Deliverable 1

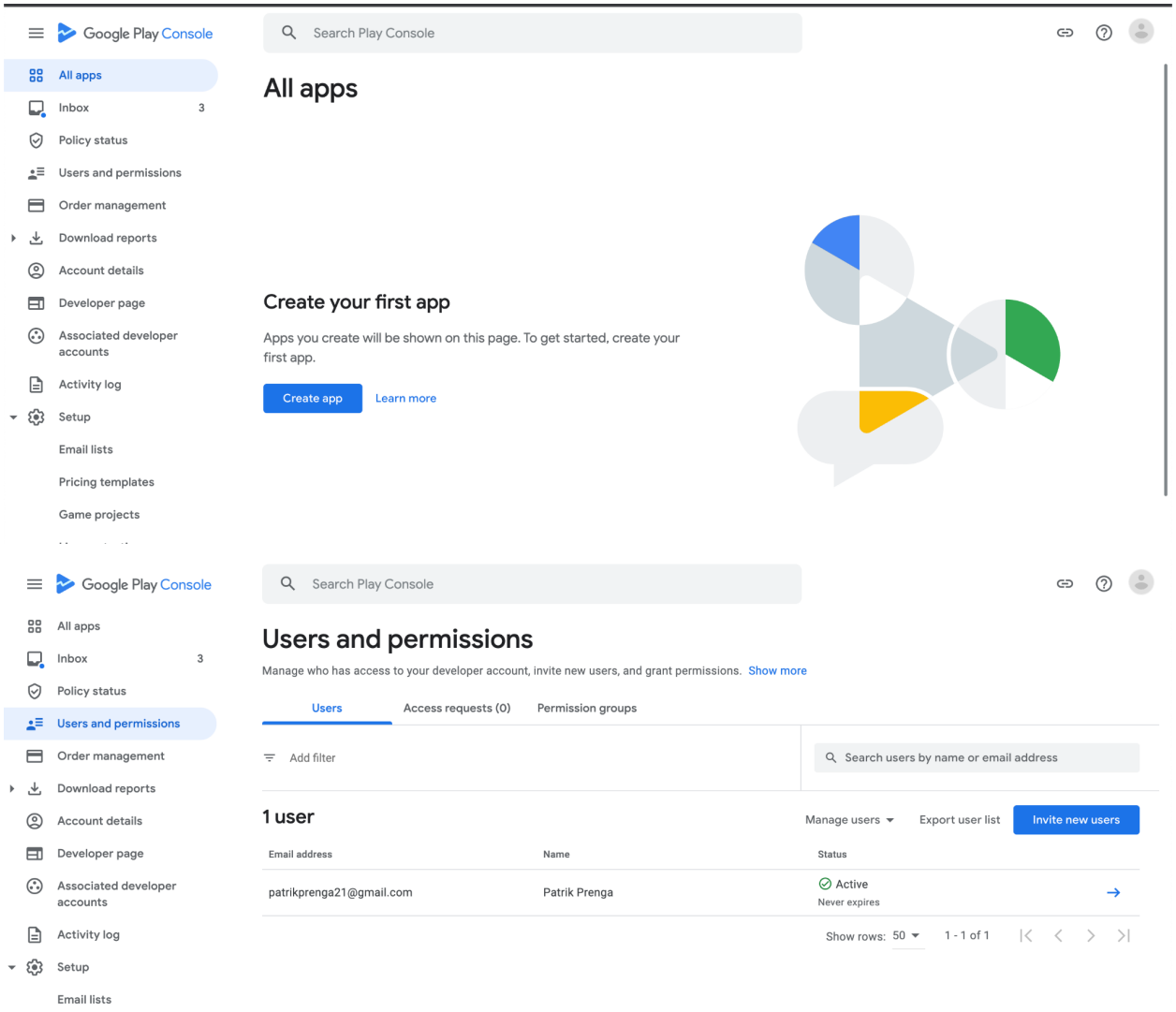
2. Team Name: Lifesaver Engineers

3. Project Name: VitalTracker: Smart Location Tracking Device

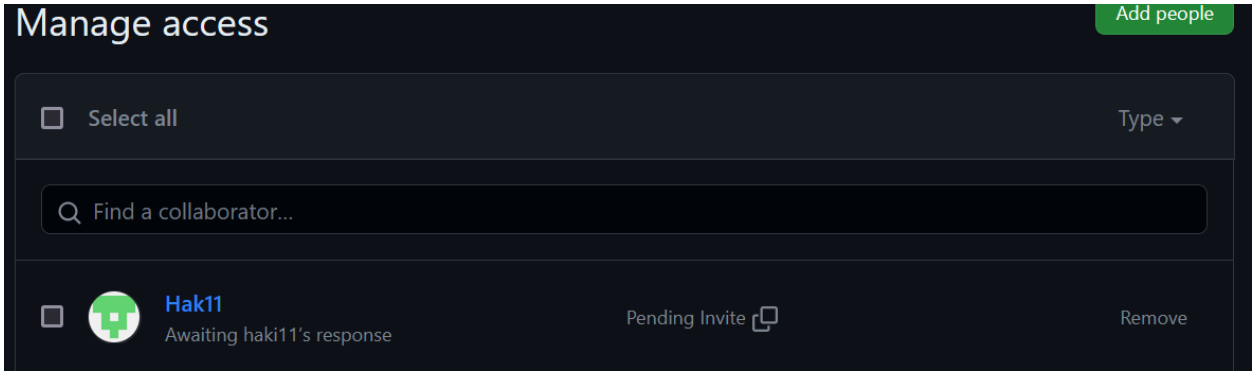
4. Group Number: 10

5. Names and IDs: Patrik Prenga n01428752, Michael Carinci n01480052, Jason Macdonald n01246828, Nicholas Rafuse n01440073

9. Google Play Account:



10.Github Repo/Invitation:
https://github.com/MichaelCarinci0052/LifesaverEngineersVitalTracker.git



Project Background and Description:

1. A compact, durable, and user-friendly wearable device that attaches to bags, harnesses, and clothes. This device seamlessly integrates advanced health monitoring and location tracking functionalities. Designed to cater to the diverse needs of children, the elderly, outdoor adventurers, and even pets, the device is envisioned as an essential companion ensuring safety, health, and peace of mind. With a focus on real-time alerts, and immediate emergency response.

2.
Software Aspect:

- Embedded OS for basic device operations.
- Algorithms for vital sign detection and fall detection.
- GPS tracking logic.
- Bluetooth connectivity for syncing with the mobile app on Android Studio.

Hardware Aspect:

- Microcontroller for data processing.
- PPG sensor for heart rate, thermistor for temperature, and accelerometer for movement.
- GPS module for location.
- Bluetooth module for communication.
- Rechargeable battery for power.

3. Upon launching the app, users are greeted with a dashboard displaying real-time vital signs. Navigation options allow users to access location tracking, set virtual boundaries, view historical data, and adjust settings. Alerts and notifications are prominently displayed to ensure immediate attention.

4. We originally wanted to do a wearable health monitoring system but after the interview we changed it to make health monitoring a secondary function. We made real time gps tracking the priority.

5.To interact with the cloud-hosted database, we plan to use secure API endpoints. The app will make HTTP requests to read/write data, ensuring real-time synchronization. We prioritize data encryption and secure transmission protocols to safeguard user information.

Project Scope:
The technical scope of the "VitalTracker" project encompasses the development of a smart device integrated with an Android application, designed to monitor and track vital signs and location. Our project plan is structured as follows:

- Initial Research and Feasibility Study: Understand the market needs, potential challenges, and the technologies required.

- Hardware Development: Design and prototype the device using Raspberry Pi technology, integrating sensors for vital sign monitoring and GPS for location tracking.

- Software Development: Create an Android application that communicates seamlessly with the hardware, providing real-time data visualization, alerts, and location-sharing capabilities.

- Integration and Testing: Ensure that the software and hardware components work harmoniously. This phase will involve rigorous testing for accuracy, reliability, and user-friendliness.

- Feedback and Iteration: Deploy a beta version to a select group of users, gather feedback, and make necessary refinements.

