Abstract

This project aims to develop an application that tracks a user's alcohol and tobacco usage, analyzes the data, and visualizes it in a way that is easy for users to understand. The goal is to reduce the usage of alcohol and tobacco by making users aware of their consumption levels and the associated health risks. The application will offer personalized tracking, real-time feedback, data visualization, and health insights. The team plans to create a supportive community where users can connect with others who are also tracking their alcohol and tobacco use, share tips and strategies, and provide encouragement and support. The application will also collect and analyze data on patterns of alcohol and tobacco use across different populations, providing valuable insights for public health research.

Background

In today's world, many people face stress and anxiety due to various challenges and responsibilities such as work, school, relationships, finances, and health issues. As a result, some turn to alcohol and tobacco addiction, which can have significant downsides. Smoking, for example, has been linked to various health problems, including cancer, heart disease, stroke, and lung diseases. Similarly, alcohol use has been associated with impaired judgment, accidents, injuries, liver disease, high blood pressure, and cancer. many people turn to some addictions of alcohol and tobacco. However, there are lots of downsides of intake of alcohol and tobacco.According to CDC's recent report, smoking causes cancer, heart disease, stroke, lung diseases, diabetes, and chronic obstructive pulmonary disease (COPD), which includes emphysema and chronic bronchitis. Smoking also increases risk for tuberculosis, certain eye diseases, and problems of the immune system, including rheumatoid arthritis. Restricting the use of tobacco has become a more urgent and prevailing need. For alcohol, there is valid research that shows that taking alcohol will result in all kinds of health issues. The National Institute on Alcohol Abuse and Alcoholism provides information on the effects of alcohol on the human body.The article describes the short-term and long-term risks of alcohol use, including impaired judgment, accidents, and injuries, as well as liver disease, high blood pressure, and various cancers (NIH,2021). Plus, it has shown a strong connection between alcohol and cancer. NCI has elaborated that Moderate and heavy alcohol intake is linked to increased risks of specific types of head and neck cancers. People who consume alcohol moderately have almost twice the risk of developing oral cavity and pharynx cancers (excluding the lips), and a 1.4 times greater risk of developing larynx cancers compared to non-drinkers. Heavy drinkers, on the other hand, have a 5 times greater risk of developing oral cavity and pharynx cancers, and a 2.6 times greater risk of larynx cancers than non-drinkers (NCI,2021). To address this issue, a group of computer science students plans to develop an application that tracks a user's alcohol and tobacco usage, analyzes the data, and visualizes it.

As a group of computer science students, we have invested significant time and effort in learning various technical skills that enable us to develop cutting-edge software applications. We have specifically focused on front-end development, which involves designing and creating the user interface of software applications that are visually appealing, interactive, and user-friendly. Moreover, we have honed our skills

in forum building, which entails creating online platforms that facilitate discussions among users with shared interests. We are well-versed in creating forums that are secure, easy to navigate, and optimized for user engagement. In addition to these technical skills, we have also acquired in-depth knowledge about the harmful effects of tobacco and alcohol on health. Through extensive research and analysis of various medical studies, we have learned about the risks associated with alcohol and tobacco consumption. We understand the detrimental effects that these substances can have on the human body, such as increased risk of cancer, heart disease, stroke, and lung diseases. Our understanding of these issues has motivated us to develop an application that tracks alcohol and tobacco usage, analyzes the data, and visualizes it in a way that is easy for users to understand. We are committed to leveraging our technical skills and knowledge to create a software solution that promotes healthy living and helps individuals overcome addiction.

Problem statement

We plan to reduce the usage of users' alcohol and tobacco intake by letting them record their daily alcohol or tobacco statistics and give feedback on the volume. Moreover, we visualize the data and give feedback on the specific usage of alcohol and tobacco. We would like to use this way to warn the users and make them aware of their health conditions.

Solution

To address the need for an application for tracking alcohol and tobacco use, we will develop a comprehensive application that allows users to easily and effectively track their consumption of alcohol and tobacco. Compared to the ordinary apps that may offer limited tracking capabilities for alcohol and tobacco use, the application will provide a supportive community where users can connect with others who are also tracking their alcohol and tobacco use, share tips and strategies, and provide encouragement and support. Moreover, the application will collect and analyze data on patterns of alcohol and tobacco use across different populations, providing a valuable contribution to public health research. This research can lead to the development of more effective prevention and treatment strategies for individuals and communities.The application will be designed with user-friendly interfaces that enable users to input and visualize their data in real-time. A range of features will be included:
1. Personalized tracking: Users will be able to have a summary for their alcohol and tobacco consumption, a summary of how many days they have been sober can be a great way to motivate and encourage them to continue their sobriety. This feature can help users feel proud of their progress and accomplishments
2. Real-time feedback: The application will provide real-time feedback on users' progress and compare with the community-based users, including notifications and reminders to help them stay on track.
3. Data visualization: The application will provide clear and intuitive visualizations of users' data, including charts and graphs that allow them to easily see their progress over time.

4. Health insights: The application will provide valuable insights into the health effects of alcohol and tobacco use, including new facts on the risks associated with different levels of consumption.

In developing the projects, we faced some barriers both, from the technical issue of project design, we entered the difficulties of designing the statistics page, and the layout of the whole window. Second, we face the challenges that we need to collect more health information about tobacco and alcohol.

Outcome and Future Work

After months of hard work and dedication, we are pleased to announce the successful completion of our project. Our end-user web application is built using a range of tools and technologies, including React with TypeScript, Recoil.js for state management, Material UI for UI components, and Google Firebase Functions based on TypeScript for the backend. We have also used Google Firestore as our database and Google Firebase as our hosting service. Our application is designed to track alcohol and tobacco consumption and provide users with personalized health advice and tips based on their consumption amount. The majority of the data used in our application is user-generated and collected when users register for our services. We have also sourced data from public health organizations such as WHO and NIH to ensure that our advice is based on the latest scientific research and guidelines. Throughout the development process, we have focused on ensuring that our application is user-friendly, secure, and optimized for performance. Our frontend design is visually appealing and intuitive, while our backend is efficient and reliable. We have also implemented robust security measures to protect user data and ensure confidentiality. We are proud of the work we have accomplished and believe that our application will be a valuable tool for individuals seeking to manage their alcohol and tobacco consumption and improve their health. We look forward to seeing the positive impact our project will have on users and the wider community.

We believe it is successful since we deployed it to the Firebase server and finish all the functions. The project also has some weakiness for future work. We identify that we need more data points to simulate the usage of alcohol and tobacco usage. Moreover, for a better design, we could use machine learning technology with health information to generate more appropriate feedback for users.

Reference

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