Danfoss Enterprise Layered Process Auditing

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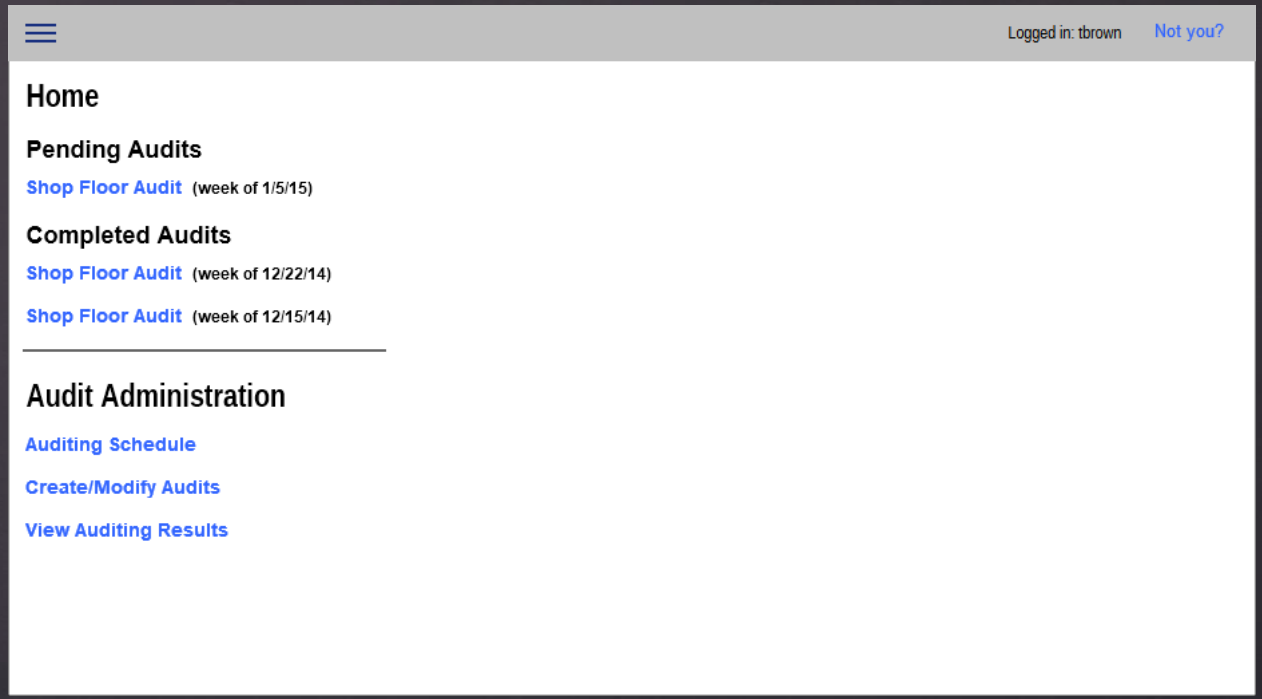
Client: Danfoss

Project Plan

Problem Statement

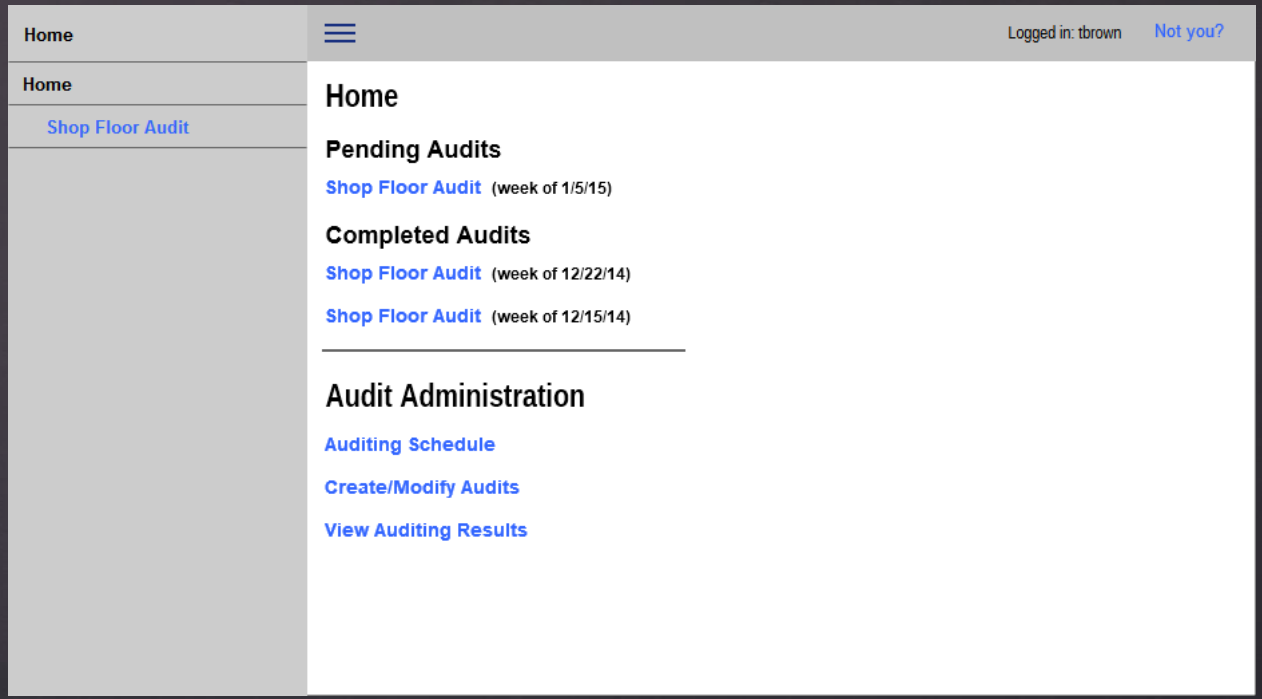
- Design and implement a web application to simplify and centralize Danfoss' auditing process
- The current process lends itself too time-consuming or incomplete audits with too many possible points of failure
- Simplifying this process will allow audits to be completed quicker with more flexibility, creating a safer workplace and higher-quality work output.

