This project is developing a mobile health (mHealth) application to proactively monitor and manage participant health. By combining user input with machine learning and analytics, the app creates personalized risk profiles. This allows medical professionals to collaborate and access health data, leading to more informed decisions. Additionally, the app educates users about their health and delivers notifications on risks, outbreaks, and travel advisories. This project, nearing completion (75%), is motivated by the need to address resource misallocation in healthcare, highlighted during the COVID-19 pandemic

Research paper: "Healthcare resource allocation in the COVID-19 pandemic: Ethical considerations from the perspective of distributive justice within public health" (https://www.ncbi.nlm.nih.gov/books/NBK435786/)

Research report: "Health Care Resource Allocation Decisionmaking During a Pandemic" (https://www.rand.org/pubs/research\_reports/RRA326-1.html)

Article: "Resource allocation in the Covid-19 health crisis: are Covid-19 preventive measures consistent with the Rule of Rescue?" (https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8005252/)

Individual Contribution:

**Application Development:**

Recognizing the need for an open-source, user-friendly platform, I selected and familiarized myself with the Godot game engine. Leveraging its suitability for both game and application development, I constructed the core Windows application, facilitating user interaction and data input. This entailed meticulously designing the user interface (UI) and user experience (UX) to guarantee an intuitive and user-friendly experience for data entry and application interaction. Furthermore, I implemented essential functionalities, empowering users to input personal information, medical history, and relevant health data.

**Gamification Design:**

I incorporated gamified elements within the application, recognizing their potential to enhance user engagement, adherence, and motivation. Following this proposal, I identified and strategically implemented suitable gamification mechanics, such as reward systems, progress bars, and challenges. These elements aimed to incentivize healthy behaviours and consistent data tracking, fostering a more engaging user experience. I ensured seamless integration of these gamification elements within the overall application design and user flow, guaranteeing a cohesive and user-centric experience.

**Data Management Support:**

To support the project's machine learning component, I actively participated in the development of tools for data cleaning and scraping. I focused on creating tools capable of cleaning and pre-processing data extracted from various sources, ensuring its accuracy and compatibility with machine learning algorithms. Additionally, I contributed to the development of data scraping tools, adhering to ethical guidelines, and obtaining user consent when collecting relevant health data to enrich the application's data pool. Throughout this process, I maintained close collaboration with the team members responsible for the machine learning aspect, ensuring my tools aligned with their specific data requirements.

**Conclusion:**

My contributions to this project encompassed the development of the core Windows application using the Godot engine, the introduction and implementation of gamification elements to enhance user engagement, and the creation of data cleaning and scraping tools to support the machine learning component. These combined efforts have culminated in the development of a user-friendly and engaging health classification application that leverages the power of gamification and machine learning to empower users in their health journeys.