CS5811 Project Proposal:
Flight Delay Prediction based on Bayesian Belief Networks

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1 Project Overview

In this project, We are going to develop an iphone app which could predict a probability that a flight will be delayed or not in a specific future time. Since we do not know how difficuty it will be, we first focus on the flight between chicago and newyork, and the prediction time is a day. We will extent the limition as development continus.

We are motivated to solve this problem because flight delays are a fairly common thing and there seems to be no good source for predicting this. Flight delays are generally only announced about an hour or so before the flight is set to takeoff and they can change unreliably. Our solution can't guarantee 100% accuracy for predicting a delay, but it will attempt to better prepare passengers for any possible delays.

1.1 Problem description

I believe almost eveyone has a bad experience about being delayed, especially being delayed for something important. According to the U.S. Department of Transportation, over 20 percent of all flights arrive late. It is a major problem for the airplane company and us.

Most of delays are caused by three reasions. First and important, it is weather, actually half of delays is caused by weather. Second, it could be some mechinical problems, which mostly decided by the plane features like the make,the model,the age and so on. Third, it could be caused by the schedule problem, if the last flight is delayed, this flight could be delayed too.

1.2 AI techniques

Our mainly prediction is based on these three reasons above. We plan to use Bayesian Belief Networks to compute the probability of a delay.

1.3 State of the Art

2 Tasks

2.1 Platform

Iphone app, object-c
Database, MySQL
Model trainning, Mathlab or write by our own(python or object-c).
Experiment, check the correctness of the prediction.

2.2 Schedule

Preparation:
GUI design, Jordon.
Data collection, Liang

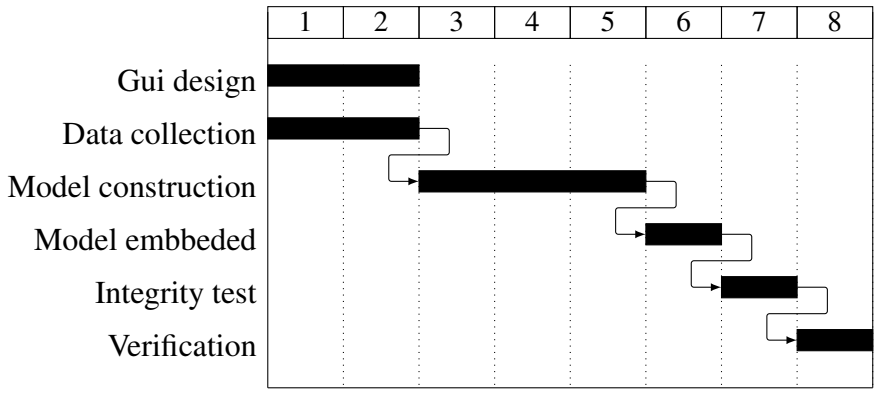
Main: Both
Model construction
we are still not sure to use MathLab to train model or write our own program to implement it.

Model embbeded:
Let the model work well in the iphone app.

Integrity test:
HCI improvement: Jordon
Function modification: Liang

Verification Both
Including result analysis and report writing. The experiment is do a prediction based on the history data and check the correctness.

2.3 Arrangement



3 References