ClockWork: Time Estimation

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Milestone 5

Initial Milestone Tasks

1. Finish session deletion	6. Custom profile fields
2. Finish profile deletion	7. Next auto estimate iteration
3. Completed session timeline visualization	8. Conduct evaluation and analyze results
4. Completed session execution event editing	9. Create poster for Senior Design Showcase
5. User history and statistics page	

Task: Evaluations

Setup: 6 evaluators

Results: App is missing features to be practical

1. Session reminders

2. Recurring sessions

3. Historical info when making new estimate

Additional Feedback

1. UI elements are too big

2. Selecting an estimate is too clunky

3. Completed sessions need to be editable

Mid-Milestone Pivot

Met with Client to Discuss Feedback:

We need to shift our priorities toward more valuable features to users:

- Descope edit execution timeline (Task 4)
- Descope auto estimator improvements (Task 7)
- Descope custom fields (Task 6)

Task: Fix App Evaluation Problems

1. Cannot launch app in Android 10
   Status: 100% Complete

2. System font scaling breaks some visuals
   Status: 85% Complete

3. Timer notification does not keep time
   Status: 100% Complete (Maybe)

Task: Rename Task "Profiles"

Brief: "Profile" does not inform the user about the functions of the feature. Rename to "Template"

Status: 100% Complete

Task: Session and Template Deletion

Brief: Enable the user to delete created sessions and templates.

Status: 100% Complete
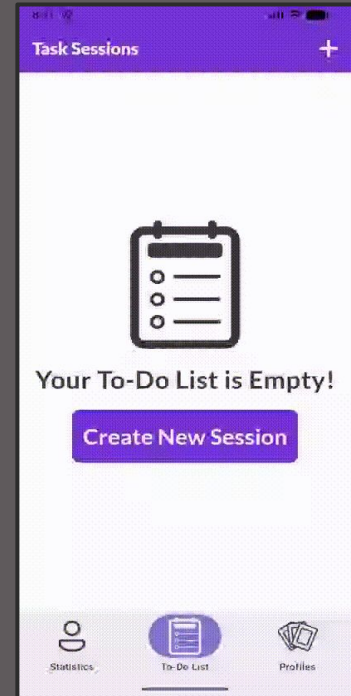
Task: Completed Session Timeline Visual

Brief: Offers a unique way to visualize time spent with a task and the breaks surrounding it

Status: Backend began development, frontend yet to be developed

Task: User History and Statistics Page

Brief: To add a line graph to the page that plots the user's estimation accuracy for previous completed tasks

Status: %100 complete

Task: **Create Poster**

Brief: Create the project's poster following the provided Senior Design Showcase template.

Status: 100%

NORTHROP GRUMMAN
ENGINEERING & SCIENCE STUDENT DESIGN SHOWCASE
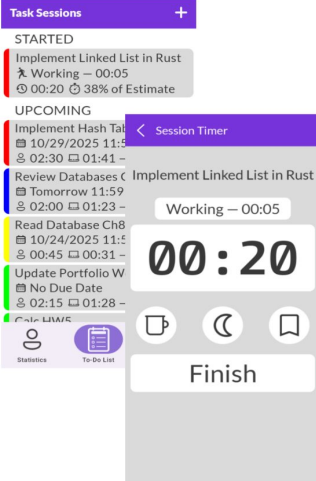### FLORIDA TECH

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Faculty Advisor(s): Dr. David R. Luginbuhl, Dept. of Computer Science,
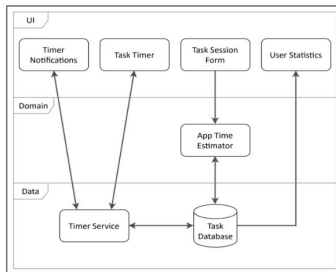Florida Institute of Technology

Motivation

Students have difficulty estimating how much time they need to complete assignments. In general, people underestimate the time it takes them to complete tasks. Our goal is to make a convenient tool that students can use to improve their time estimation ability.

Abstract

ClockWork aims to improve a user's time estimation abilities by allowing the user to create, organize, and time tasks. Users create *sessions* of a task and are prompted to estimate it's duration. Users can then begin the session, work through it, and complete it where they are shown their performance and accuracy. **ClockWork** also enables the user to view their estimation statistics to evaluate their improvement over time. With enough data, **ClockWork** will begin to provide its own estimate based of historical error.

System Architecture

Tools Used

- **Database:** Jetpack Room
- **Frontend:** Jetpack Compose
- **Language:** Kotlin
- **Collaboration:** Google Suite, Github, Discord, Planka
- **Algorithms:** Gower's Similarity, weighted mean, weighted standard deviation
- **Data Visualization:** ehsannarmani/Compose Charts

Limitations

- Considerable user commitment required and routine changes
- Using the app requires deliberate user interaction which distracts from completing tasks

Future Improvements

- Implement more task scheduling features like a calendar view and collision warnings
- Improvements to the app's estimation algorithm
- Implementation for more devices like smartwatches

Task: Edit Complete Session Feature

Brief: Users should be able to edit the properties of completed sessions

Status: 100% Complete

Task: Fast & Precise Estimate Selection

Brief: The current estimate selector is unwieldy. The user should be able to quickly and precisely choose the values they want.
Objective: Tapping the values instantly selects them.

Status: 100%

Task: Unify Work Time & Break Time

Brief: Work time and break time were separated everywhere in the app, but this made 1) the distinction between Break and Suspend unclear and 2) what the actual duration of the session was
Goal: Unify them in most situations e.g. the timer keeps incrementing on break

Status: 90%

Task	% Done	Anthony	Christian	Peter	Pierson	To do
1. Finish session deletion	100%	0%	0%	50%	50%	
2. Finish profile deletion	100%	0%	0%	100%	0%	
3. Completed session timeline visualization	45%	0%	0%	0%	100%	Frontend and completion
4. Completed session execution event editing	0%	-	-	-	-	Descoped
5. User history and statistics page	60%	0%	100%	0%	0%	Template performance statistics
6. Custom profile fields	0%	-	-	-	-	Descoped
7. Next auto estimate iteration	0%	-	-	-	-	Descoped
8. Conduct evaluation and analyze results	100%	0%	0%	100%	0%	
9. Create poster for Senior Design Showcase	100%	50%	0%	50%	0%	

Task	% Done	Anthony	Christian	Peter	Pierson	To do
10. Fix timer notification sync issues	100%*	0%	0%	100%	0%	*Was not able to trigger the failure
11. Fix Android 10 crash on open	100%	0%	0%	100%	0%	
12. Fix visuals breaking from greater than default system font scale and large strings	90%	20%	0%	80%	0%	Template session list session UI items and Template name
13. Combine worktime and breaktime during task execution	90%	0%	0%	100%	0%	Template session list completed session list UI items
14. Make fine adjustments to selected estimate easier	100%	0%	0%	100%	0%	
15. Make completed task properties editable	100%	0%	0%	100%	0%	
16. Rename task profiles to task templates	100%	100%	0%		0%	

App Demo

Video Demonstration

Milestone 6

- Test/demo of the entire system

- Conduct evaluation and analyze results

- Create user/developer manual

- Create demo video

- Finish completed session timeline visualization

- Finish user history and statistics page

- Session reminder notifications

- Helpful information when estimating a new task

- Finalize UI

ClockWork: Time Estimation

¿Hay Preguntas?