

Term Project Proposal

Project title

Build a weather data warehouse with NoSQL DBMS

Team members (a team of two (or one) students)

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Description of your project (goal/objectivities and expected tasks)

- Use **MongoDB** (NoSQL) to build a database.
 - This database contains all the weather records of a place and their attributes like date, temperature and wind speed.
- Use **Python** to program, summarize and visualize statistic data.
 - This warehouse can show the trend of weather of a place.

Database technology you consider (e.g., ORDBMS, XML Database, Data Warehousing NoSQL)

- Data Warehousing
- NoSQL

A brief of your prototype system

- This system contains the weather information of several places. Each data is the **hourly record** of a place.
 - Key: place (like zip code) + timestamp (like UTC format)
 - Value: temperature (°C/°F), humidity (%), wind speed etc.
- This system needs to use API to update the information. It has a web crawler to crawl data on the internet.
 - Use the **APIs** from openweathermap.org to get weather information.
- Show the statistic information on a webpage.
 - Use **Python** to build a **server** and show tables on webpages.

Work schedule

Week	Date	Description
week4	2021/2/2	project proposal
week5	2021/2/9	Build a google script crawler. Register API key to get data.
week6	2021/2/16	Build conceptual database.
week7	2021/2/23	
week8	2021/3/2	midterm
week9	2021/3/9	Install MongoDB.
week10	2021/3/16	midway report
week11	2021/3/23	Import all data into MongoDB.
week12	2021/3/30	Build warehouse functions.
week13	2021/4/6	
week14	2021/4/13	Build server to visualize all information.
week15	2021/4/20	
week16	2021/4/27	Project Presentation and Demo
week17	2021/5/4	Final report/final term

Appendix

- Openweathermap api document
 - Free account quotas [Pricing - OpenWeatherMap](#)
 - 5 days historical data [One Call API - OpenWeatherMap](#)
 - Weather condition id code/ icon [Weather Conditions - OpenWeatherMap](#)
- Google App Script document
 - Free account quotas [Quotas | Apps Script | Google Developers](#)
 - Code document [Overview of Google Apps Script | Google Developers](#)
- MongoDB document
 - Installation [MongoDB Community Download | MongoDB](#)
 - APIs for Python and Node.js [The MongoDB 4.4 Manual — MongoDB Manual](#)