Test Driven JavaScript Application Development
Duration: 5 days (9 hours each day with working lunch)

JavaScript is one of the most powerful dynamically typed languages. A good disciplined development approach is necessary to avoid that power turning into a maintenance nightmare. JavaScript code deserves automated testing. Writing automated tests is really not that hard once we learn a few tricks and techniques. That's the main objective of this course, to teach programmers the reasons to do automated testing, the level and the degree for those tests, and deeply technical approaches to achieve prudent test automation.

The course has a good balance of interactive lectures and hands-on exercises. The attendees are expected to pair-up and work on the lab exercises. The instructor will assist the attendees as they work on the labs. The objective of the course is for the attendees to gain an in depth practical knowledge of the concepts so they can put them to immediate use on their real projects.

The course content will be customized to meet your teams' specific needs. Please review this detailed outline and suggest changes (additions, deletions, modifications) as you feel fit.

Topics

Need for Right Level of Testing
* Testing vs. Verification
* Levels of testing
* Anti-patterns of automated testing
* Right level and degree of testing
* Why is it hard to verify automatically
* Spike to learn
* Strategic vs. tactical design
* How to approach automated testing
* Exercises

Writing Automated Tests
* Creating tests
* Positive, negative, and exception tests
* Designing server side code with tests
* Designing client side code with tests
* Measuring code coverage
* Exercises

Testing Asynchronous Functions
* Challenges of asynchrony
* Testing functions with callbacks

* Testing Promises
* Exercises

Testing with Dependencies
* Challenges of dependencies
* Separate dependencies where possible
* Invert dependency, but keep it minimum
* Test Doubles
* Types of test doubles
* Testing code with dependencies
* Using Sinon to ease test doubles creation
* Exercises

Testing Server Side Code
* Creating Express and Node Applications Applications
* Testing driving the server side
* Writing tests for database layer
* Testing models
* Testing routes
* Measuring code coverage
* Exercises

Testing Client Side Code
* Testing client side code
* Testing jQuery code
* Automating tests
* Measuring code coverage
* Exercises

Testing Angular code
* Automated testing and Angular
* Testing pipes
* Testing Controllers
* Testing Services
* Dependency injection and testability
* Organizing code for testability
* Measuring code coverage
* Exercises

End-to-End Testing
* Revisiting the levels of testing
* Using Protractor tests
* Using Protractor to test through the jQuery UI
* Using Protractor to test thorough the Angular UI
* Recommended practices
* Exercises

Designing for testability
* Revisiting the levels of testing
* Gauging the testing efforts
* Influencing and succeeding with automated tests
* Exercises

About the Instructor

Dr. Venkat Subramaniam is an award-winning author, founder of Agile Developer, Inc., creator of agilelearner.com, and an instructional professor at the University of Houston.

He has trained and mentored thousands of software developers in the US, Canada, Europe, and Asia, and is a regularly-invited speaker at several international conferences. Venkat helps his clients effectively apply and succeed with sustainable agile practices on their software projects.

Venkat is a (co)author of multiple technical books, including the 2007 Jolt Productivity award winning book Practices of an Agile Developer. You can find a list of his books at agiledeveloper.com. You may read more about Venkat and Agile Developer, Inc. at http://agiledeveloper.com.