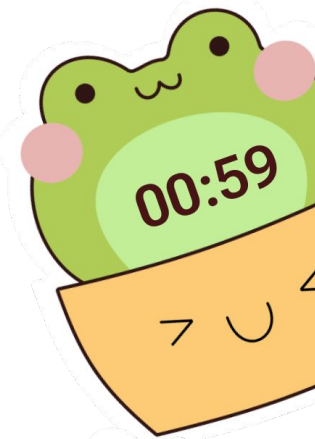
Frog Clock

-- A Combination of Pomodoro Clock & Task Tracker



CSYE 6200 Summer 2023
Professor: Jones Yu
Team: Leap Frog
Simiao Wang, Wenyu Yang, Zhe Cao

Outline

- I. Problem Description
- II. Analysis (Related Work)
- III. System Design
- IV. Implementation
- V. Evaluation
- VII. Discussion (Reflection)
- VIII. Conclusions and Future Work
- IX. Job Assignment
- X. Live demo

Introduction

- Problem Description:
  - **Maintaining Focus & Efficient Multi-tasking**
  - Common issues among the young generation
  - Mobile devices & social media "steal" our concentration
    - Using Facebook during homework lowers GPA [1]

- Our Idea:
  - **Timer & Task Tracker** using JavaFx
  - Desktop Application
  - Enhance Focus & Task Efficiency

[1] Junco, R., & Cotten, S. R. (2012). No A 4 U: The relationship between multitasking and academic performance. Computers & Education, 59(2), 505-514.

Analysis

- Pomodoro Technique[2]
  - Pomodoro: Italian word for *Tomato*
  - Worked as a kitchen timer
  - Typically 25-minute work intervals with short breaks

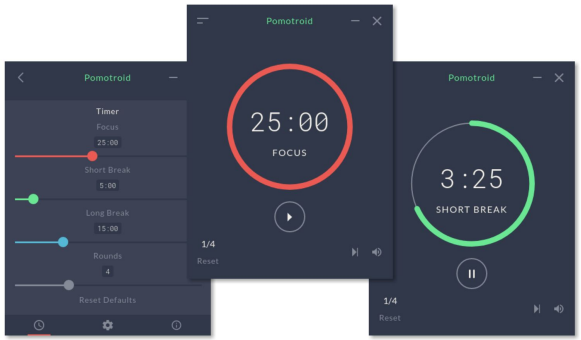
- Gamification (Reward System)
  - Visualize statistics
  - Earn virtual currency & rewards
  - Enhances motivation to finish tasks[3]

[2] https://en.wikipedia.org/wiki/Pomodoro_Technique

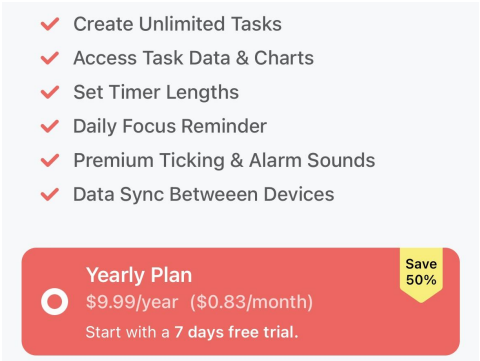
[3] Browne, R., Raeside, L., & Gray, G. (2018, October). Gamification in education: productivity and motivation through gamified time management software. In European Conference on Games Based Learning (pp. 867-871). Academic Conferences International Limited.

