

Test First Development

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Abstract

- **Abstract** Unit testing is more of an act of design than verification. What are its benefits? How do we write effective tests? What is a better way to learn than practicing it? In this session the attendees will participate in designing and developing a small yet full application. The code developed will be made available for free download on the speaker's web site.

Speaker Dr. Venkat Subramaniam, founder of Agile Developer, Inc., has trained and mentored more than 3000 software developers in US and Europe. He has significant experience in architecture, design, and development of distributed object systems. Venkat is also an adjunct professor at the University of Houston and teaches the Professional Software Developer Series at Rice University's Technology Education Center. He may be reached at venkats@agiledeveloper.com.

Examples Any page with a  has an example attached
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Test First Development

- **What we will do**
 - **Presentation with no powerpoint (almost!)**
 - **Most time will be spent on code**
 - **We will learn by example**
- **Look at a Problem Statement**
- **Discuss your design ideas**
- **Discuss the approach we will take**
- **Introduce tools and techniques**
- **Let's build the application**
- **Discuss JUnit, Mock Objects**

Tick-Tack-Toe

A small assignment for you. For the problem given below, come up with ideas of how you may implement it. Draw UML class diagram(s) and explain how you would implement it. No need to actually code it at this time. Then we will embark on implementing this during the session.

There are two users to the system. One will place an 'x' peg and the other an 'o' peg in cells. There are three rows and three columns. First a user must indicate whether first player will use the 'x' peg or the 'o' peg. Then the first player is asked to place a peg on a cell. The player can only place on an empty cell. The game continues until a player has placed three pegs in a row, column or diagonally or there are no more empty cells left. If the game is won, the victory is announced. The application will keep track of the number of wins by each player. At any time, a user may request to view the statistics of the name of players and number of games each one has won.

Implementation

- Paired Programming to implement the Tick-Tack-Toe application
- Available for download within 24 hours of presentation at <http://www.agiledeveloper.com/NFJS/index.htm>



Quiz Time



Review of Concepts

- Benefits of TFC
- Quality of Tests
- Test isolation
- Where to write test?
- Where to run test?
- When to run test?

- This and more discussed further in session on Agile Software Development

References

1. Agile Software Development, Principles, Patterns, and Practices, Robert Martin
2. Refactoring Improving The Design Of Existing Code, Martin Fowler
3. Test-Driven Development by Example, Kent Beck
4. Continuous Integration, Martin Fowler
<http://www.martinfowler.com/articles/continuousIntegration.html>
5. Examples, slides are for your download at
<http://www.agiledeveloper.com/download.aspx>