FINDING ZZZ's

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Introduction

Background: While sleep is crucial to most life on Earth, studies have shown that college students on a great scale are one of the most affected in regard to sleep. With college students, sleep is particularly important for them to stay focused and awake during their classes throughout the day. But, it can be hard to maintain healthy sleep behaviors due to the hectic schedule of college life and other concerns such as stress, health issues, and work. In general, sleep duration in young adults has been decreasing over the past few years (Wang et. al 2020). As college students ourselves, we know that many of our classmates do not get sufficient sleep each day. We wanted to help college students with their sleeping behaviors to decrease their chances of having changes with their mental health and physical health in the future (Grouz et. al 2019). As college students continue to incur inadequate amounts of sleep each day, this increases the possibility of changes in their physical and mental health.
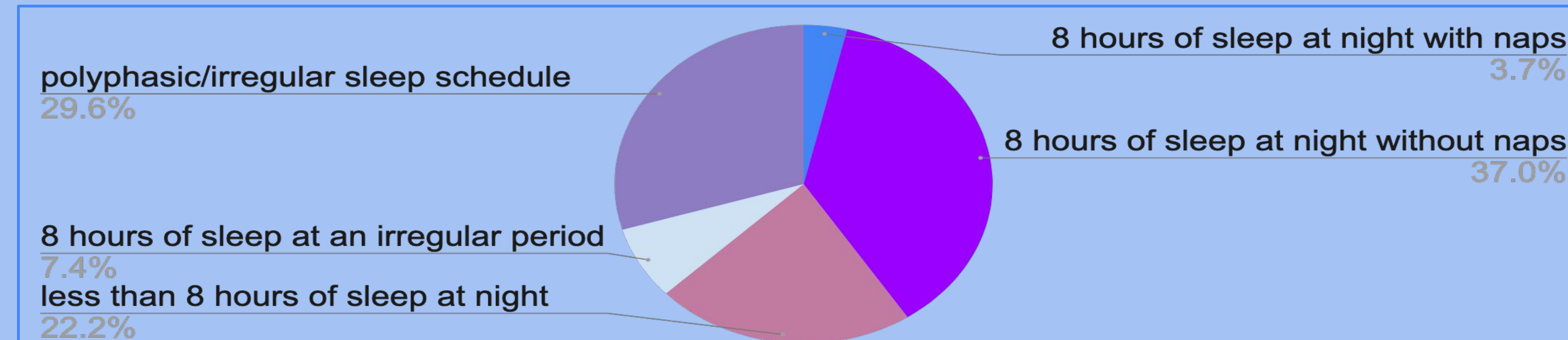
What was our challenge?
College students are known to struggle with sleep, and balancing jobs, school, internships, social lives, clubs, etc. Our challenge was to create something that would assist students in improving their sleeping habits.

What was our solution?
Our solution was to create an app specifically designed for college students, that provides them a place to track their sleeping habits and receive tips and suggestions on how to optimize their sleep.

Methods

To develop this app, we first conducted research on sleep, possible app software to use, other sleep apps, and different layouts that we wanted our app to look like. We ended up using Marvel for the prototype. We distributed a survey to other chapman students to gauge people's opinions on our idea, and what their own sleep looks like. Below is an example of the responses we got to the question: **What type of sleep schedule do you have?**


polyphasic/irregular sleep schedule 29.6%
8 hours of sleep at night with naps 3.7%
8 hours of sleep at night without naps 37.0%
8 hours of sleep at an irregular period 7.4%
less than 8 hours of sleep at night 22.2%

Feature Development:
➔ In the chart to the right, you will find different things that a user will log through the different pages of our app. Each factor is shown along with how much it will affect the recommendation we provide the user.
➔ When the user sets an alarm for the next day, these calculations will occur
➔ These statistics will also be displayed in a monthly calendar for them to see if their habits are improving or not.

	Standard Time (8 hrs)	Add 30 minutes - 1 hr	Add 1 - 2 hrs
Exercise	<30 min low to med intensity	>30 min low to med intensity OR <30 min high intensity	>1 hr med intensity OR >30 min high intensity
Current Energy Level	high	medium	low
Current Stress Level (1-10)	1 to 5	6 to 10	
Caffeine Intake	none	<100 mg	>100 mg
Previous Night Sleep Quality (1-10)	8 to 10	5 to 7	1 to 4
Previous Night Sleep Amount	achieved recommended time	achieved 1-2 hrs less than recommended time	achieved more than 2 hours less than recommended time

