UNIVERSITY OF PADOVA
DEPARTMENT OF INFORMATION ENGINEERING

Biomedical Wearable Technologies for Healthcare and Wellbeing

IMPACT

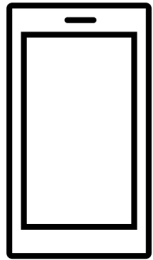A.Y. 2022-2023

Giacomo Cappon

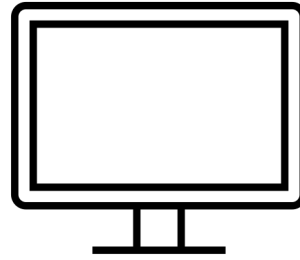DEPARTMENT OF
INFORMATION
ENGINEERING

UNIVERSITY OF PADOVA

- ➤ IMPACT (Integrated Mobile Platform for Automated Clinical Trial) is a platform for the conduction of clinical trials aimed at collecting data and assess new treatments.
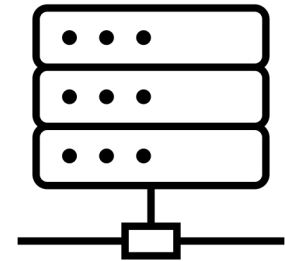
- ➤ IMPACT is composed of 3 main components:

Mobile app
For patients, acquires data automatically from multiple wearable devices

Web interface
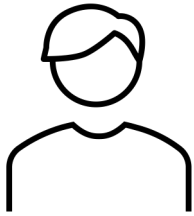For clinicians, enables remote patient monitoring and to perform adjustments to trial-related settings

Backend
Exposes ad-hoc RESTful APIs to store and transfer data to a cloud server
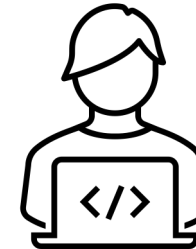
The IMPACT roles

Patient
Generates and manages its data

Clinician
Enrolls patients, reviews data of patients in its clinical center, edits clinical study settings

Researcher
Accesses all data in read-only mode

Superuser/Study Administrator/Data Administrator
They have God-like powers

The researcher role

➤ Each group will have access to the data using the researcher role

```
{
    "username": "<YOUR_USERNAME>",
    "access_expiration_date": "<YOUR_ACCESS_EXPIRATION_DATE>"
}
```

➤ Each researcher in IMPACT is characterized by a username and an access expiration date.

➤ The access expiration date defines the date until a specfic researcher is allowed to access data stored in the IMPACT database. Two examples:
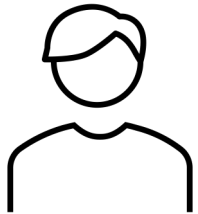
```
{
"username": "nmRTlOv7W8",
"access_expiration_date": "2023-09-30"
}
```

```
{
"username": "nmRTlOv7W8",
"access_expiration_date": null
}
```

The scenario

➤ Data are generated during an on-going single-arm single-center clinical trial involving healthy subjects wearing Fitbit smartwatches. The study involves:
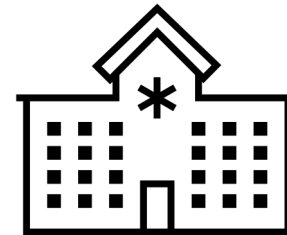


```json
{
"username": "Jpefaq6m58",
"birth_year": 1994,
"display_name": "Luca",
"clinical_center": 1,
"to_be_deleted": false
}
```

```json
{
"id": 1,
"display_name": "Padova"
}
```

```json
{
"username": "tP27LUo0ng",
"display_name": "Giacomo",
"clinical_center_id": 1
}
```

```json
{
"username": "<YOUR_USERNAME>",
"access_expiration_date": "<YOUR_ACCESS_EXPIRATION_DATE>"
}
```

The IMPACT backend

HTTPS requests/responses

Lesson 9

Lesson 10

Your app

Get token (JWT) using credentials

(If credentials are ok) Receive token

Ask for specific data using token

(If request is ok) Receive data (JSON format)

https://impact.dei.unipd.it/bwthw/