Conceptual Sketches



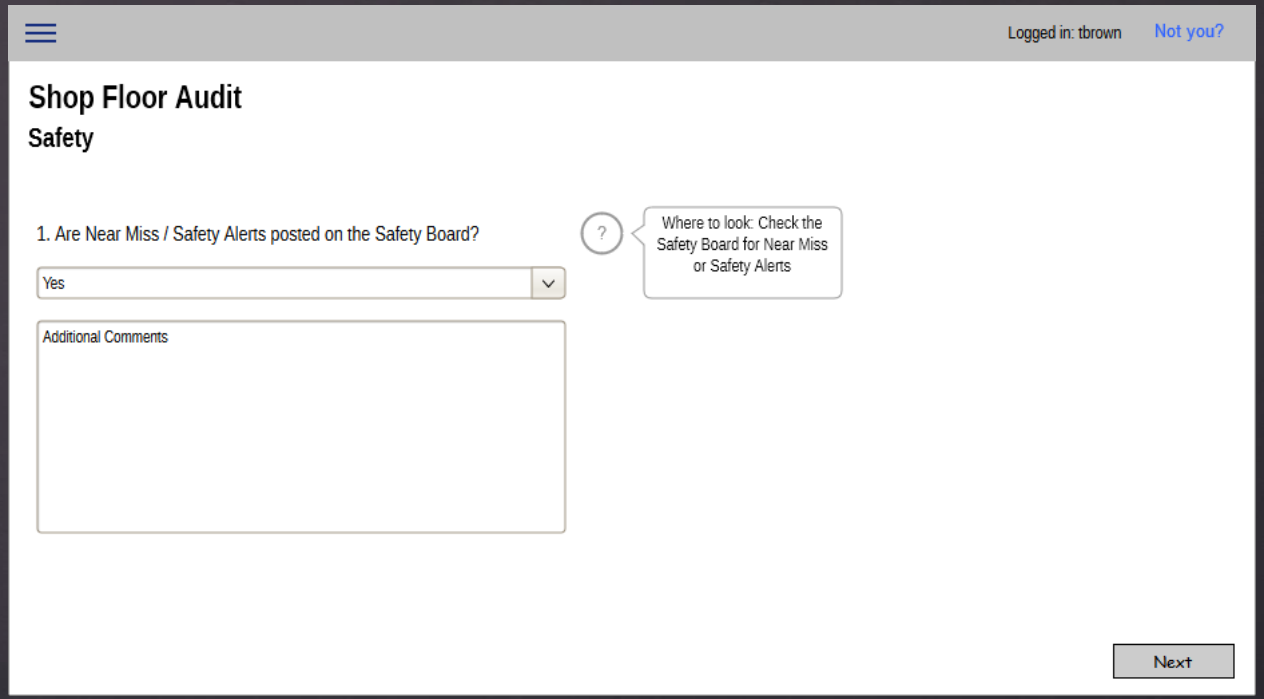
Dashboard with Admin View

Conceptual Sketches



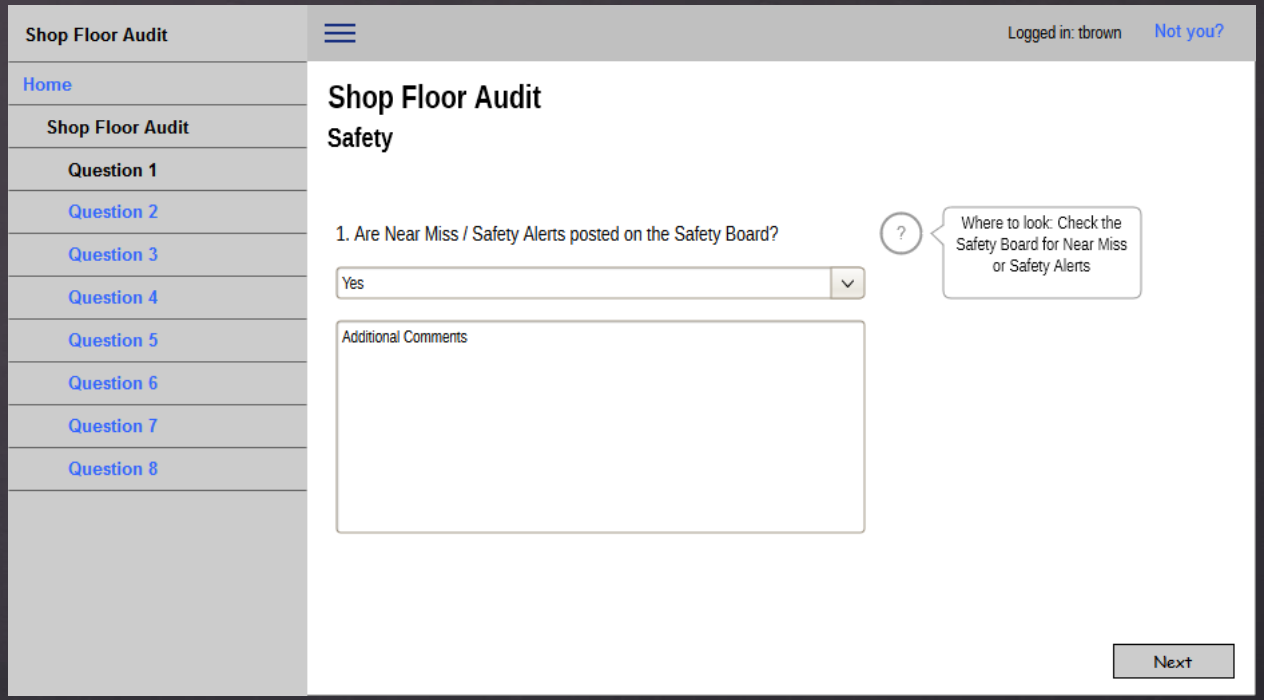
Dashboard with Menu Bar (Left)

Conceptual Sketches



Audit Process Display

Conceptual Sketches



Audit Process Display with Menu Bar (Left)

Functional Requirements

- Scheduling of auditors with defined rotation
  - Select from list with managers, directors, and guests
  - Guest can be inserted at will
- Email notifications
  - Upcoming/overdue audit
- Audit history graphs

Non-Functional Requirements

- Responsive design supports both desktop and tablet screen sizes
- Automatic picture based results
- Dropdown list of response to audit questions
- Question categories

Constraints/Considerations

- Tablet form factor and screen size
- Simplify audit process
- Danfoss coding standards
- Web service isn't provided
- C#/ASP.NET Web Forms

Market Survey

- Similar auditing systems are available for purchase from a number of other companies such as:
  - Intelex - custom and configurable applications
  - MKinsight - keeps track of more data sets such as chargeability and number of audits
- Overall, they provide more powerful functionality at the cost of complexity.

Risks & Mitigation

Risk	Probability of occurrence	Criticality (1-100)	Risk factor (prob * criticality)	Mitigation strategies
Essential requirements are missed	.4	80	32	Re-identify requirements with client frequently
Program doesn't interface with customer hardware	.2	90	18	Ensure development environment matches production environment
Program will need changes post release	.9	10	9	Provide thorough documentation and match clients code style (stylecop)