Analysis

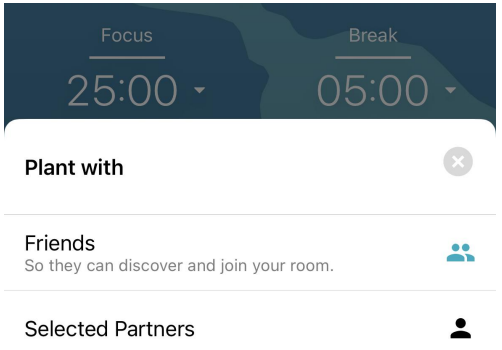
- Existing Applications
  - Limited integrated: no task tracker or rewards system
  - Many are not free
  - Social features: leading to fragmented attention



Limited Function

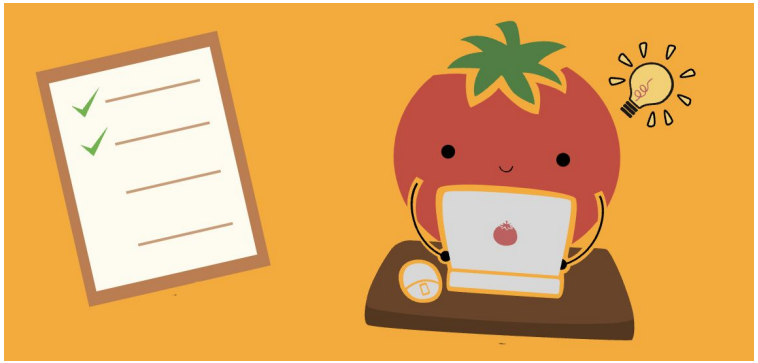


Membership Cost



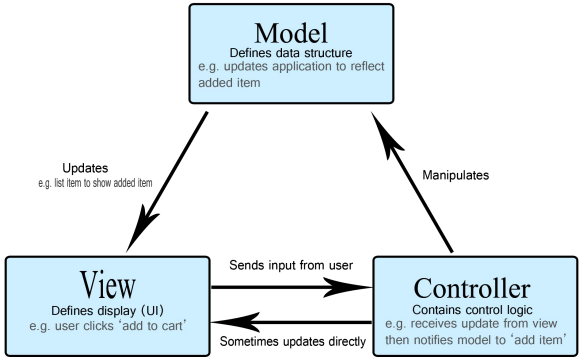
Distracting Social Features

System Design



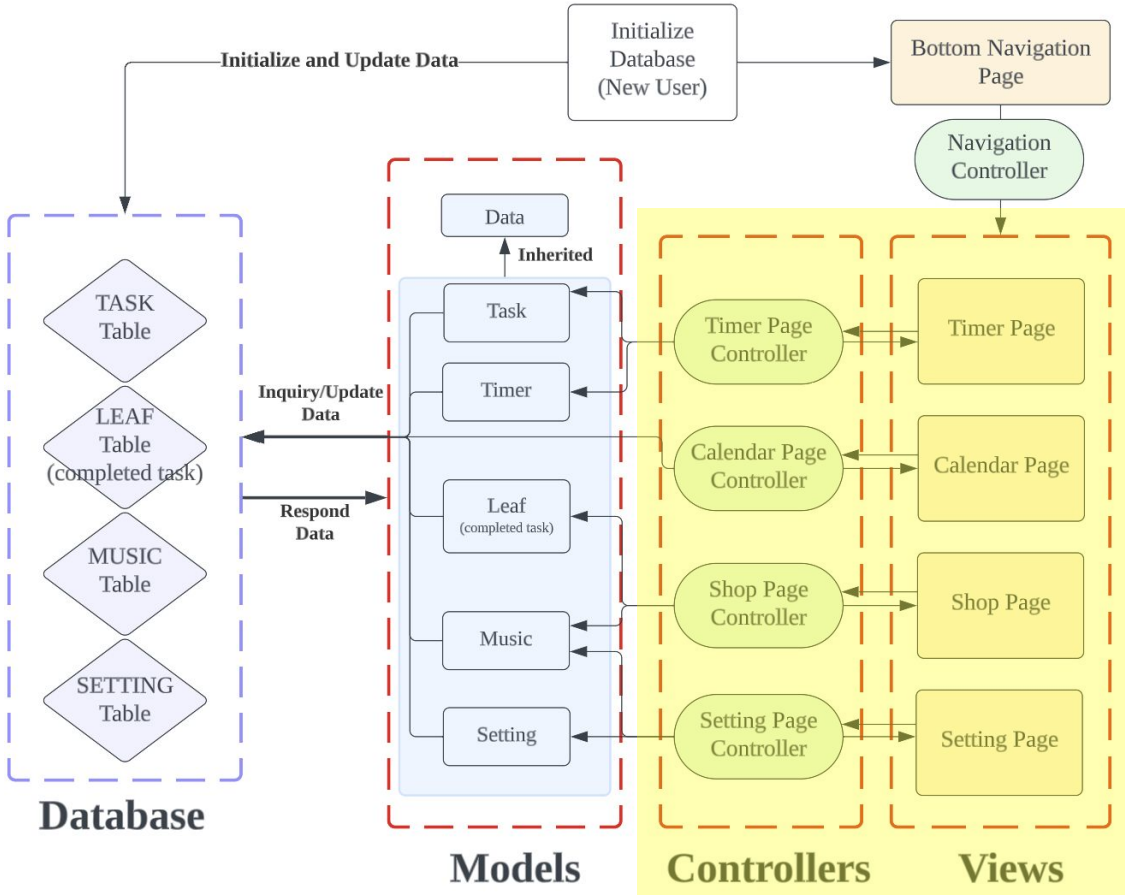
- Features of Our Application:
  - **Task Management**: Task CRUD
  - **Timer Creation**: Start a Pomodoro timer for a task
  - **Customize Timer**: Modify session and break intervals
  - **Statistics View**: Track daily progress
  - **Shop System**: Earn "tokens" to purchase BGM
  - **Media Preferences**: Adjust session end reminders and switch BGM

