



Project Proposal and Design Document Overview

CS433

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Where are you right now?

1. You have found a partner and have some idea about the project who want to do.
2. You have written the draft of the project proposal.



What is coming up?

September 12: Project proposal due.

September 25: You can hand in a draft of the design document, and the Tas will give you feedback. Bring a hardcopy of your draft to class.

October 16: Final design documents due.



Today

- ❖ Project Proposal
- ❖ Design Document
- ❖ Answer any questions that you might have.



Recall: The modified three-tier Architecture

Client Program (Web Browser)

Application Server

Local Database System

External Database System

What is the External Database?

- ❖ For simplicity can assume (do not have to):
 - read-only
 - it stores data that has the same structure as your own database, **although you do not have to**.
- ❖ The main requirement:
 - **Queries that span both databases**
 - **You will merge data** from the two databases to obtain the result of a query.

Project Proposal

- ❖ Choose anything that fits the (modified) three-tier architecture
- ❖ Project proposal (high level)
 - The application (airline reservation, ...)
 - What is stored in the database system (ticket availability, flight information, ...)
 - What is done in the application server (purchase tickets, cancel tickets, ...)
 - What is done at the client (log in users, present form-based GUI, ...)
 - How two database systems can be used (finding cheapest tickets across airlines)

One Specific Project

- ❖ Design and Implement an Interface to the University Photography Database.

Design Document

- ❖ Detailed description of how you will implement the functionality in project proposal
- ❖ Have extended deadline and spaced out deliverables
 - First draft can be handed in on September 25
 - Final design document due on October 16
- ❖ Incrementally develop the design document in three stages.

What should I write in Stage One?

- ❖ Database design
- ❖ Client functionality
- ❖ High-level application flow

Stage One: Database Design

- ❖ Entity-Relationship Diagram
- ❖ Map E-R diagram to relational tables
 - Domain constraints
 - Key, foreign-key, and other constraints
- ❖ For each table
 - Describe its purpose and usage
- ❖ Somebody not familiar with your project should be able to use your design document and create relational tables

Stage One: Client Functionality

- ❖ Describe web pages to be presented to users in detail
 - What are the different classes of users? (customers, travel agents, etc.)
 - What can each class of users do? (login, reserve tickets, etc.)
 - For each action, what are the inputs the users have to provide? What are the sequence of steps?
 - What are the access restrictions?

Stage One : High-level Application Flow

- ❖ Describe how each user action is handled by the application
 - Can be at a high level
 - Example: *When the user purchases a ticket, the number of available tickets is reduced by 1. Also, the itinerary for the user is stored in the database*
 - Will flesh out details of this in Part 2

Design Document Stage Two

- ❖ Includes material from Stage One
- ❖ Add details of how application logic is implemented
 - Application flow (flow charts, algorithms)
 - Data (SQL queries, temporary state)
 - Access control (Authorization, etc.)

Stage Two: Application Flow

- ❖ For each user action
 - Detailed algorithm/flow chart of what happens
 - "What-if" descriptions (If X then do ... else do ...)
- ❖ First present a high-level description
- ❖ Break it down into smaller pieces
- ❖ Finally, talk about implementation

Stage Two: Data

- ❖ Describe data involved in application logic
- ❖ Database interactions
 - SQL queries
 - Data stored in the database
- ❖ User state (current user id, etc.)
- ❖ Temporary state (cheapest price so far, etc.)

Stage Three: Access Control

- ❖ How is access control provided?
 - Authorization mechanism
 - Sessions
- ❖ Data they can access/manipulate



Reminder

- ❖ Design document counts for 20% of your grade
- ❖ Other assignments:
 - JSP: Out on September 25, due on October 8.
 - Stored Procedures: Out on October 9, due on October 22.
 - Servlets and XML: Out on October 23, due on November 7.