Resource/Cost Estimate

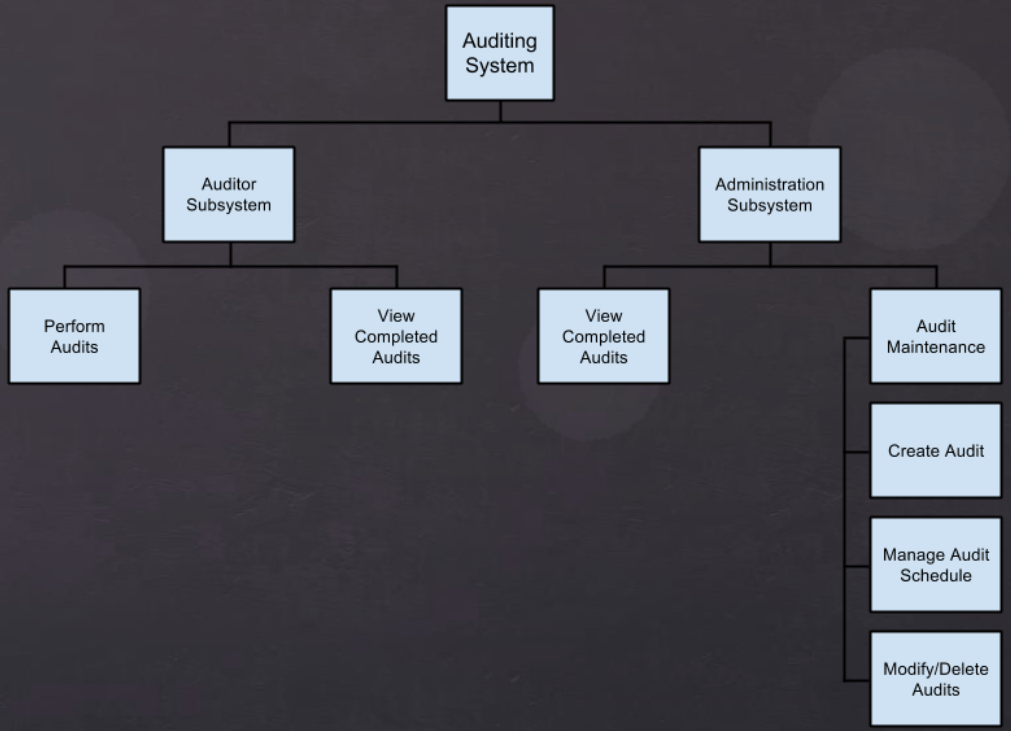
Resource	Source	Estimated cost
Visual Studio with Microsoft SQL Server	Provided by ISU through Dreamspark	N/A
StyleCop	Open Source	N/A
Development web server	AWS/Microsoft Azure	Free
Apple iPad	Provided by Danfoss	N/A

Project Milestones and Schedule

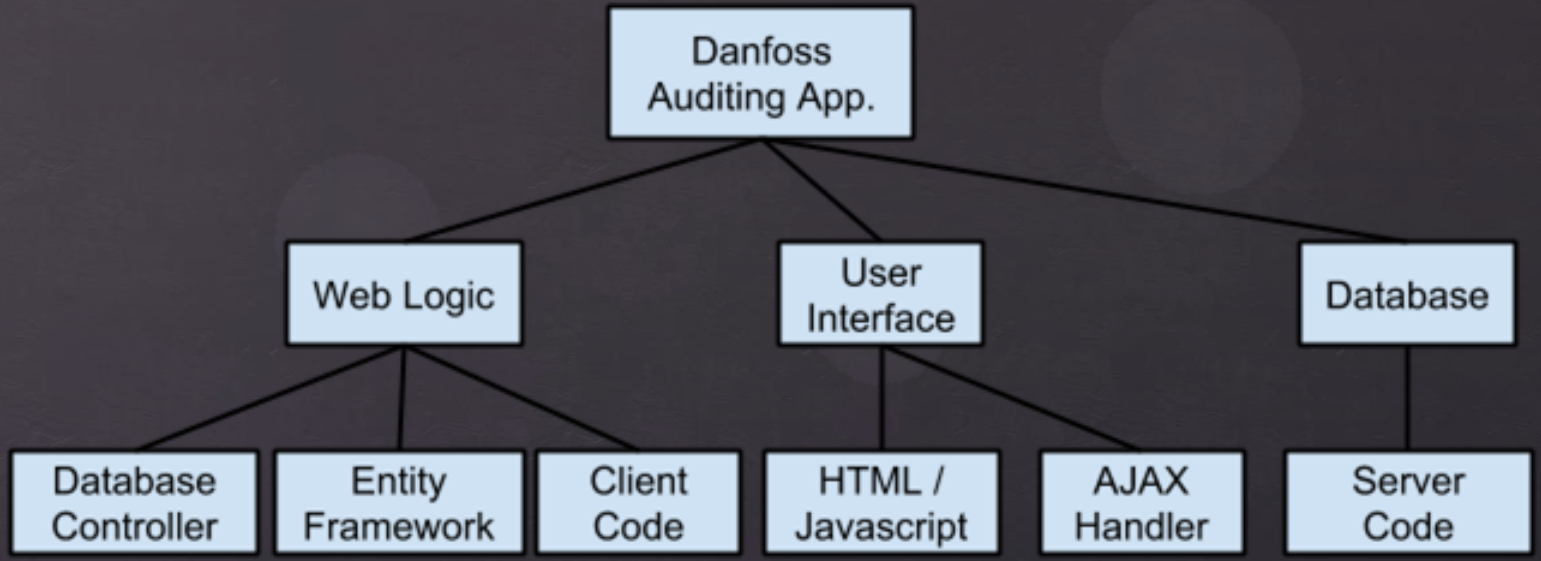
• System designs	October 2014
• UI designs	November 2014
• Prototypes	December 2014

