

Testing Tools

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Limitations of Manual Testing

- Time consuming
- Regression Testing needs to be repeated whenever a change made to any portion of SW
- To do Performance testing, many resources are required, both computers and people
- Manual testing is error prone, because test engineers get bored when testing has to be done repeatedly
- Managing the testing process becomes complicated as the size grows

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Testing Tools

- Win runner
- Load runner
- Rational, etc

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Usage of Automation Test Tools

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Need for Automated Testing Tools

- Functionality of the SW can be tested repeatedly improve the quality and reliability
- Testing can be done unattended
- When the SW has to be tested in different environments the labor involved can be reduced
- Performance testing can be done without the need for many computers and many test engineers
- Testing process can be planned and managed effectively using these tools
- Test reports can be generated automatically

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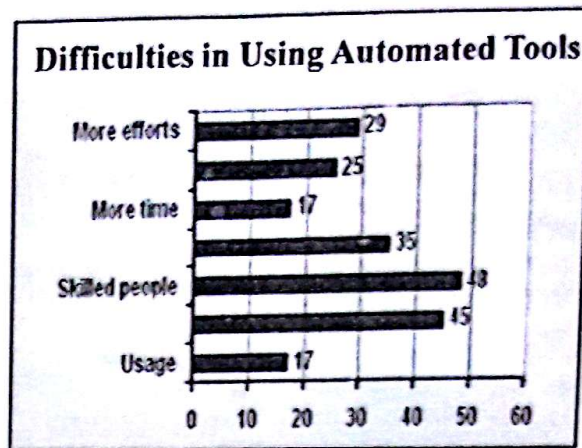
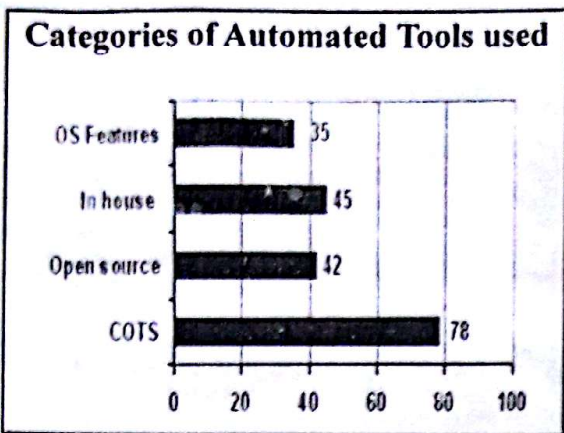
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Taxonomy of Testing Tools

- Functional/Regression testing tools
- Source code testing tools
- Performance testing tools
- Java testing tools
- Embedded SW testing tools
- Network protocol testing tools
- Configuration management tracking tools
- Testing management tools

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Select The Right Tool

1. Define your project's requirements for a SW Testing tool
2. List 10 to 15 factors that will influence your selection decision. Include subjective categories such as tailor ability as well as the efficiency and effectiveness of the GUI
3. Distribute 100 points among the selection factors you listed in step 2, giving more points to the more important factors

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4. Obtain current information about the available SW Testing tools
5. Calculate the score for each candidate based on the weight you gave each factor to see which products appear to best fit your needs
6. Solicit experience reports from other users of each candidate product

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7. Obtain evaluation copies from vendors of your two or three top-rated tools
8. Evaluate the tools using a real project, not just the tutorial project that comes with the product
9. To make a decision, combine the ratings, licensing cost, and ongoing costs with information on vendor support, input from current users, and your team's subjective impressions of the products

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Tools for Testing

Tools (DCS, LDRA, BENDER)

Easy enhancement checks for developers, auto regressions for known bugs and easy integration for future tests

Review and Inspection tools

- Complexity analysis
- Syntax and semantic analysis
 - flag potential defects or problem areas
- Program standards verification
- Structured programming verification
- Full variable cross reference
- Unreachable code reporting
- Data flow analysis
- Code flow display

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Tools for Testing - 2

Test execution, evaluation and reporting

- Coverage analysis
 - untested code, frequency of branch / statement execution, percentage of coverage
- Call tree display
- Memory error detection
- Performance analysis
- Regression testing
 - dynamic data set analysis, profile analysis
- Test case management
- Status tracking, reporting
- Capture / Playback

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Tools for Testing - 3

Capture and playback

- Capture action sequences as a script
- Allows modification of script
- Adapts to variations in application GUI
- Records underlying processes such as database calls
- Interactive test data

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Memory Testing Tools

- Bounds checkers
- Run-time error detectors
- Leak detectors

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Testing Tools

- A tool (partially) automates a method or procedure
- If you don't have a method, don't use a tool
- No tool will eliminate your need to think, plan and design

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Tool Acquisition Questions

- How do the tools fit into and support our test processes?
- Do we already know how to plan and design tests?
- Who will promote and support tool use on an ongoing basis?
- Who will be the responsible for ensuring that people have sufficient skills to use the new tools?

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Summary

- Use of automated testing tools has many attractions:
 - Better quality product can be delivered
 - Time, effort, money spent on testing can be reduced
 - Productivity of the test engineer will be increased
 - Testing process can be streamlined
- Data driven testing and recovery management are the two important features of the tools
- Tools can be used to simulate multiple users / machines
- Test management tools – process oriented management by providing :
 - Test scheduling
 - Generation of test cases
 - Generation of test reports
 - Bug tracking, etc

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