Author

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I am an undergraduate student in Civil Engineering at BITS Hyderabad. Through this BSc program,

I hope to improve my Data Science and Programming skills and build a career as a Data Scientist.

Description

We were asked to build a tracking application which should have the capabilities of CRUD with tracker. The users should be able to log events and retrieve them. A trend line of the logs values should be displayed on the Dashboard.

Technologies used

- Flask – for the web application
- Flask-Sqlalchemy – for establishing a connection to the sqlite database
- Flask Restful – for API designing
- Matplotlib – for visualization

DB Schema Design

The database consists of 4 tables:

1) User:

user_id	INTEGER, primary key
user_name	TEXT NOT NULL UNIQUE,
password	TEXT NOT NULL,

2) Tracker:

tracker_id	INTEGER, primary key
tracker_name	TEXT NOT NULL UNIQUE,
tracker_type	TEXT NOT NULL,
tracker_settings	TEXT

3) Assignment:

assignment_id	INTEGER, primary key
tracker_id	INTEGER NOT NULL, references tracker(tracker_id)
user_id	INTEGER NOT NULL, references user(user_id)
log_id	INTEGER NOT NULL, references logs(log_Id)

4) Logs:

log_id	INTEGER, primary
datetime	datetime NOT NULL,
value	TEXT NOT NULL,
notes	TEXT,

API Design

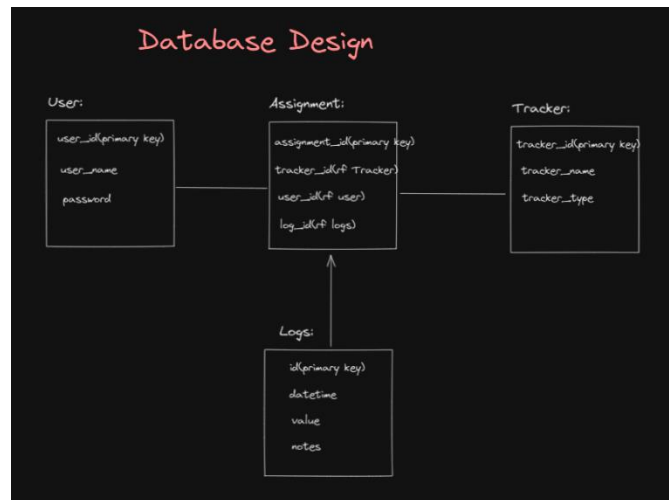The elements for which api was created are CRUD operations on trackers.

In the current state, the API is still in development and not complete. API have been implemented for the following functions: -

Retrieving all logs associated with a certain user and a given tracker

Retrieve all the trackers that a given user has used.

Adding a new log for a given tracker and user

Add a new tracker to the database

Architecture and Features

The project is organized into various folders as shown in one of the screencasts. It contains:

- Application folder which contains:
  Main.py
  Config.py
  Controllers.py
  Database.py
  Models.py
- Static folder which contains all the static files like the trendline and graphs
- Templates folder which contains all the html files required for the application

The salient features of this application are;

1. The users can log their values using an on-screen clock (containing the date time and year) and need not type it in as it is much easier.
2. The user can add the add a new tracker by seeing the trackers that are used by others and get motivated to use those trackers as well.
3. All the logs are stored in the database and upon viewing them, the user can see the trend line of the logs and can use either daily values, weekly values or monthly values for computing the trendline.

Video

https://drive.google.com/file/d/1fG5TsAq3QmoC44MReo5zkpQfMHVQ6Cje/view?usp=sharing