System Design

Functional Decomposition



Detailed Design



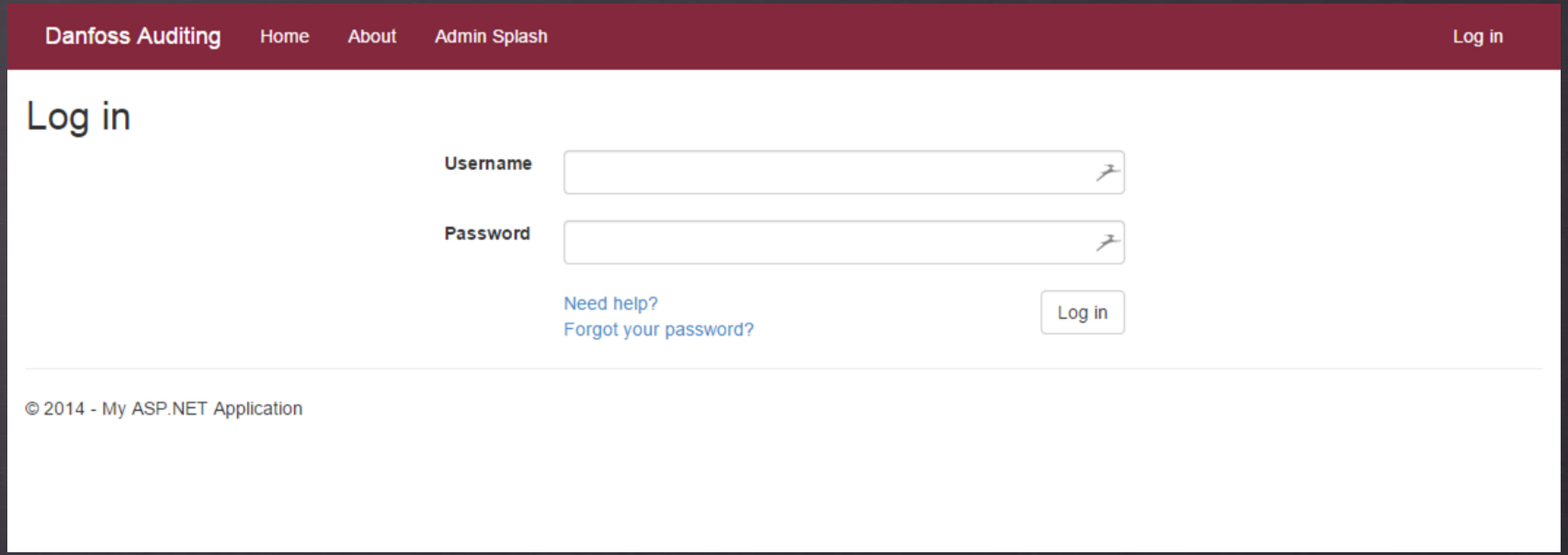
Technology/Platforms Used

- Built on C# / ASP.NET Web Forms
- Microsoft SQL Server
- Hosted on Windows Server / IIS

Test Plan

- Test-driven development (with NUnit)
- Validation by meetings with Danfoss
- Auditor user testing with Q/A

Prototype Implementation



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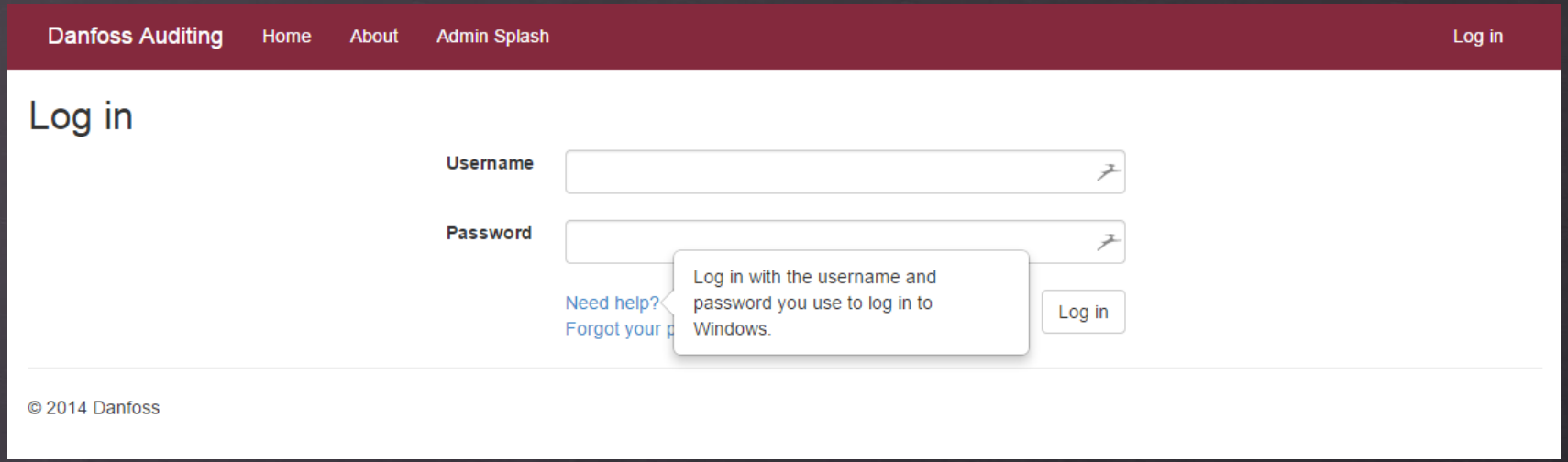

