Term Project Proposal

Database of US Airports and Local Airline Routes

Frederico Santos (santfd01@pfw.edu)
Michael-Anthony Noman (normmj02@pfw.edu)

Computer Science Department, Purdue University
Fort Wayne, IN, 46805

Project Description

This project combines various datasets to compile a database of US airports and the flights between them. With this data, we can then design and implement a dashboard application which can be used to easily view headline statistics about the data, as well as perform other analytic operations.

The key tasks in this process will be divided into two main parts: the design and implementation of the database and the design and implementation of the dashboard application around said database. For the database, the key datasets will have to be compiled and then based on the data available, we can design the database; building the models and relational schema and then implement the schema in our chosen database technology. Once the database is implemented, we can then automate the process of populating the data from the datasets compiled.

Once the database has been designed, we can then also design the dashboard application. In this process we will have to identify key statistical data which we will need to extract from the data and the key operations which will be provided to the users. This will then guide the design process as the application will be built around these key operations.

Database Technology

A key datatype in this domain will be geographic/spatial data, and as a result we have decided to use PostGIS as the main database technology for this system. PostGIS is a set of extensions to Postgres, a common Object-Relational Database Management System (ORDBMS), which enables it to handle spatial and geographic data.

Brief of Prototype System

Our prototype system will consist of a fully functioning and fleshed database of the US airports and flights amongst them. The main entities we expect to include are the Airports and Airlines, with routes being represented as relations between at least two airports (a source and destination) and the airline associated with that route. This may be extended to include information on the planes themselves based on the information available.

With the database, there will be a dashboard that allows the user to navigate and perform important operations with the data, such as query specific data and certain geolocation functionalities. On this dashboard the user may expect to view historical data on flights over a given period, easily determine the most popular routes and airlines and perform more specific statistical operations to identify trends in the data.

Proposed Work Schedule

Week		Task
1	Feb 7 - 13	Data Acquisition and Database Design
2	Feb 14 - 20	Database Design and Implementation
3	Feb 21 - 27	Database Design and Implementation
4	Feb 28 - Mar 6	Data Processing and Database Population
5	Mar 7 - 13	Preparation of Mid-Way Report, Application Requirements Elicitation
6	**Mar 14 - 20**	**Mid-Way Report Due**
7	Mar 21 - 27	Application Design and Implementation
8	Mar 28 - Apr 3	Application Design and Implementation
9	Apr 4 - 10	Application Design and Implementation
10	Apr 11 - 17	Application Design and Implementation
11	Apr 18 - 24	Preparation of Final Report, Presentation and Demonstration
12	**Apr 25 - May 1**	**Project Presentation and Demonstration**
13	**May 2 - May 4**	**Final Report Due**