System Design - MVC

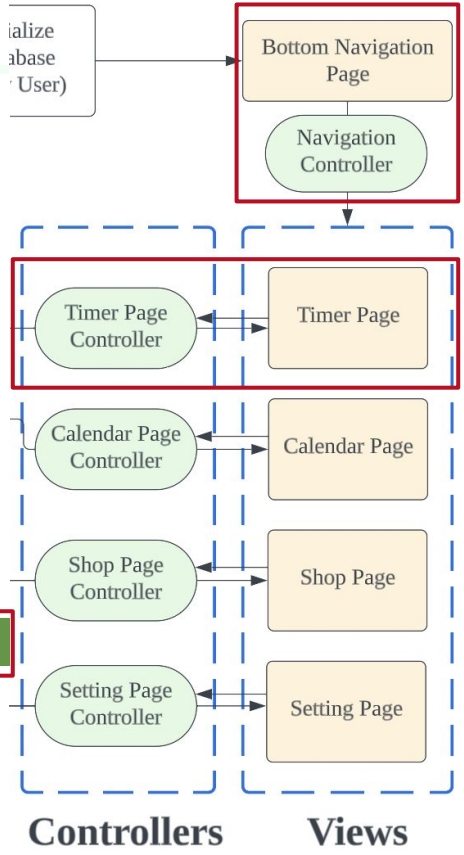


Follow the MVC Pattern:

- **Views**: Define layout and design
- **Controllers**: Connect views with the models
- **Models**: Manage data