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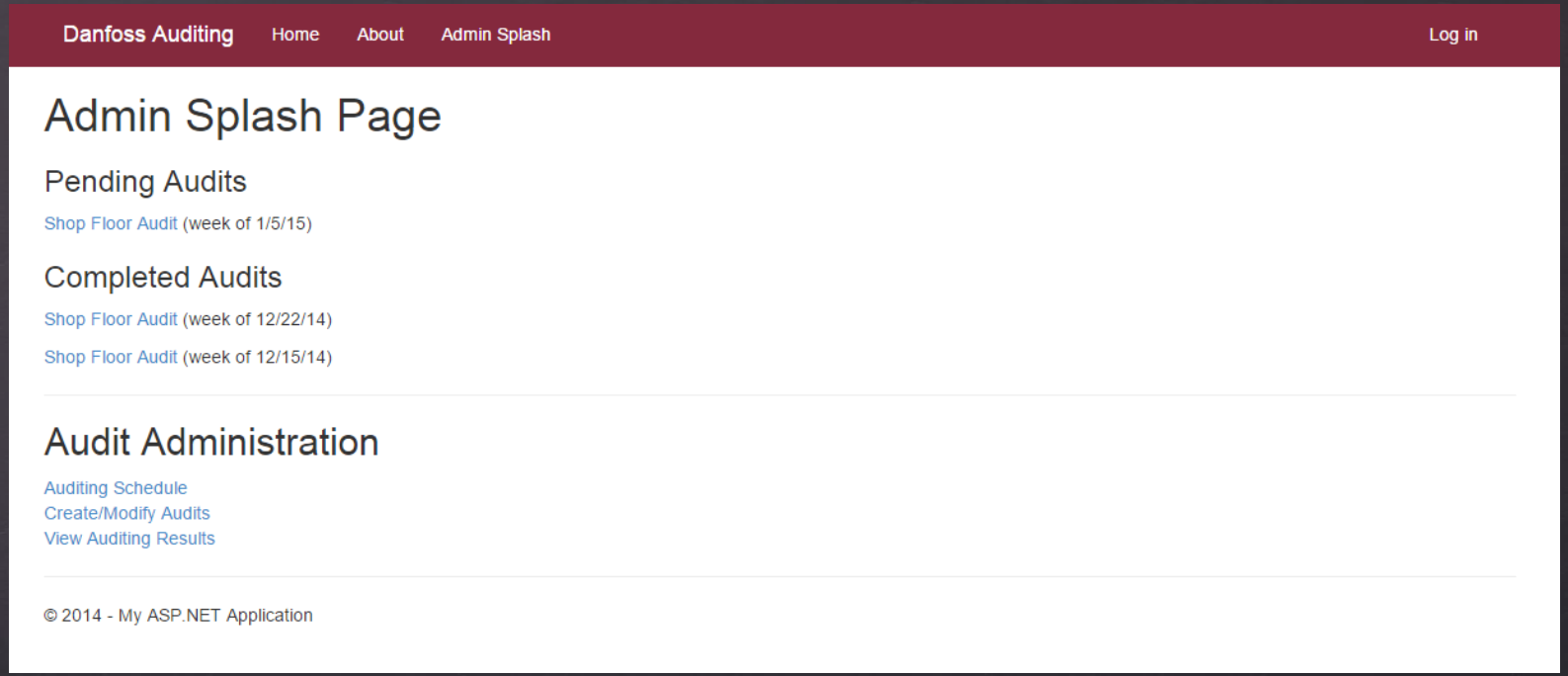

