Software Maintenance and Regression Testing

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SOFTWARE MAINTENANCE AND REGRESSION TESTING

1. Abstract: summary of the key points on software maintenance and regression testing
2. What is software maintenance
   1. Definition of software maintenance
   2. What is the purpose of software maintenance
   3. What are the key issues in software maintenance
3. Techniques for software maintenance
   1. Program comprehension
   2. Re-engineering
   3. Reverse engineering
   4. Migration
   5. Retirement
4. Types of software maintenance
   1. Corrective maintenance
   2. Adaptive maintenance
   3. Perfective maintenance
   4. Preventive maintenance
5. Software maintenance tools
   1. What kind of tools are used
   2. What are they used for
   3. When are they used and why?
   4. How are they helpful
6. The cost of maintenance
   1. Real-world factors that affect maintenance costs
   2. The software end factors that affect maintenance costs
7. Maintenance activities
   1. Discuss about each activity
      1. Identification and tracing
      2. Analysis
      3. Design
      4. Implementation
      5. System testing
      6. Acceptance testing
      7. Delivery
      8. Maintenance management
   2. Explain what the purpose of each activity is
8. Software re-engineering
   1. What is the purpose
   2. What is the process
   3. Reverse engineering
   4. Program restructuring
   5. Forward engineering
9. Component reusability
   1. Explain what component reusability is
   2. Discuss the various levels of reusability
   3. Explain the process of reusability and what the two methods are
10. Why is software maintenance important?
    1. Helps with cost
    2. Defects
11. What is regression testing
    1. Definition of regression testing
    2. Understanding regression tests
12. Why is regression testing important?
    1. The benefits of regression testing
    2. The cost of regression testing
13. How is regression testing performed?
    1. Discuss the process
    2. Who should perform the tests
    3. When are regression tests appropriate
    4. When should regression testing occur
14. Regression testing either manual or automation
    1. Manual regression testing
       1. Pros and cons of manual testing
       2. What are the benefits and limitations
    2. Automated regression testing
       1. Pros and cons of automated testing
       2. What are the benefits and limitations
15. Regression testing and the patch development cycle
    1. What is the patch development cycle?
    2. How does it relate to regression testing?
    3. How does it help both software maintenance and regression testing?
16. The future of regression testing
17. Conclusion and future study
18. References