

HTTP 5221

Security & Usability

Sean Doyle

Terminology Review

- Specification
- Bug
- Static Testing
- Dynamic Testing
- Black Box Testing
- White Box Testing
- Test-to-Pass
- Test-to-Fail
- Boundary Conditions
- Unit Testing
- Test-Driven Development

How do we minimize risk?

- Plan it
 - Work with end user to gain an understanding
 - Create Requirements
- Build it
 - Using coding standards
 - Using modularization
 - Using production tools & frameworks
- Test it
 - **Unit testing through to user testing**
- Protect it
 - Back it up with Version Control
 - **Encryption**
 - Hacker prevention

ENCRYPTION & TESTING YOUR CODE 2

Lesson 4

TODAY'S TOPICS

- [Encryption](#) (with JavaScript)
- Unit Testing with [a framework](#)

Source Book



ENCRYPTION

Our secondary level of defense in protecting our data.

ENCRYPTION

- Encryption is using an algorithm to turn a string into an undecipherable series of characters to hide and protect the original data.
- "Hello World" becomes
b10a8db164e0754105b7a99be72e3fe5
- Encryption should not be relied on as the only means of defence.

ALGORITHMS

- Two popular algorithms are MD5 and SHA1.
- MD5 = 32 character encryption
- SHA1 = 40 character encryption
- Converting a string with an algorithm is often referred to as a "hash".
- Technically, a "hash" is a one-way encryption to a set number of characters. This means that the algorithm can encrypt the string, but it is not able to decrypt the result back to the original string.

TESTING LIBRARIES

Behaviour Driven Development (BDD)

- Follows Test Driven Development philosophy by creating tests before the code.
- Tests should be written in plain English, and understandable by non-programmers.
- Tests should be created in order of "business value".

Testing to Enforce the Specifications (Functional)

logIn Functional Specifications

1. The function should return true when receiving a valid username and a valid matching password.
2. The function should return false when receiving a valid username with an invalid password.
3. The function should return false when receiving a valid username with an empty string.
4. ...

logIn Function Testing Report

Test	Result
The function should return true when receiving a valid username and a valid matching password.	PASSED
The function should return false when receiving a valid username with an invalid password.	PASSED

Testing to Enforce the Specifications (User Stories)

Stopwatch Requirements Document User Stories

1. The User should be able to set an amount of time to count down from.
2. The User should see time continuously updating as it counts down.
3. The User should be notified when the countdown has completed.
4. ...

Stopwatch Testing Report

Test	Result
The User should be able to set an amount of time to count down from.	PASSED
The User should see time continuously updating as it counts down.	PASSED
The User should be notified when the countdown has completed.	PASSED

Jasmine Syntax for a Unit Test ("spec")

Specification

"The Humber ID check should return the Boolean true for an uppercase N with 8 digits."

Unit Test Pattern

```
function test_HumberID(testValue, expectation) {
```

Jasmine "Spec"

```
expect(checkHumbrId(testId)).toEqual(true);
```

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