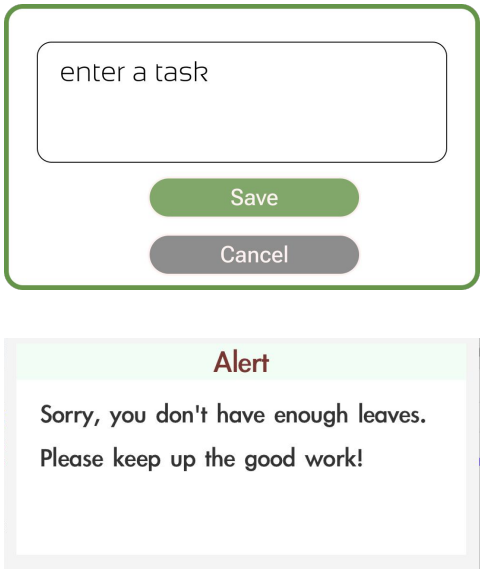


System Design - View & Controller

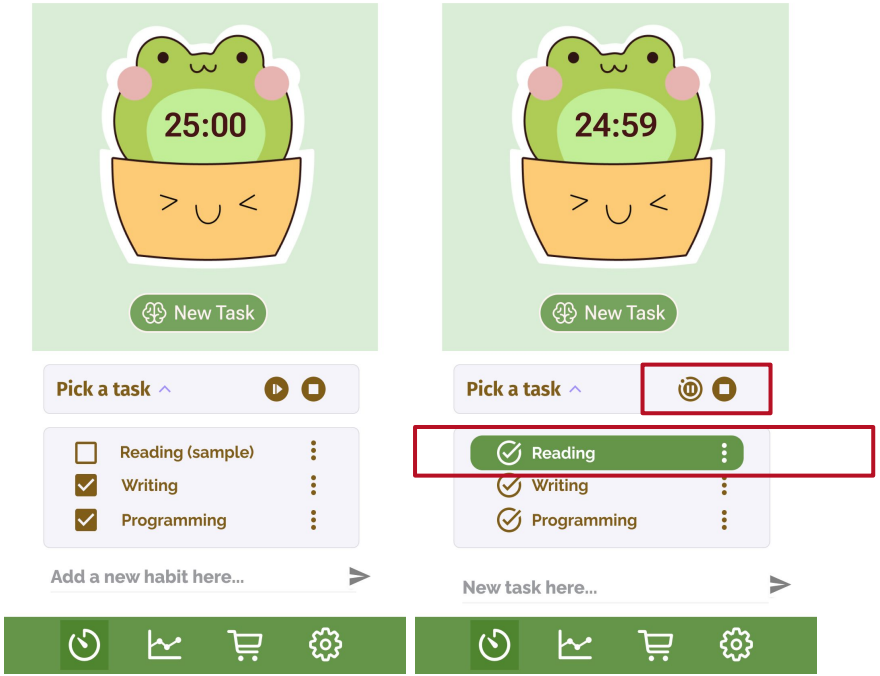


System Design - View & Controller

- Pop-up windows

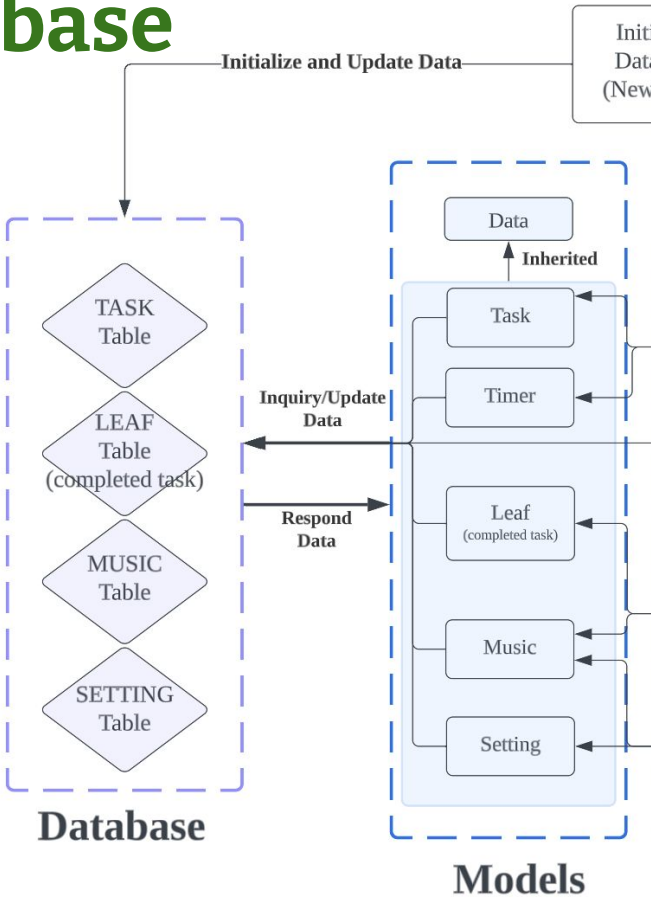


- State-based dynamic views



System Design - Models & Database

- SQLite database + JDBC API
- 4 Tables:
