09/08: Project Plan

The Capstone Experience

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Functional Specifications

- What does it do? (Not "how" does it do it?)
- Short List of Features
- Not Necessarily Complete
- Starting With
- Shared Vision?
- No Formal Documents?
- Minimal Documents?
- Incomplete Problem Statement?
- Understandable by End User
- Initial Problem Statement
- Usually Refined

Functional Specifications (Refined)

Building a House

- ~ 2,500 sq. ft.
- $275,000 - $325,000
- 4 Bedrooms
- 2.5 Bathrooms
- Formal Living Room and Family Room
- Study
- 2-Car Garage
- Walk-Out Basement

What do you need to know next?

Interactions With Your Client

- Derived With/From Client
- Documented For Client
- Presented to Client
- Agreed Upon With Client
- Your Job to Capture the Client’s Intent!

Functionally, what else might you like to know?

(Note: Understandable by “User”)
Project Plan

✓ Functional Specifications
  ➢ Design Specifications
  • Technical Specifications
  • Schedule
  • Risks

Design Specification

• How does it look and feel?
  • Includes
    ▪ “Business” Process Flow
    ▪ Use Cases
    ▪ Screen Mockups
    ▪ Data Flow Diagrams
    ▪ Data Organization
    ▪ Etc...
  • Identifies All the Parts and Their Interactions
  • (Mostly) Understandable by End User
  • Usually Refined

Design Specifications

Building a House

• Mission Style, Stone Front
• Lots of Light
• Kitchen Connected to Family Room
• Master Bedroom on Main Floor
• Cathedral Ceilings
• Granite Counter Tops
• Etc...

(Note: Understandable by “User”)

Screen Mock-Ups

• User Interface Only
  ▪ Shows Layout, Buttons, Pull-Downs, Etc...
  ▪ Non-Functional
  ▪ No Back End
  ▪ Helpful for Developing
    ▪ Functional Specifications
    ▪ Look-and-Feel
    ▪ Use Cases
  ▪ Can Create with...
    ▪ Pencil and Paper
    ▪ PowerPoint (Developer View)
    ▪ Etc...

Screen Mock-Ups

• “Use” with Clients
  ▪ Show to Clients
  ▪ Go Through Use Cases with Clients
  ▪ “Cruder” may be better.
    • What?
    • Why?

Design Specifications

Interactions With Your Client

• Derived With/From Client
• Documented For Client
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• Your Job to Capture the Client’s Intent!
Project Plan

- Functional Specifications
- Design Specifications
- Technical Specifications
  - Schedule
  - Risks

Technical Specification

- How does it do it?
- Identifies All the Parts and Their Interactions
- Everything a Developer Needs to Write the Code
- Includes Things Like...
  - Machine Architectures
  - Software Technologies
  - Production Environments
  - Development Environments
  - SDK's (Software Development Kits)
  - Network Topology
  - Database Schema
  - Object Models and Class Diagrams
  - Continued...

Technical Specification

- Includes Things Like...
  - UML Diagrams
  - Pseudo Code
  - Function Prototypes
  - Schedule
  - Test Plan
  - Risk Analysis
  - Etc...
  - Probably Not Understandable by End User
  - Possibly Not Understandable by Client
  - Usually Refined

Technical Specifications

Building a House

- 20 lb. Asphalt Roof Shingles
- 2” x 6” Outside Walls
- R48 Blown Attic Insulation
- Cat5E Wiring
- Pre-Made Roof Trusses
- 12” Poured Concrete Foundation
- Etc...

(Note: Probably Not Understandable by “User”)

Approach

- Break Big Problems Into Smaller Problems
- Identify Constraints
- Identify “Risks” — Things You Don’t...
  - ...Know
  - ...Understand
  - ...Know How To Do
- Consider Tradeoffs
- Select Appropriate Technologies
- Identify Core Features for a Prototype

Technical Specifications

Interactions With Your Client

- Derived With/From Client
- Documented For Client
- Presented to Client
- Agreed Upon With Client
- Your Job to Capture the Client’s Intent!

Cannot be emphasized enough!
How To’s (1 of 4)

• Quickly identify...
  • what you don’t know,
  • what you don’t understand, and
  • what you don’t know how to do.

• Conceptually...
  • Start with functional specifications.
    o Get agreement with client.
    o Include as 1st part of project plan.
  • Do design specifications.
    o Get agreement with client.
    o Include as 2nd part of project plan.
  • Do technical specifications.
    o Get agreement with client.
    o Include as 3rd part of project plan.
  • Do schedule.
  • Do development, testing, and deployment.
  • In CSE498, must do all three in parallel (and iterate).

How To’s (2 of 4)

• Approach
  • Make Skeleton Document Immediately
    o Will Get You Organized and Focused
  • Develop In Parallel When Possible But...
  • Refine As Needed
  • Assign Sections to Team Members
  • Share with Client
    o Ask For (Specific) Feedback
    o Highlight What’s New
    o Trickly Balance
      ◦ Not Enough?
      ◦ Too Much?

Is this what you had in mind?

How To’s (3 of 4)

• Schedule
  • Dictated by Course
  • See Major Milestones
    o 09/15: Team Status Reports
    o 09/27: Team Project Plans
    o 10/11: Team Alpha Presentations
    o 11/08: Team Beta Presentations
    o 12/06: Team Project Videos
    o 12/08: Team Project Videos and All Deliverables
    o 12/09: Team Design Day
  • Other Milestones By Educated Guesses
  • Track To It At Least Weekly at Triage Meetings
  • Revisit Often and Revise If Necessary
  • Delivery Slippage == Graduation Slippage

How To’s (4 of 4)

• “Living Document”
  • Make Sure Your Project Plan Has...
    • Cover Page
    • Title
    • Table of Content
    • Page Numbers
    • Headers and Footers
    • Etc...
    (That is, make sure your plan looks professional.)

Nota Bene: Project Plan

• How many...
  • drafts will you write? Many.
  • drafts will you share with your client? A Couple.
  • final documents will you submit for CSE498? One

• Due Date
  • Midnight, Sunday, September 26
  • About 2.5 Weeks

• In Class Formal Presentations
  • September 27 – October 4

• PowerPoint Template Provided
Resources on the Web

- Other Links > Downloads
  - Boeing
  - Microsoft
  - Motorola
  - Union Pacific Railroad
- Other Links > Online Resources
  - W3 Schools
  - Apache Subversion
  - SourceForge.net
  - Etc...

Project Plan

- Functional Specifications
- Design Specifications
- Technical Specifications
- Schedule
- Risks
- Next Meeting

What’s next?

- Team Photos
  - Informal: After Meeting Today
  - Formal: After Each Project Plan Presentation
- Setup
  - Team Machines
    - Server
    - Desktop
    - Etc.
  - Team Software
    - Web Server
    - Code Repository
    - SDK’s
    - Etc.
- Think About Team Status Report

What’s next?

- Team Status Report
  - PowerPoint Template
  - Due Midnight, Tuesday, September 14
  - Email to Dr. D.
    - Subject: Team <Company Name>: Status Report
    - Attach: team-<company-name>-status-report.pptx
- Dr. D. Will Combine Into Single PowerPoint
  - To Speed Things Up During Meeting
  - Do NOT Modify Master Slide Page
- Each Team Presents
  - Using Dr. D’s Laptop
  - At Most 5 Minutes (Rehearse Timing)
  - Single or Multiple Presenters (Your Choice)