

## Sustainability & Wellness

### USE CASE:

A company XYZ has 100 employees working where it has provided each and every employee with an android support wearable technology to monitor each and every one's health. The company's major concern is the priority of the employees' health. Now that the company has executed the first half of their target by providing the employees with wearables. Now they have to fulfil the second half of their target which would be creating an application to monitor individually and to govern them as a group.

### TASKS:

Have an <b>IoT device or Open API</b> deployed on server to gather the datasets for the health impacting parameters like Body Temperature, Blood Pressure, Respiration, Glucose, Heart Rate, Oxygen Saturation, Electro Cardiogram etc.
Any <b>critical values in any one of the parameters</b> is considered to be putting that particular person is not health conscious. So, for monitoring purposes applications are needed.
Have a prediction model to find diseases from parameters so that precautions can be taken beforehand.

Mobile Application (To manage single user health)	Web Application (To manage multiple users health)
<b>Screen 1:</b>  UI to show the health parameters value as mentioned above. After getting the values from wearable to smartphone upload the values in your personal cloud like firebase for every 30 seconds.	<b>Page 1:</b>  Now from the database that contains all users records with their health information. Visualize their health information based on critical and normal values for each and every parameter mentioned above.
<b>Screen 2:</b>  Option to add manual data with body text or document like medical records and view them whenever needed.	<b>Page 2:</b>  View the medical records of all the users based the username search criteria and list them wisely.

**Prediction Mechanism to be considered while training the dataset:**

**Note:** Use few to your capability. Any other prediction model which is not mentioned below is also welcomed. Fulfilling all is also greatly appreciated.

Use your own creativity to come up one module for stress management for each individual and to work stress free in working environment.

A blood sugar level less than 140 mg/dL (7.8 mmol/L) is normal. A reading of more than 200 mg/dL (11.1 mmol/L) after two hours indicates diabetes. A reading between 140 and 199 mg/dL (7.8 mmol/L and 11.0 mmol/L) indicates prediabetes.

**Use the Glucose parameter to predict diabetes and prediabetes.**

Bronchiectasis happens when irreversible damage affects the bronchi, which are part of the respiratory system. A person will have a persistent cough and frequent infections.

**Use the Respiration parameter to predict Bronchiectasis.**

Coronary heart disease (CHD) is the leading cause of heart attacks. CHD is a condition in which the coronary arteries (the major blood vessels that supply the heart with blood) become clogged with deposits of cholesterol.

**Use BP, Heart rate and Cholesterol parameters to predict CHD.**

Normal oxygen saturation is usually between **96%** and **98%**. Any level below this is considered dangerous and leads to hypoxemia.

**Use Oxygen Saturation parameters to predict Hypoxemia.**

Moderate acute asthma is characterized by an oxygen saturation level of 92% to 95%, a pulse of 100 to 125 beats per minute, a respiratory rate of 20 to 30 breaths per minute.

**Use Oxygen saturation, BP, Respiration parameter to predict asthma.**

**Function 1:**

Chatbot that gives the health condition status and helps to find the medical records from the earlier list uploaded based on file name and provides fitness queries.

**Function 2:**

Email Automation that runs daily at the end of the day which collects the user's health information and provides their condition of their health summary for each and every user. SMS/ Email upon major critical health warning such as reducing sugar level, asthma, etc.

**CONSIDERATIONS:**

For smartphone, apps can be developed either for android or iOS.

Fitbit/ google fit integration would be appreciated.

Sync Realtime data from wearable to mobile application.

Use block chain technology for accessing and managing the security of medical records.

Have a unique way for creating the usernames for each device.

**NOTE:**

- Try to use the wearable technology as IoT device behind the process. As the rarest case if no wearable available, then can use the Open API Data where the above-mentioned parameter values are retained in your own servers with random changing in Parameter values and carry on the above tasks.
- Try to fulfil the application module by module. Progress of completion can be at module level also but completing all the modules will be recognised more and that would be appreciated.

**POINTS TO REMEMBER:**

The below listed will be the upcoming events/ process which will be carried on from the next week onwards regarding Inframind Season 4 Round 2,

- For each and every tower there will be webinar session for the students for explaining about the problem statement, where the webinar link will be shared on via emails, Campus commune channels and text messages.
- Also, for further more details regarding Inframind Season 4 students can visit the “Inframind Season 4 “and “IT Infrastructure Services - Powering IT Infrastructure Globally - Be the Future!” channels in Campus Commune.
- If students have any queries during webinar session there will be assigned a mentor for that tower. Students can feel free to ask any queries regarding that tower.
- For Any queries, login to your campus commune portal and navigate to the link that is provided below, which is a Forum Communication channel for Inframind Season 4 Round 2.

<https://campuscommune.tcs.com/channels/it-infrastructure-services-powering-it-infrastruct/discussions/inframind-season-iv-round-ii-query-corner>

- **Malpractice will be strictly monitored for each and every solution document received. If any solution document found to be suspicious of malpractice, either copied or duplicated from another participant, the corresponding participants will be disqualified and cannot proceed with further Rounds of Inframind Season 4.**
- **Upload your Video Presentation of the prototype in YouTube and attach the link URL of that video in Solution Document. Also, make sure in the Solution Document you submit has the Prototype Video Presentation Link. If the Document is found with no YouTube Link of your Prototype’s Video Presentation then the corresponding person will be disqualified and cannot proceed with further Rounds of Inframind Season 4.**
- **While Uploading the Prototype Presentation Video to YouTube, make sure the **Visibility** of your video is set to **Unlisted**.**