  - **Task**: To-do list tracker
  - **Leaf**: Completed task records
  - Music: Media data
  - Setting: Configuration data



Implementation - Timer Page

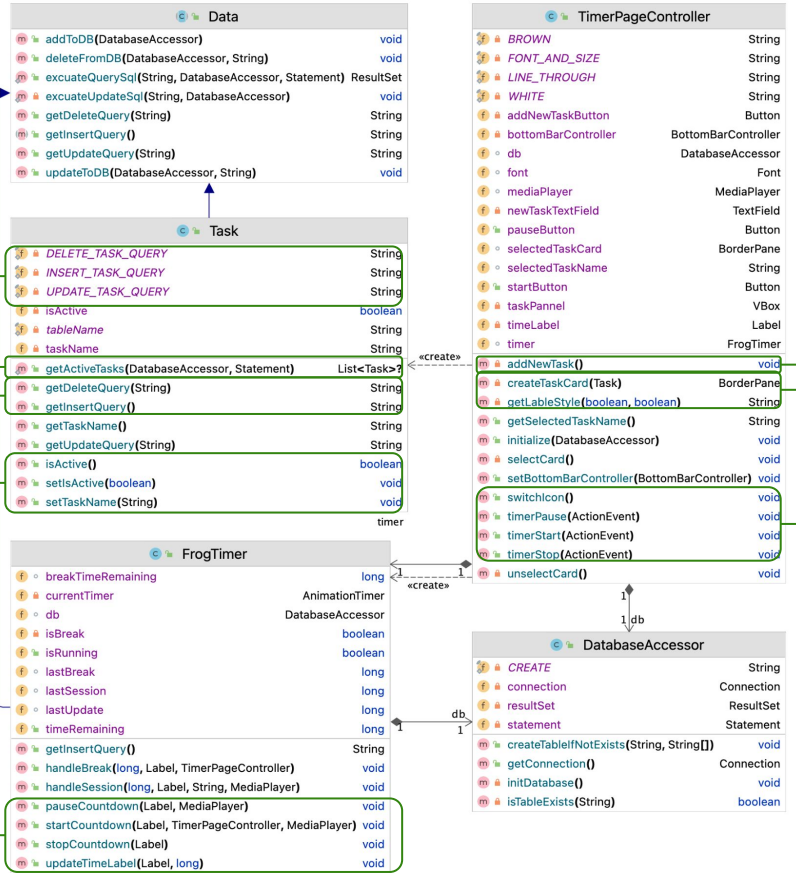
Static variables to generate SQL queries

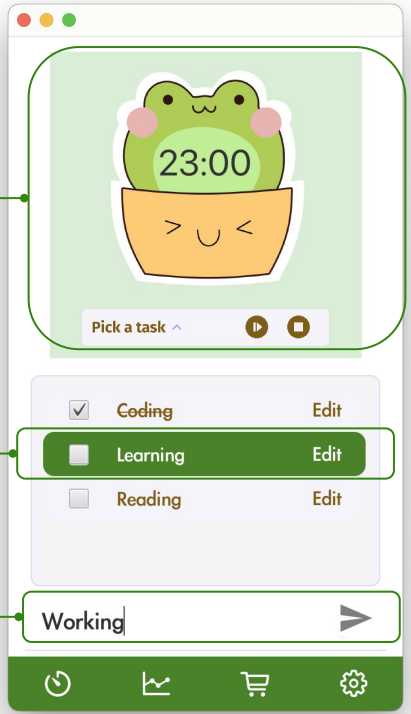
Use List<Task> to accept selected task store in database

