
- Evaluation of preparedness
- **Inspection**
  - Paraphrase, scenarios, questions (verification conditions), or checklist
- Record results on inspection form
- Review and summarize detected faults
- Determine severity and priority
- Determine disposition responsibility

## Defect Classification

- **Minor rework**
  - Verified by author
- **Conditional rework**
  - Verified by moderator
- **Major rework**
  - Re-inspection is required if greater than 20% of document or 20 hours of work or 100 LOC have been affected

## Guidelines

- Inspections should not be used for personnel evaluations
- Managers should not attend unless they have participated technically in the production of the document being inspected
- Hold a separate overview meeting to educate staff
- Spread out inspections over time

## Guidelines - 2

- Do not allow additional participants (observers)
- Avoid use of “you” and discussion that might raise defensiveness
- Author should not be moderator, recorder, or reader (?)
- Each type of inspection should have its own checklist

### Guidelines - 3

- Avoid problem solving during the inspection meeting
- Cost of inspection is between 10-20% of development effort
- Avoid discussions of style
- Inspection as a *go/no-go* activity
- Inspectors' signatures on inspection report