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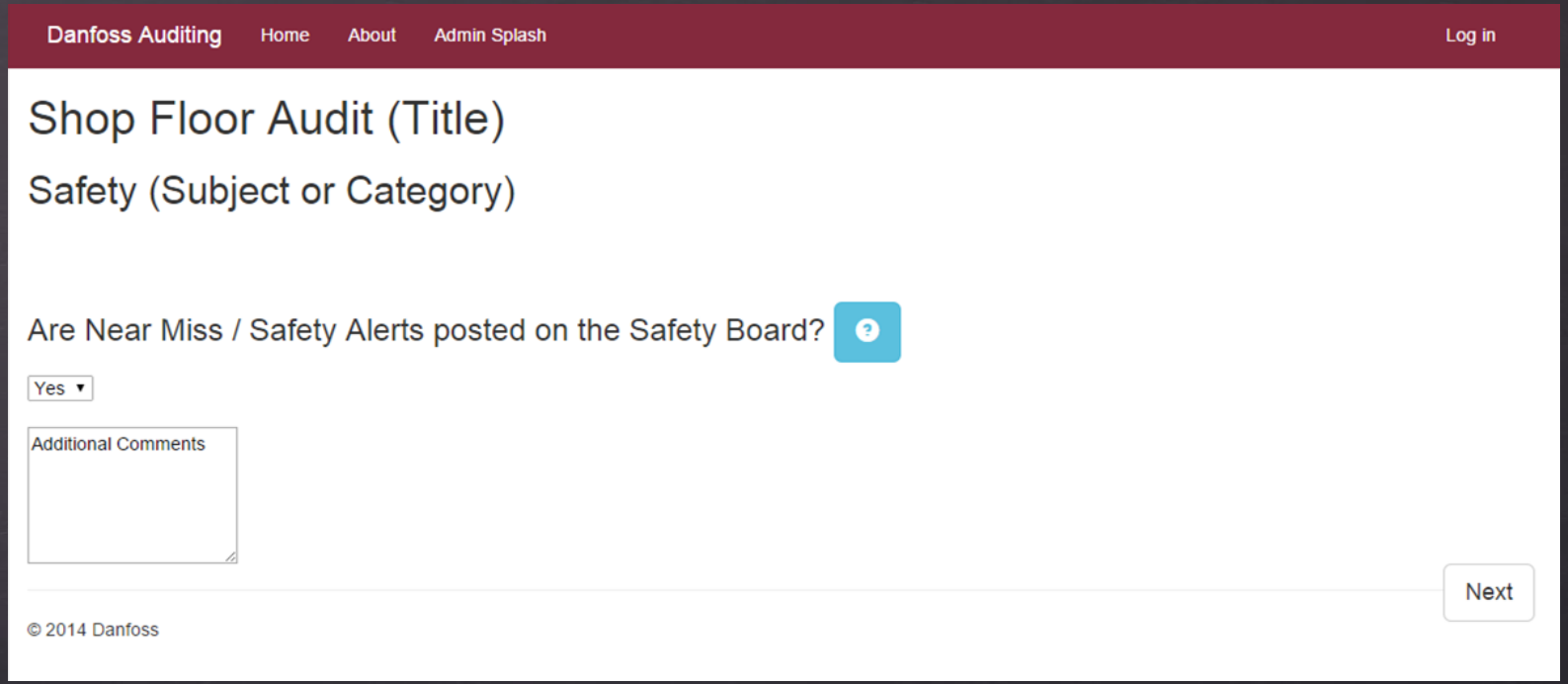

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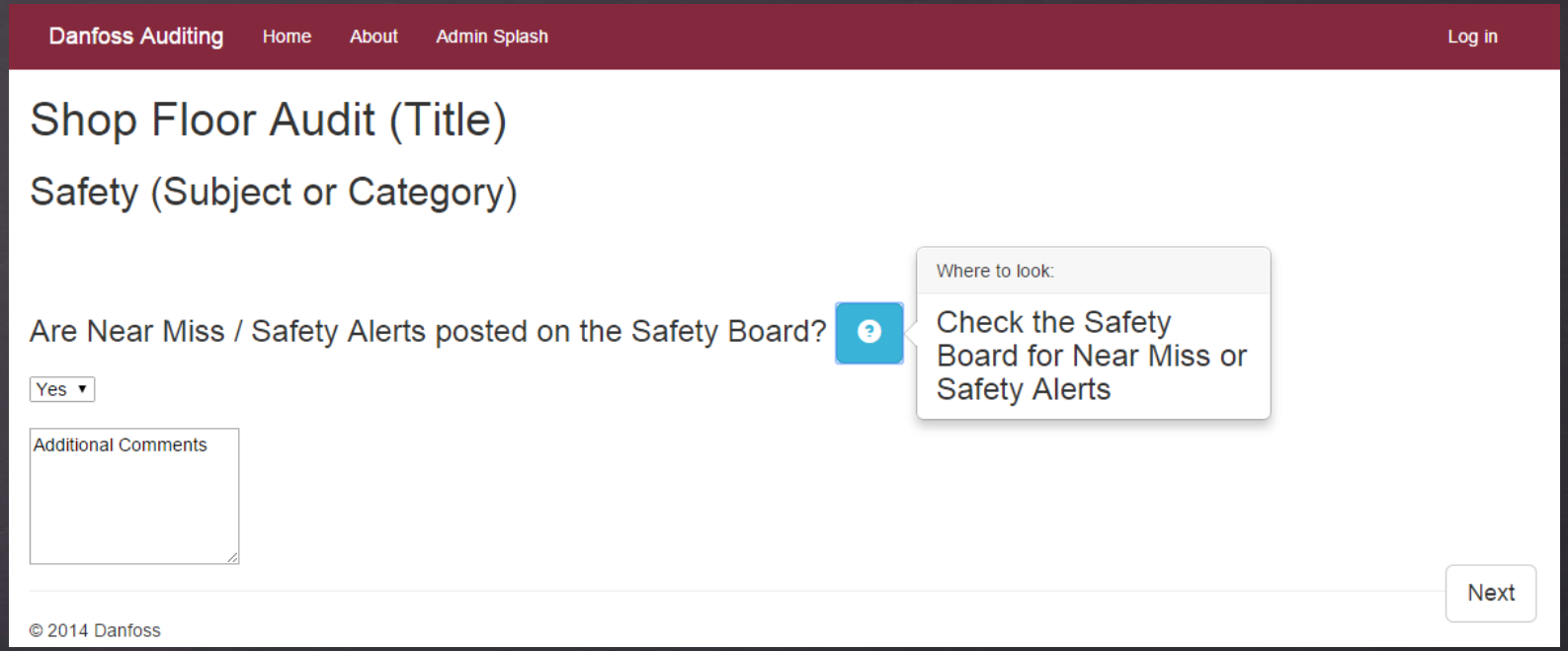