- Final Deployment and Launch: Once all components are refined and thoroughly tested, the product will be launched to the broader market.

The project will be deemed complete when:

- The hardware reliably captures and transmits vital signs and location data.
- The Android application provides an intuitive user experience, accurately displaying data, and sending alerts as necessary.

- We've addressed and resolved feedback from beta testers, ensuring the product meets user needs and expectations.
- The product has been successfully launched and is available for purchase, with accompanying support and documentation.

Project Layout:

For the "VitalTracker" application, the Navigation Drawer will be a pivotal navigation component, facilitating users to move effortlessly across different sections of the app. Here's our plan for implementing the Navigation Drawer using Android Studio:

Design Phase:

- Branding: The top section of the drawer will showcase the app's logo and name, reinforcing the brand's identity.
- Menu Items: Essential navigation points will be listed, such as "Home," "Vital Stats," "Location Tracking," "Settings," and "Help & Support."(Subject to change)
- Icons: Each menu item will be paired with a relevant icon for visual clarity and quick recognition.

Development Phase:

- Utilizing Android's DrawerLayout: We'll use the DrawerLayout provided by Android's support library as the base layout for implementing the Navigation Drawer.
- NavigationView: Inside the DrawerLayout, we'll use the NavigationView to represent the drawer's contents, which will include the menu items and their respective icons.
- Fragment Transactions: Each drawer item, when clicked, will initiate a fragment transaction, replacing the main content area with the corresponding fragment or screen.
- State Management: The active state of drawer items will be managed, highlighting the currently active section for better user orientation.

Enhancements:

- User Profile Section: If user profiles are incorporated into the app, the drawer's top can display the user's name, photo, and a shortcut to their profile.
- Collapsible Sections: For advanced navigation requirements, collapsible sections can be introduced within the drawer, grouping related items.

- Footer Links: The drawer's bottom can accommodate less frequently accessed links or actions, such as "Logout" or "About the App. etc."

Testing Phase:

- Usability Testing: Tests will be conducted to ensure users find the navigation drawer intuitive and that it aligns with their functionality and design expectations.
- Performance Testing: We'll ensure that transitions between screens are smooth, and there are no lags or glitches when interacting with the drawer.

By following this plan, we aim to provide a seamless navigation experience for the users of the "VitalTracker" application, ensuring they can access all features effortlessly.

16.

Theme: Development of Basic App Functionality

Epic 1: User Profile Management

Story 1: User Registration

Task 1: Design a user-friendly registration form with fields for name, email, password, and contact number.

Task 2: Implement backend logic to store user data securely in the database.

Task 3: Add email verification functionality to authenticate genuine users.

Story 2: User Profile Customization

Task 1: Design a profile customization page allowing users to add a profile picture, bio, and other personal details.

Task 2: Implement functionality to upload and store profile images in the cloud.

Task 3: Add options for users to link their social media accounts for an integrated experience.

Story 3: Password Recovery

Task 1: Design a "Forgot Password" interface with fields to enter registered email.

Task 2: Implement backend logic to send a password reset link to the user's email.

Task 3: Create a secure password reset page allowing users to set a new password.

Epic 2: Location and Vital Stats Tracking

Story 1: Real-time Location Tracking

Task 1: Integrate GPS functionality to fetch real-time location data.

Task 2: Design a map interface displaying the current location of the user or pet.

Task 3: Implement a feature to share live location with trusted contacts.

Story 2: Vital Stats Monitoring Dashboard

Task 1: Design a dashboard displaying vital stats like heart rate, blood oxygen levels, and body temperature.

Task 2: Integrate sensors' data with the app to fetch and display real-time stats.

Task 3: Implement alerts for any abnormal readings, notifying the user immediately.

Story 3: Historical Data Analysis

Task 1: Design a section to display historical location and vital stats data using graphs and charts.

Task 2: Implement backend logic to fetch and display data from the past week, month, or year.

Task 3: Add functionality for users to download or share their historical data reports.

Team Contract

CENG-322 TEAM PROJECT

Team Name: LifeSaver Engineers

Team Number: Group 10

Project Name: VitalTracker

Please negotiate, sign, scan and include as the first section in your Deliverable 1.

