## Scenario 1- Case of emergency

Gianni is a 76 years-old man and lives alone quite far from his daughter, Livia.

He suffers from hearts problems, so Livia decides to enrol him to “AutomatedSos”. Then she downloads the app on her father’s smartphone and buys him a smart bracelet to connect to the system.

After downloading the application helps him fill out the registration form to Data4Help, providing the Gianni’s fiscal code and general information. She also adds in medical information his problems of heart. Eventually she indicates her number as the “emergency number” required by the AutomatedSos service and connecting the device.

There is no problem connecting to the internet because in the home of Gianni there has been a Wi-Fi network for some years. Gianni also recharges the device every afternoon during the visits of his daughter so that battery is fully charged when he is alone at home. During this visit he sets the system *“non-active”.* When she goes away he clicks on the button “on” to reset the system *“active”.*

A day Gianni has a heart attack while alone in the house, and then his heart values fall sharply below the thresholds laid down for him by the application.

The system immediately sends an alarm to the companies offering the assistance service, together with the values of the heart rate and the position of Gianni’s home.

The Policlinic Hospital responds first to the warning transmitted and takes charge of the emergency, sending an ack. After receiving the confirmation, the system marks the State of emergency as *“handling”.*

## Scenario 2-Application breakdown

Derek is a man in his fifties and for some years has installed on his smartwatch an app to keep an eye on his health. The application supports Data4Help and Derek decided to also register to the service. He fills out the registration form with his fiscal code and his general infos.

One day he receives a notification about an additional service offered by TrackMe, *AutomatedSoS,* which guarantees automated assistance, then Derek, feeling intrigued, decides to add AutomatedSos on his smartwatch.

He has already an account, so he has just to add a phone number to contact in case of emergency: he chooses his wife’s number.

During the week-end Derek descends to the cellar to help his son to repair his bike forgetting to set the app status manually "*non-active*": unfortunately, the cellar, being underground, is not covered by their home Wi-Fi network.

The application then fails to send the data every hour and the server, not getting the back-up, sends a message to the emergency number to notify that the application is not working properly.

The wife of Derek receives the message, so she decides to go to the cellar in order to check out if everything is ok and remembers her husband to turn the application’s status “*non-active*”.

## Scenario 3-. Sensor breakdown

Anna is an elderly lady who has recently retired. Instead of retiring too, her husband works all day outside home so convinces Anna to register to AutomatedSos to be safer when he is not at home.

She buys a small smartwatch on which she installs the application. The first time she acces to the app, she is asked to register to Data4Help, so she provides her data and indicates her husband’s number as number of emergencies.

She wears the smartwatch every day when her husband is out and recharge it when he is at home. Before recharging the device, she sets it “*non-active*”: she opens the app on the smartwatch and pushes the button “off”.

One day she forgets to take it off before getting into the bath: a bit of water enters the smartwatch, causing a sensor breakdown. The sensor is no more able to send data correctly.

The application, not receiving data for more than 1 minute, sends a notification to Anna in order to know her health status. A notification appears on Anna’s smartwatch display, asking if she is okay or not. She presses on the “yes” button to confirms that she is okay.

Anna sees the message and confirms that she is okay but decides to manually disable the application, putting its status “off”, so that she can bring the smartwatch for repairing, without alerting the number of emergencies.

## Scenario 4-Data anonymization and data presentation

The Saint Francis Medical Clinic would like to open a new geriatric ward then turns to external consultants to figure out if it is convenient, or to understand how many people they might have.

Therefore, the consultants decide to register to Data4Help to collect some prediction data concerning the population living near the clinic.

They download the web application on their laptop and provide the company’s mail to create an account, then they can start to gather information.

First, click on the button “advanced request” in order to obtain aggregated (manipulated) data. Then they set the filters for the request and ask the average pression and heart rates of people between 70 and 90 years living within a radius of 20 km from the clinic. The application has the data of more than 1500 people, and then accepts the request by providing the media required by the company.

To make things more understandable, the application shows a histogram indicating the number of people in every pression band, to distinguish correctly the big number of people with normal pression values from the little group of people with values very far from the average, which are obviously the target of the clinic.

Then the company asks the number of falls recorded in the last year regarding persons over 60 years, always within 20 km from the clinic. Again, they choose “simple request” and then fill the standard fields for the research. Again, having been recorded more than 2000 falls more or less serious, the data is anonymized and is provided by the system.

The company requires then the number of people who have heart problems in their medical history but who live within a radius of 8 km from the clinic. Again, they choose “simple request” and then fill the standard fields for the research, but this time being that only a small number of users meets these criteria, the request is rejected by the system. Then appears on the screen a warning that the data is not available because it is no possible to make them anonymous.

Finally, they ask the application the number of old people signed up to Data4Help who live near the clinic and, of course, who authorize the processing of their personal data.

## Scenario 5-subscribe to new data

The municipal administration of Novate Milanese had a very positive impression about Data4Help before the last elections, finding some data very useful and interesting to get an idea on health of citizens.

In particular, they used the data provided by the application to propose some prevention programs or help for some diseases.

This year the Education Commissioner wants to allocate funds for a smoking-prevention program in all the schools of the municipality, because he is afraid that more and more kids start smoking during high school. Due to the fact that there is not enough money for all projects, and there is no clear evidence of a real increase of smokers between teenagers, his idea is abandoned.

Nonetheless, he decides to take advantage of Data4Help and subscribes to new data on blood saturation of teenagers between 14 the 18 years in the next year.

He decides to exploit Data4Help. He opens the app on his laptop and sign in providing the municipal official(?) mail. From the main menu he moves the section for subscribing new data, selecting the item from the main menu.

Here he subscribes to new data on blood saturation of teenagers between 14 the 18 years in the next year.

After 1 year, when the deadline comes, the system notifies that the data he aimed at are now available. He receives an email at the municipal address. Then he accesses to the web app and sees a new notification message. After he clicks on, the system shows the new data collected, which confirm his fear.

Therefore, he examines these data that indicate a decrease in blood saturation of that group of users specified by the query. Consequently, he concludes that his fears were right.

Thanks to these data, the Commissioner manages to convince the administration to invest some funds to sustain his program.

## Scenario 6-Personal Use

Betty has just begun a new fitness program at “TonicPeople” gym, after being stopped for a few years. At the first lesson, the fitness coaches recommend using an app that monitoring her health status to check whether the program is too stressful for her health. They suggest the app offered by TrackMe.

Betty downloads the app on her smartwatch and so she has to register to Data4Help for using the app.

Betty enrols the service providing her social fiscal code, basic information about herself (weight, height, gender) and her health (pre-existing conditions, chronical diseases, pathologies…).

The “TonicPeople” gym uses Data4Help for some years for monitoring its users, that provide their fiscal code when they sign to the gym.

The Betty’s coach wants to check out her progresses and so he access to Data4Help from his laptop, using the gym’s email address. He gets on the search bar and type in the Betty’s fiscal code.

Betty immediately receives the request on her smartwatch, recognizes the company and clicks on the accept button to authorize using her data.

Data4Help finds and sends all kind of information it has from Betty’s profile stored in the database to the gym account.

The coach receives data and wants to show them to Betty, then he clicks on the download button and saves them.