StepSafari

Pedometer-Based Health App Designed with Android Studio

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ABSTRACT

With a greater portion of the workforce, and as a result of society moving towards more sedentary lifestyles – working behind desks or indoors without much movement – the rate of Cardiovascular diseases (CVD) like heart failure, strokes and blood vessel disease have begun to skyrocket.

Many people find it challenging to stay consistent with an exercise routine, in part due to the lack of differentiation and engagement methods used in many fitness apps on the market today. Our aim with StepSafari is to make exercise something that people can look forward to by gamifying the workout process.

StepSafari is a gamified health and fitness app that focuses on finding new way to encourage people to stay active. The app utilizes the pedometer sensors within mobile devices to track user's steps, allow them to compete in challenges and monitor their progress overtime.

The application is implemented entirely using Android Studio Hedgehog and related Android Sensor APIs. The application is compiled on Java SDK 34 with a minimum SDK requirement of 24. The UI is divided into three pages: The challenge page where users can view the different fitness challenges they have unlocked, the achievements page where all the challenges the user has completed are listed and the possibilities screen where all the challenges the user is currently completing or has yet to unlock.
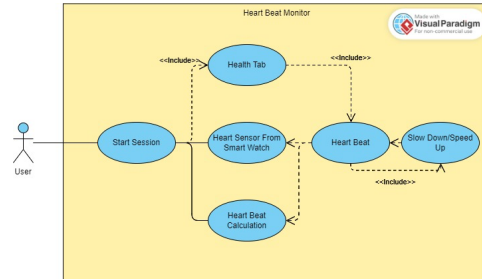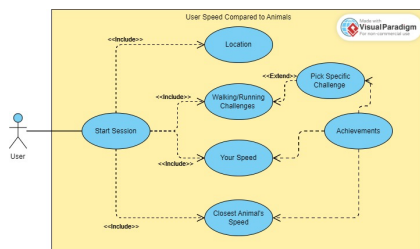
Users will be able to select different animal challenges based on their desired workout. Different challenges have different attributes that are characterized by the traits of the animal associated with the challenge. For example, a tiger challenge would be a High-Intensity, short duration workout. On completion of an animal challenge the user receives a corresponding achievement in their achievements tab. As users complete more challenges they will have the ability to unlock more challenges of a higher difficulty.

CS CONCEPTS

• Composable • Activities • Kotlin

KEYWORDS

Composable, **Animal Challenges**, **Navigation Bar**, **SensorEventListener**

1 Our Goal

(1)

As mentioned before our goal with this application is to get a larger portion of the population active while also making the process of working out entertaining. The challenge features within the app allow the user to track their goals and current progress

during workouts. The achievements feature will keep the user motivated, giving them positive reinforcement after completing any of the given animal challenges.

Eventually we wish to incorporate a heart rate sensor and BMI calculations into the application. This will allow us to create specific challenges specially tailored to a user's current fitness level. In combination with the pedometer, the heart rate sensor will allow us to calculate the proper distances and steps per minute based on the user's target heart rate and BMI data.
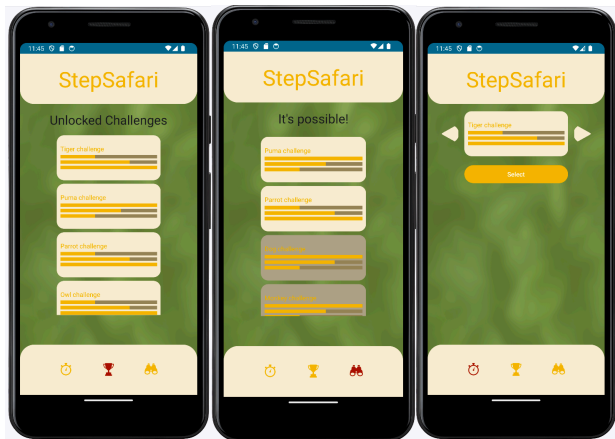

Figure 1: Composable of the Possibilities Screen

We implemented many of the features we planned, short of the heart rate monitor and BMI calculations, however the final UI design ended up being incredibly similar to our original designs.

Work Distribution & GitHub

[1] Link to Project GitHub: https://github.com/Herqules/StepSafari

[2] Work Distribution: All four teammates contributed to the Report, Presentation and Poster equally