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Software

Test Heuristics Cheat Sheet
Data Type Attacks & Web Tests

Data Type Attacks

Paths/Files

Long Name (>255 chars) ▪ **Special Characters in Name** (space * ? / \ | < > , . ( ) [ ] { } ; : ‘ “ ! @ # $ % ^ &) ▪ **Non-Existent** ▪ **Already Exists** ▪ **No Space** ▪ **Minimal Space** ▪ **Write-Protected** ▪ **Unavailable** ▪ **Locked** ▪ **On Remote Machine** ▪ **Corrupted**

Time and Date

Timeouts ▪ **Time Difference between Machines** ▪ **Crossing Time Zones** ▪ **Leap Days** ▪ **Always Invalid Days (Feb 30, Sept 31)** ▪ **Feb 29 in Non-Leap Years** ▪ **Different Formats** (June 5, 2001; 06/05/2001; 06/05/01; 06-05-01; 6/5/2001 12:34) ▪ **Daylight Savings Changeover** ▪ **Reset Clock Backward or Forward**

Numbers

0 ▪ **32768** (2^{15}) ▪ **32769** (2^{15} + 1) ▪ **65536** (2^{16}) ▪ **65537** (2^{16}+1) ▪ **2147483648** (2^{31}) ▪ **2147483649** (2^{31} + 1) ▪ **4294967296** (2^{32}) ▪ **4294967297** (2^{32} + 1) ▪ **Scientific Notation** (1E-16) ▪ **Negative** ▪ **Floating Point/Decimal** (0.0001) ▪ **With Commas** (1,234,567) ▪ **European Style** (1.234.567,89) ▪ **All the Above in Calculations**

Strings

Long (255, 256, 257, 1000, 1024, 2000, 2048 or more characters) ▪ **Accented Chars** (àáâãäåçèéêëìíîðñòôõöö, etc.) ▪ Asian Chars (□□) ▪ **Common Delimiters and Special Characters** (“ ‘ ` | / \ , ; : & < > ^ * ? Tab) ▪ **Leave Blank** ▪ **Single Space** ▪ **Multiple Spaces** ▪ **Leading Spaces** ▪ **End-of-Line Characters** (^M) ▪ **SQL Injection** (‘select * from customer) ▪ **With All Actions** (Entering, Searching, Updating, etc.)

General

Violates Domain-Specific Rules (an ip address of 999.999.999.999, an email address with no “@”, an age of -1) ▪ **Violates Uniqueness Constraint**

Web Tests

Navigation

Back (watch for ‘Expired’ messages and double-posted transactions) ▪ **Refresh** ▪ **Bookmark the URL** ▪ **Select Bookmark when Logged Out** ▪ **Hack the URL** (change/remove parameters; *see also Data Type Attacks*) ▪ **Multiple Browser Instances Open**

Input

See also Data Type Attacks ▪ **HTML/JavaScript Injection** (allowing the user to enter arbitrary HTML tags and JavaScript commands can lead to security vulnerabilities) ▪ **Check Max Length Defined on Text Inputs** ▪ **> 5000 Chars in TextAreas**

Syntax

HTML Syntax Checker (http://validator.w3.org/)
CSS Syntax Checker (http://jigsaw.w3.org/css-validator/)

Preferences

Javascript Off ▪ Cookies Off ▪ Security High ▪ Resize Browser Window ▪ Change Font Size

Testing Wisdom

A test is an experiment designed to reveal information or answer a specific question about the software or system. ▪ *Stakeholders have questions; testers have answers.* ▪ Don’t confuse speed with progress. ▪ **Take a contrary approach.** ▪ Observation is exploratory. ▪ *The narrower the view, the wider the ignorance.* ▪ Big bugs are often found by coincidence. ▪ *Bugs cluster.* ▪ Vary sequences, configurations, and data to increase the probability that, if there is a problem, testing will find it. ▪ **It’s all about the variables.**

This cheat sheet includes ideas from Elisabeth Hendrickson, James Lyndsay, and Dale Emery

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Test Heuristics Cheat Sheet
Heuristics & Frameworks

Heuristics

Variable Analysis Identify anything whose value can change. Variables can be obvious, subtle, or hidden.

Touch Points Identify any public or private interface that provides visibility or control. Provides places to provoke, monitor, and verify the system.

Boundaries Approaching the Boundary *(almost too big, almost too small)*, At the Boundary

Goldilocks Too Big, Too Small, Just Right

CRUD Create, Read, Update, Delete

Follow the Data Perform a sequence of actions involving data, verifying the data integrity at each step. *(Example: Enter → Search → Report → Export → Import → Update → View)*

Configurations Varying the variables related to configuration *(Screen Resolution; Network Speed, Latency, Signal Strength; Memory; Disk Availability;* **Count** *heuristic applied to any peripheral such as 0, 1, Many Monitors, Mice, or Printers)*

Interruptions Log Off, Shut Down, Reboot, Kill Process, Disconnect, Hibernate, Timeout, Cancel

Starvation CPU, Memory, Network, or Disk at maximum capacity

Position Beginning, Middle, End *(Edit at the beginning of the line, middle of the line, end of the line)*

Selection Some, None, All *(Some permissions, No permissions, All permissions)*

Count 0, 1, Many *(0 transactions, 1 transactions, Many simultaneous transactions)*

Multi-User Simultaneous create, update, delete from two accounts or same account logged in twice.

Flood Multiple simultaneous transactions or requests flooding the queue.

Dependencies Identify "has a" relationships *(a Customer has an Invoice; an Invoice has multiple Line Items)*. Apply **CRUD**, **Count**, **Position**, and/or **Selection** heuristics *(Customer has 0, 1, many Invoices; Invoice has 0, 1, many Line Items; Delete last Line Item then Read; Update first Line Item; Some, None, All Line Items are taxable; Delete Customer with 0, 1, Many Invoices)*

Constraints Violate constraints *(leave required fields blank, enter invalid combinations in dependent fields, enter duplicate IDs or names).* Apply with the **Input Method** heuristic.

Input Method Typing, Copy/Paste, Import, Drag/Drop, Various Interfaces *(GUI v. API)*

Sequences Vary Order of Operations ▪ Undo/Redo ▪ Reverse ▪ Combine ▪ Invert ▪ Simultaneous

Sorting Alpha v. Numeric ▪ Across Multiple Pages

State Analysis Identify states and events/transitions, then represent them in a picture or table. Works with the **Sequences** and **Interruption** heuristics.

Map Making Identify a "base" or "home" state. Pick a direction and take one step. Return to base. Repeat.

Users & Scenarios Use Cases, Soap Operas, Personae, Extreme Personalities

Frameworks

Judgment Inconsistencies, Absences, and Extras with respect to Internal, External – Specific, or External – Cultural reference points. (James Lyndsay, Workroom Productions)

Observations Input/Output/Linkage (James Lyndsay, Workroom Productions)

Flow Input/Processing/Output

Requirements Users/Functions/Attributes/Constraints (Gause & Weinberg *Exploring Requirements*)

Nouns & Verbs The objects or data in the system and the ways in which the system manipulates it. Also, Adjectives (attributes) such as Visible, Identical, Verbose and Adverbs (action descriptors) such as Quickly, Slowly, Repeatedly, Precisely, Randomly. Good for creating random scenarios.

Deming's Cycle Plan, Do, Check, Act

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