Please note that if cheating is discovered in a group assignment each member will be charged with a cheating offense regardless of their involvement in the offense. Each member will receive the appropriate sanction based on their individual academic honesty history.

Please ensure that you understand the importance of academic honesty. Each member of the group is responsible to ensure the academic integrity of all of the submitted work, not just their own part. Placing your name on a submission indicates that you take responsibility for its content.For further information read Academic Honesty Policy on https://humber.ca/legal-and-risk-management/policies/search-by-students.html.

Team Member Names (Please Print)	Signatures	Student ID
Project Leader: Patrik Prenga	Patrik Prenga	n01428752
Jason Macdonald	Jason Macdonald	n01246828
Michael Carinci	Michael Carinci	n01480052

Nicholas Rafuse	Nicholas Rafuse	n01440073

By signing this contract, we acknowledge having read the Humber Academic Honesty Policy as per the link below.

https://academic-regulations.humber.ca/2018-2019/17.0-ACADEMIC-MISCONDUCT

Responsibilities of the Project Leader include:

- Assigning tasks to other team members, including self, in a fair and equitable manner.
- Ensuring work is completed with accuracy, completeness and timeliness.
- Planning for task completion to ensure timelines are met
- Any other duties as deemed necessary for project completion

What we will do if . . .

Scenario	**Accepted initials**	**We agree to do the following**
Team member does not deliver component on time due to severe illness or extreme personal problem	P.P J.M M.C N.R	a) Team absorbs workload temporarily __ d) Other:
Team member cannot deliver component on time due to lack of ability	P.P J.M M.C N.R	a) Team reassigns component __ b) Team helps member __ b) Team "fires" team member by not permitting his/her name on submission __ d) Other:

Scenario	Accepted initials	We agree to do the following
Team member does not deliver component on time due to lack of effort	P.P J.M M.C N.R	a) Team absorbs workload __ b) Team "fires" team member by not permitting his/her name on submission __ c) Other:
Team member does not attend team meeting	P.P J.M M.C N.R	a) Team proceeds without him/her and will assign work to the absent member __ b) Team doesn't proceed and records team member's absence __ c) Team proceeds for that meeting but "fires" member after __ occurrences __
An unforeseen constraint occurs after the deliverable has been allocated and scheduled (a surprise test or assignment)	P.P J.M M.C N.R	a) Team meets and reschedules deliverable __ b) Team will cope with constraint __ c) Other:

Scenario	Accepted initials	We agree to do the following
Team cannot achieve consensus leaving one member feeling "railroaded", "ignored", or "frustrated" with a decision which affects all parties	P.P J.M M.C N.R	a) Team agrees to abide by majority vote __ b) Team flips coin __ c) Other:
Team members do not share expectations for grade desired	P.P J.M M.C N.R	a) Team will elect one person as "standards-bearer" who has the right to ask that work be redone __ b) Team votes on each submission's quality __ c) Team will ask for individual marking and will identify sections by author __ d) Other:
Team member behaves in an unprofessional manner by being rude or uncooperative	P.P J.M M.C N.R	a) Team attempts to resolve the issue by airing the problem at team meeting __ b) Team ignores behavior c) Team agrees to avoid use of all vocabulary inappropriate to the business setting __ d) Team fires the team member.

Scenario	Accepted initials	We agree to do the following
Team member assumes or requests that his/her name be signed to a submission but has not participated in production of the deliverable	P.P J.M M.C N.R	a) Team agrees that this is cheating and is unethical __ b) Friends are friends and should help each other __ c) That person name will not be put on the submission._
There is a dominant team member who is content to make all decisions on the team's behalf leaving some team members feeling like subordinates rather than equal members	P.P J.M M.C N.R	a) Team will actively solicit consensus on all decisions which affect project direction by asking for each member's decision and vote __ b) Team will express subordination feelings and attempt to resolve issue __ c) Other:
Team has a member who refuses to participate in decision making but complains to others that s/he wasn't consulted	P.P J.M M.C N.R	a) Team forces decision sharing by routinely voting on all issues __ b) Team routinely checks with each other about perceived roles __ c) Team discusses the matter at team meeting __