

SOFTWARE QUALITY ASSURANCE

John Abbott College JPC
***Program Inspections,
Walkthroughs & Reviews***

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Human Testing

- **Highly effective**
 - **apply after analysis/design**
 - **before coding**
 - **catch errors early = cheaper & better correction**
- **Inspections**
- **Walkthroughs**
- **Desk Checking**
- **Peer Rating**

Inspections

- **Gerald M. Weinberg (1971). *The Psychology of Computer Programming*. Van Nostrand Reinhold (New York). ISBN 0-442-29264-3. xv + 288. Index.**
- **Team approach**
 - moderator
 - programmer
 - designer
 - QA specialist
- **Synergy**

Inspections

- **Purpose:**
 - find errors
 - find reasons errors were made
 - not to fix the errors right then
- **Effective**
 - find 30%-70% of all errors found by end of testing process
 - complementary to machine-execution testing
- **Especially effective for testing modifications**

Inspections

Moderator

- **Competent programmer**
- **Not author of program**
- **Distributes materials for inspection**
- **Facilitates session**
- **Records results**
- **Manages repair later**

Inspections

Narration

- **Programmer explains every line of code**
- **Focus on branch points and operations**
- **Other members question logic**
- **Suggest exceptions**
- **Identify errors**
- **Do not allow programmer to correct errors during session**
 - **Alternative view: bug-fixing leads to further analysis**

Inspections

- **Prevent interruptions**
- **Limit sessions to 90-120 minutes**
- **Average speed 150 3GL statements/hour**
 - **4GL may have fewer statements/hour**
- **Expect repeated sessions**

Inspections

Psychological Issues

- **Defensiveness is a disaster**
 - Adopt ego-less attitude
 - Pride in identifying errors
- **Results should be confidential**
 - Do not allow management to use #errors as metric of programmer quality
- **Other Benefits**
 - Improved programming style in group
 - Identify error-prone sections

Walkthroughs

The Walkthrough Team

- Moderator
- Secretary
- Expert programmer
- Language expert
- Novice
- Maintenance programmer
- Programmer from another project

Walkthroughs

- **Distribute materials in advance**
- **“Play Computer”**
- **Use prepared set of test cases**
- **Mark state of memory etc. on paper or in spreadsheet(s)**
- **Test cases are merely framework for questions**
- **Discussions with programmer most productive**

Desk Checking

- Ineffective for most people
- We see what we expect program to do
- Schema influences perception
- Trading programs marginally better

Peer Rating

- Not a program testing-method
- Good example of Continuous Improvement or TQM
- Choose examples of best and worse code
- Distribute two anonymous samples at random
- Share analysis and commentary
- Fosters positive attitude towards improvement

Homework

- Read Chapters 1, 2 and 14 from your textbook
- Answer all the review questions distributed by the instructor
 - Avoid copying the textbook blindly -- you will not remember as much as if you think about the answers yourself
 - Use simple language; usually a few words or sentences will be ample
- Submit your work by 09:00 tomorrow morning.
- Because of the short time available, *do not be late* in submitting your review answers