Results

- Home screen enables users contains basic menu.
- Profile enables users to input their age, weights, and heights to calibrate the rest of the app.
- The alarm helps users wake up at the correct time each day.
- Daily facts screen shows the user a new fact every day to help them improve their sleep.
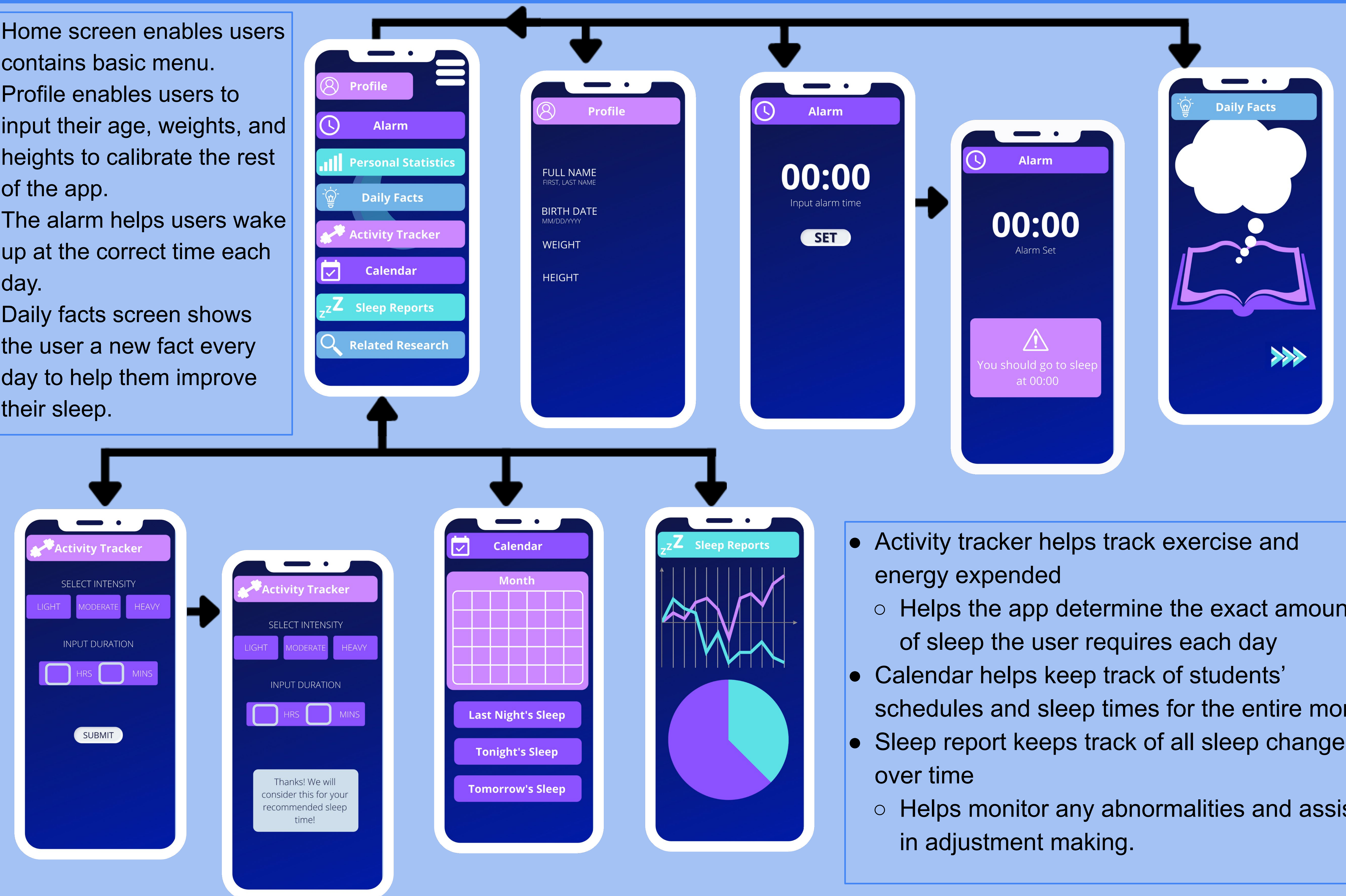
- Activity tracker helps track exercise and energy expended
  - Helps the app determine the exact amount of sleep the user requires each day
- Calendar helps keep track of students' schedules and sleep times for the entire month
- Sleep report keeps track of all sleep changes over time
  - Helps monitor any abnormalities and assist in adjustment making.

Conclusion

What did we learn at the end of the project?
- **How to read, understand, and interpret scientific articles**
- **How to present scientific information to our peers and to our group**
- **The complexity of developing an app prototype**
- **Why addressing sleep among college students is crucial?**
  ➔ The cons that are correlated to lack of sleep are vast, some include:
  ◆ Plummeting grades
  ◆ Poor mental health
  ◆ Constant stress
  ◆ Lack of time management
  ➔ The positive advantages to gaining better sleep habits are:
  ◆ Overall improved health
  ◆ Reduced stress
  ◆ Better moods
  ◆ Increased alertness
  ◆ Improved grades

Author Contributions

Introduction: Juliett and Kyle
Methods: Madi
Results: Brian
Conclusion: Juliett and Kyle

Literature Cited

Ghrouz AK, Noohu MM, Dilshad Manzar Md, Warren Spence D, BaHammam AS, Pandi-Perumal SR. 2019. Physical activity and sleep quality in relation to mental health among college students. Sleep Breath. 23(2):627–634. doi:10.1007/s11325-019-01780-z.

Wang F, Bíró É. 2021. Determinants of sleep quality in college students: A literature review. EXPLORE. 17(2):170–177. doi:10.1016/j.explore.2020.11.003.

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