Implement abstract methods to get SQL queries

Getters and Setter to access private variables

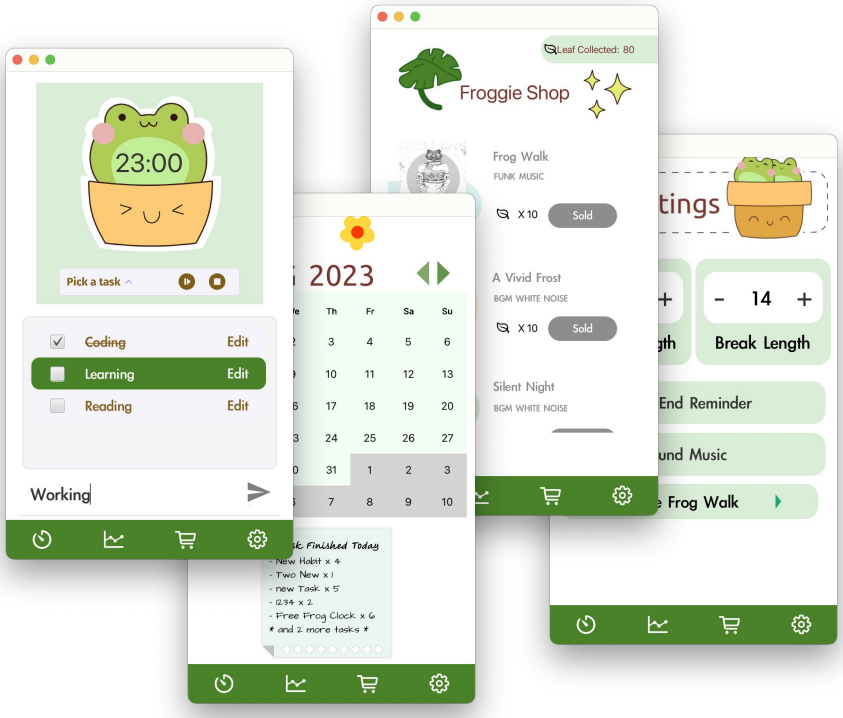
Control the timer and music based on settings





Evaluation

❖ Sample Runs



❖ User Feedback

- ➢ Delightful desktop application that can help users to focus.
- ➢ Showing clear staticas to trace everydays's progress.
- ➢ Rewarding system to encourage staying focus.
- ➢ Flexible Setting to provide custom experience.

❖ Improve Suggestions

- ➢ New Task should go to the top. ✓
- ➢ Edit should pre-populate the existing item name. ✓
- ➢ Completed item shouldn't start timer. ✓

Discussion and Reflection

Programmers are
LAZY~

1 Abstract common patterns and reuse them

- Abstract classes and interfaces help to finish common tasks.
- Lack of notice might result in multiple effort to finish same task.
- Great inheritance structure make it easier for testing, deguging and maintenance.

2 Good teamwork contributes to success

- Breaking down a coding project into smaller and manageable tasks helps us to focus on one problem at a time.
- Cross testing can provide us with fresh opinions when finding bugs.
- Adequate communications are necessary, escaipally when we are modifying one file at the same time.

Future Work

- Provide users with more sophisticated visual reports and statistics to help users build habits.
- Allow users to choose local music as background music.
- Transplant the program to the web and mobile platforms to provide users with consistent experience and data synchronization services.

Job Assignments

- Zhe Cao:
  - UI Design
  - Timer Management
  - Calendar Page View and Controller
- Simiao Wang
  - Sound Management
  - Shop Page View and Controller
  - Database Schema Design
- Wenyu Yang
  - Navigation Management
  - Task Management
  - Setting Page View and Controller