From Innovation to Production: Making It Work Is Just the Beginning

Dennis G. Ravenelle
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Mark Zuckerberg
Net Worth $17.5 B  30 of November 2011

At a Glance
Title: Founder, Facebook
Age: 27
Residence: Palo Alto, CA
Country of Citizenship: United States
Education: Drop Out, Harvard University
Marital Status: Single

Forbes Lists
#0 Powerful People
#14 Forbes 400
#52 Forbes Billionaires
#22 in United States

What the CIA failed to do in 60 years, Zuck has done in 7 knowing what 800 million people—more than 10% of the world's
Why are we here?

Introduction to the intellectual enterprises of computer science and the art of programming. This course teaches students how to think algorithmically and solve problems efficiently... Problem sets inspired by real-world domains of biology, cryptography, finance, forensics, and gaming.
Systems/Software Development Life-cycle (SDLC)

- DevOps
- Agile
- Waterfall
- Incremental
- Spiral
- Prototyping
- RAD/JAD
- RUP

Plan → Design → Implement → Operate

P D I O
Systems Development Life Cycle (SDLC)

Life-Cycle Phases

Initiation
- Begins when a sponsor identifies a need or an opportunity.
- Concept Proposal is created.

System Concept Development
- Defines the scope or boundary of the concept.

Planning
- Develops a Project Management Plan and other planning documents.
- Provides the basis for acquiring the resources needed to achieve a solution.

Requirements Analysis
- Analyzes user needs and develops user requirements.
- Creates a detailed Functional Requirements Document.

Design
- Transforms detailed requirements into complete, detailed System Design Document.
- Focuses on how to deliver the required functionality.

Development
- Converts a design into a complete information system.
- Includes acquiring and installing systems environment; creating and testing databases; preparing test case procedures; preparing test files; coding, compiling, refining programs; performing test readiness review and procurement activities.

Integration and Test
- Demonstrates that the developed system conforms to requirements as specified in the Functional Requirements Document. Conducted by Quality Assurance staff and users. Produces Test Analysis Reports.

Implementation
- Includes implementation preparation, implementation of the system into a production environment, and resolution of problems identified in the Integration and Test Phase.

Operations and Maintenance
- Describes tasks to operate and maintain information systems in a production environment. Includes Post-Implementation and In-Process Reviews.

Disposition
- Describes end-of-system activities. Emphasis is given to proper preservation of data.

Patents, Copyrights & IP

Using Google Patents Bought Last Week as Battle Escalates - Bloomberg

Want to save this for later? Add it to your Queue!

HTC Sues Apple Using Google Patents Bought Last Week as Battle Escalates

By Paul Ward and Susan Decker – Sep 9, 2011 12:59 AM ET

HTC Corp. (2498), Asia’s second-biggest smartphone maker, is using nine patents bought from Google Inc. (GOOG) last week to pursue new infringement claims against Apple Inc.

Google had taken ownership of the patents less than a year ago, with four of the patents originating from Motorola Inc. alone - three from Openwave Systems Inc. and two from Palm Inc., according to U.S. Patent and Trademark Office records. Jim Provissier, a spokesman for Mountain View, California-based Google, wouldn’t discuss reasons for the nine transfers to HTC.
Patents, Copyrights & IP

http://www.uspto.gov

http://www.copyright.gov
Does it Scale?

**Micro**
- Processor capacity
- Memory
- Threads
- Filesize
- Bandwidth

**Macro**
- Supportability and maintainability
  - Who’s taking the calls?
  - Who’s fixing it?
- Capacity
  - How many simultaneous users?
  - How many servers?
- Load balancing
- Availability and Continuity
Testing
## Testing

<table>
<thead>
<tr>
<th>Functionality (exterior quality)</th>
<th>Engineering (interior quality)</th>
<th>Adaptability (future quality)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Correctness</td>
<td>Efficiency</td>
<td>Flexibility</td>
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<tr>
<td>Reliability</td>
<td>Testability</td>
<td>Reusability</td>
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<tr>
<td>Usability</td>
<td>Documentation</td>
<td>Maintainability</td>
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<tr>
<td>Integrity</td>
<td>Structure</td>
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</tbody>
</table>

**Table 1. Typical Software Quality Factors** [Hetzel88]


http://www.ece.cmu.edu/~koopman/des_s99/sw_testing/
Documenting and Source Code Protection

- **In the code:**
  - Comment, Comment, Comment!
  - Use good coding practices to make it readable

- **External:**
  - Flowcharts and diagrams
  - Narratives of what’s happening

- **Open Source Version Control tools:**
  - GNU RCS
  - CVS
  - Vesta

- **Commercial**
  - VSS (MicroSoft)
  - ClearCase (IBM Rational)
  - Vault
Support

- Who?
- How?
- FAQs
- Known issues
- Error messages
- Diagnostics

- Logging
- Phone home
- Back doors
- Patching
  - OS/browser changes
  - Security
Economics

- June 2009: 50,000 iPhone Apps
- Today …

Over 500,000 apps. For work, play, and everything in between.