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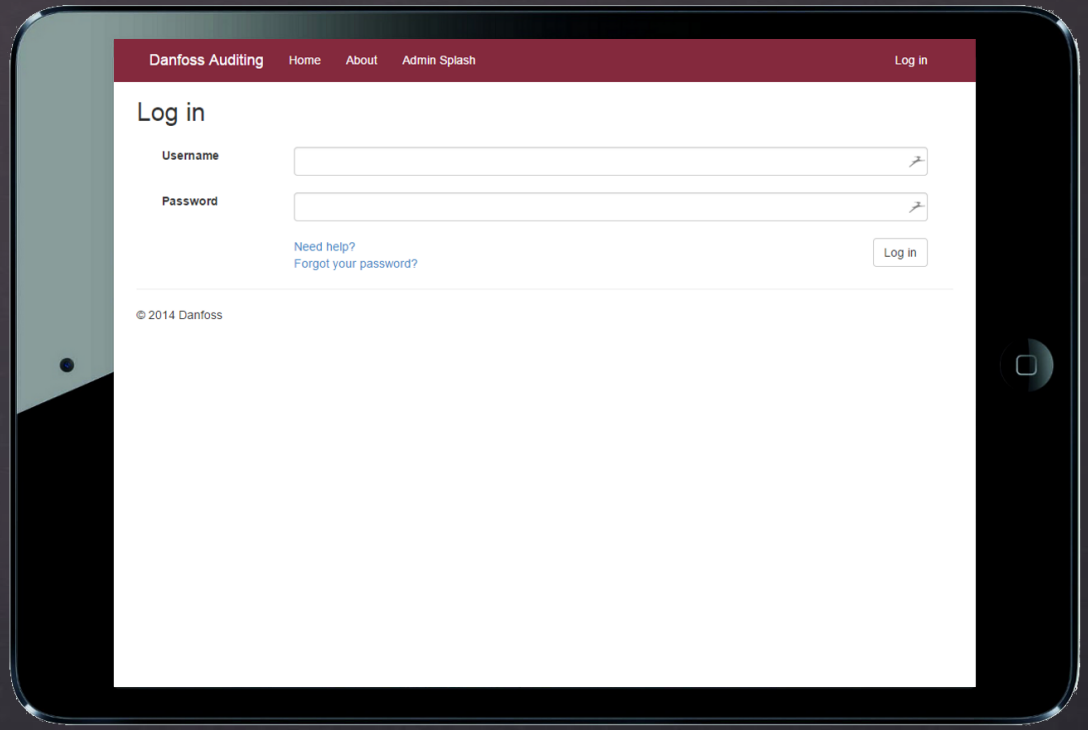

Conclusion

Current Project Status

- Design document and project plan complete
- Prototype in progress

Task Responsibility/Contributions

- Zach
  - Document website setup, Active Directory login, question categories, audit questions
- Jamie
  - Set up git repository, unit testing framework, administrator side, audit questions
- Mitch
  - Database handling, audit status generation, email notifications, audit questions

Plan for Next Semester

- Implement a finished product
- Test solution on both PC and iPad platforms
- Ensure with client that it meets requirements and development standards

Questions