Introduction to Database Systems

Final Project Proposal

NOTICE!

To make sure the projects of different teams will not be too similar, before you start to write your project proposal, please fill in what data you are going to use and what the project will do in the team registration form. If you find other teams that have similar ideas, please modify or change your project idea so that they will not be too similar (using the same data is okay). We will ask you to modify or change your proposal if your project proposal is too similar to others'.

Please fill in the name of your team members before 10/12 23:55:00, and the short description of the project as soon as possible. We only accept 3~4 students per team, and we will randomly form the remaining students into groups.

It is also welcome to ask to form a group in the "Groups" channel on Teams. You can talk about yourself (your grade or your skill) and what you want to do (direction of final project or want to participate in the competition), to make others more familiar with you.

1. Introduction

The purpose of the final project is to help you understand and practice how applications interact with database systems. You need to choose one or multiple datasets, then write a website based on the data you choose.

2. Term Project Proposal

The proposal requires you to write about your plan for the project. In this proposal you need to include the following aspects of your plan:

2.1 Data

You can choose the data on your own, but remember to follow the following rules:

1. The data you use in this project must be **publicly available**.
2. The size of your data must not be too small (in terms of **number of rows** and **number of tables**) (must be at least **4 tables**).
3. The data should **not be synthetic** (i.e. artificial data, fake data).
4. (optional) We encourage you to use data associated with public interest (e.g. data about COVID-19, public transportation etc.).

In the proposal, you need to provide the following information about your data:

- The **description of your data**
    - Introduction to the data
    - Where is the data from
    - What do the columns and tables mean
    - Other information about your data (e.g. will it be updated in the future?)
- The **source of your data**
    - Link to your data source

Here are some data sources (of course you can choose data from other sources):

1. Open data platform of Taiwan government
2. Kaggle
3. U.S. Government's open data

Sometimes it may not be easy to find suitable data just from one source, you can try to combine multiple data into one. If you decide to use multiple data, provide information on all the data you use and tell us how you would like to combine them.

Crawling the data from existing websites is also acceptable. But you must pay attention to whether it is legal and whether the topic is suitable for reporting in front of everyone.

2.2 Application Design

Your website should be based on the data you choose and with some additional functionality that interacts with the data. Here are some rules:

1. This is an "application", so there must be some scenario for users to use your website (the reason and the target of using your website).
2. There must be some "interaction" with users, a simple example is to let users search for some keywords and return related results.
3. The users should be able to do CRUD (create, read, update, delete) operations of their data. For example, the user might be able to insert their courses, list the inserted courses as schedule, update the course information or delete the inserted course. Notice that it's just an example of CRUD. It is very encouraging to think about other interesting and fancy applications :).

The following aspects of your website must be explained in this proposal:

- Main idea
    - The purpose of your application
- Functionality

    - What kind of information will be presented to users
    - What kind of interaction will be available
    - What will be the scenario when a user use your application
    - What kind of data will users be able to interact with
- Interface
    - Expected interface look (use figure or text to explain)

2.3 Work Plan

Since this is a team project, we need to make sure everyone in the team contributes to the project. However, we understand that it is hard and meaningless for you to pre-assign work to team members. So, instead of a work division table, we require you to provide these information in the proposal:

- Time schedule
    - No need for an exact date, just list all the tasks and sub-goals of your project, then tell us which part will be done first etc.
- Discussion
    - We want to see how your team work together throughout this project, so please open a discussion board/channel (e.g. Hackmd note, Trello board) and record your discussion throughout the project
    - The record should be the summary of your regular discussion, which might be what's the progress of your work (something has completed, something hasn't completed, next targets, etc.), the trade-off between different implementation methods and your final choice, something the prototype needs to be modified, etc. Notice that this is a "tool" for you to develop your application, please do not only see it as a class work.
    - In the proposal, just open the discussion board/channel and provide the link
- Repo
    - Please open a github/gitlab repo for your project, your need to upload the source code of the project in the repo and a README to describe your functionality and the steps of reproducibility (at the end of the project)
    - (Optional) We encourage you to do version control and show contribution of each member using git, you will get extra points if you do this
    - In this proposal, just open the repo and provide the link

3. Important Things

- Remember, this is a "database" project, so **the interface is not the main consideration**. **DO NOT** spend too much time on making your interface look good,

we WILL NOT rate your project based on this. (That is to say, it is okay if your interface is ugly.)

- Since this is a database project, what we care most is how you utilize the ability of database and query language in your project
- Exception handling
    - Will the application break when some abnormal actions (e.g. insert a "-1" into a column "age") happen? How do you make the application robust to these exceptions

4. Submission

1. The deadline of the project proposal is **11/23 (Thur.) 23:55:00**.
2. Submit only 1 .zip file, the file should be named in the format "**Proposal_TeamXX.zip**" where XX is your team ID (please write 05 if you are team 5 for example). Put your project proposal, named as **"Proposal_TeamXX.pdf"** where XX is your team ID, with all the section 2 requirements into the .zip file.
3. Notice that the **proposal will count as part of your final score**, please design your project as detailed as possible.
4. **Only 1 team member needs to submit the proposal**.
5. Late submission lead to score of (original score)*0.7. **This penalty applies to ALL team members' scores.**
6. If there is anything you are not sure about the project, ask in the "Final Project Proposal" channel on E3.