The apps that come with your iPhone are just the beginning. Browse the App Store to find hundreds of thousands more. The more apps you download, the more you realize there's almost no limit to what your iPhone can do. Learn more about the App Store.
Economics
Economics – Market Data

iSites - Mobile Browsers of Authenticated Users, 1-Aug-2010 thru 25-Aug-2010

- Samsung/iPod: 15.6%
- BlackBerry: 10%
- Other Mobile: 2%
- iPad: 2.3%
- Android: 1%

iSites Authenticated User Mobile Browser Usage - December 2010

- iPhone/iPod: 52.5%
- Android: 15.2%
- BlackBerry: 6.8%
- iPad: 24.1%
- Other Mobile: 1.9%
Autoreg-registered devices by OS, 28 June 2011

- Mac OS X, 13651, 31%
- Apple iPod, iPhone or iPad, 14747, 33%
- Microsoft Windows Vista/7 or Server 2008, 8030, 18%
- Microsoft Windows XP, 4596, 10%
- HTC Android, 1492, 3%
- Other, 2253, 5%
Challenges and Opportunities in Mobile Web and App Development

Guest Editor's Introduction • Ron Vetter • November 2011

The development of mobile applications that can run across multiple heterogeneous devices is challenging. Not only do mobile devices differ considerably at the hardware level, but the software development environments are also very different. This month’s theme highlights some of the issues and challenges involved in this active area of software development.

Generally speaking, there are two approaches to mobile app development: Web-based, which involves technologies such as HTML5, CSS, Javascript, and related frameworks; and development on native platforms, such as iOS, Android, and Windows Mobile 8.

One of the main advantages of native app development is the ability to reach hundreds of millions of customers simply by uploading your app to a store. Apps developed in a native platform technology currently outpace Web-based alternatives in both the number of available apps and the time spent by users on the device. That being said, the main advantage of the mobile Web approach is its rapid deployment model and its ability to run immediately on multiple platforms via a Web browser. Many developers see the ability of Web-based apps to circumvent the somewhat formal, and often lengthy, process required to deploy apps in a store as a huge benefit. However, Web-based solutions suffer from browser incompatibilities, an uncertain monetization strategy, and slow evolution of mobile Web development standards.

While mobile Web apps are proliferating, there will be an active market for native apps for some time to come. A good understanding of the advantages and limitations of both development approaches will be important to successful application deployment and a positive user experience. Many developers see hybrid approaches as a natural migration path for developing cross-platform code that can run in a device-independent way across multiple hardware platforms. Companies such as PhoneGap and AppMobi are selling hybrid cross-platform solutions using the HTML5 programming model, thereby leveraging Web technologies that developers already know. This approach appears to be promising for future mobile Web and app development efforts.

http://www.computer.org/portal/web/computingnow/archive/november2011%20?utm_source=bronto&utm_medium=email&utm_term=Mobile+devices+differ+at+the+hardware+level@
The statistics are disheartening no matter how an entrepreneur defines failure. If failure means liquidating all assets, with investors losing most or all the money they put into the company, then the failure rate for start-ups is 30 to 40 percent, according to Shikhar Ghosh, a senior lecturer at Harvard Business School who has held top executive positions at some eight technology-based start-ups. If failure refers to failing to see the projected return on investment, then the failure rate is 70 to 80 percent. And if failure is defined as declaring a projection and then falling short of meeting it, then the failure rate is a whopping 90 to 95 percent.
Siblings sell 6-year-old startup for $100 million

Digital yearbook site, founded 6 years ago, acquired by social network.
Eduardo Saverin

Net Worth $2 B As of September 2011

At a Glance

- Age: 29
- Source: Facebook, self-made
- Residence: Singapore, Singapore
- Country of Citizenship: United States
- Hometown: Brazil
- Education: Bachelor of Arts / Science, Harvard University
- Marital Status: Single

Profile

Eduardo Saverin was immortalized in the movie, The Social Network, which portrayed him being betrayed by his onetime best friend Mark Zuckerberg. The buddies started Facebook together at Harvard, with Brazilian-born Saverin apparently providing early seed money. For a brief time he had a one-third stake, which then fell to 30% when Zuckerberg's roommate
Looking for money ...

• Need:
  • Demo
  • Elevator Pitch (200 words or less)
  • Business Plan is helpful

• Where to look:
  • Angel Investors
    • http://blog.jonpierce.com/post/520863618/bostons-best-angel-investors
    • WPI (Worcester Polytechnic Institute) Venture Forum
    • LA Venture Association (www.lava.org)
    • Some law firms
• Unpredictable Results
  • Pentium long division

• Unintended Consequences
  • Trapster

• Disasters
  • 1987 Wall Street Crash
Discussion?

Thank you!
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