

IES - Introdução a Engenharia de Software

Iteration 1 - Prototype & Project Initialization



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The Team and roles

Role	Member
Team Manager (coordinator)	Tomé Carvalho
Product Owner	Diogo Monteiro
Architect	Lucius Vinicius
DevOps Master	Camila Fonseca
Developer	All

Project Requirements

General

- **Log** when users log-in and log-out, on which computer and when.
- **Show** user access history and details
 - Machines logged into
 - Software used
 - Purchase history
- **Monitor** each machine regularly: power consumption, uptime, internet traffic, cpu, ram, disk, network usage, running software
- **Show** all active users/machines
- **Show** overall hardware usage over time
- **Assess** software trends
- Maintenance **logs**
- **Monitor** room characteristics: temperature, humidity, light level (pretend lights are automatic)
- **Keep records** of what customers order, and when.
- **Assess** food sales trends
- Profit margin **history**

- **Log** application operations, such as batch processing
- Data consulting should be fast and readily available

Alerts for the Café (Via Message Queue)

- Emergency indicators on **abnormal** behaviors - per machine and global:
 - High power consumption
 - High internet traffic (down/up)
 - Abnormal internet traffic (compromised network)
 - Attempts to access suspicious/blocked websites
 - Abnormal temps and humidity values
- Alert when a (specific) machine is available.

Implementation/Design

- Show which machines are currently being used, by whom and what for and which ones are free
- Historical usage of a machine (via graphs)

Stories

As a <who>,
I **want** <what>
so that <why>

As a net cafe manager,

I **want** to know what computers are currently being used and what computers are available
so that I can gauge how busy a location is.

Done by Diogo

As a net cafe manager,

I **want** to be notified when a machine or location needs attention
so that I can take action when needed.

Being done by Diogo

As a net cafe manager,

I want to see a location's and its machines' statistics over time

so that I can assess how a location is doing and better manage it, such as cutting back on machines or expanding.

Being done by Lucius

As a business analyst,

I want to see users' machine and software usage statistics

so that I can see what's most profitable and come up with targeted promotions.

Being done by Tomé (or attempting to be done)

As an IT guy,

I want to see a machine's usage details on a specific timeframe

so that I can better know how to perform maintenance.

Being done by Diogo and Lucius

As a net cafe manager,

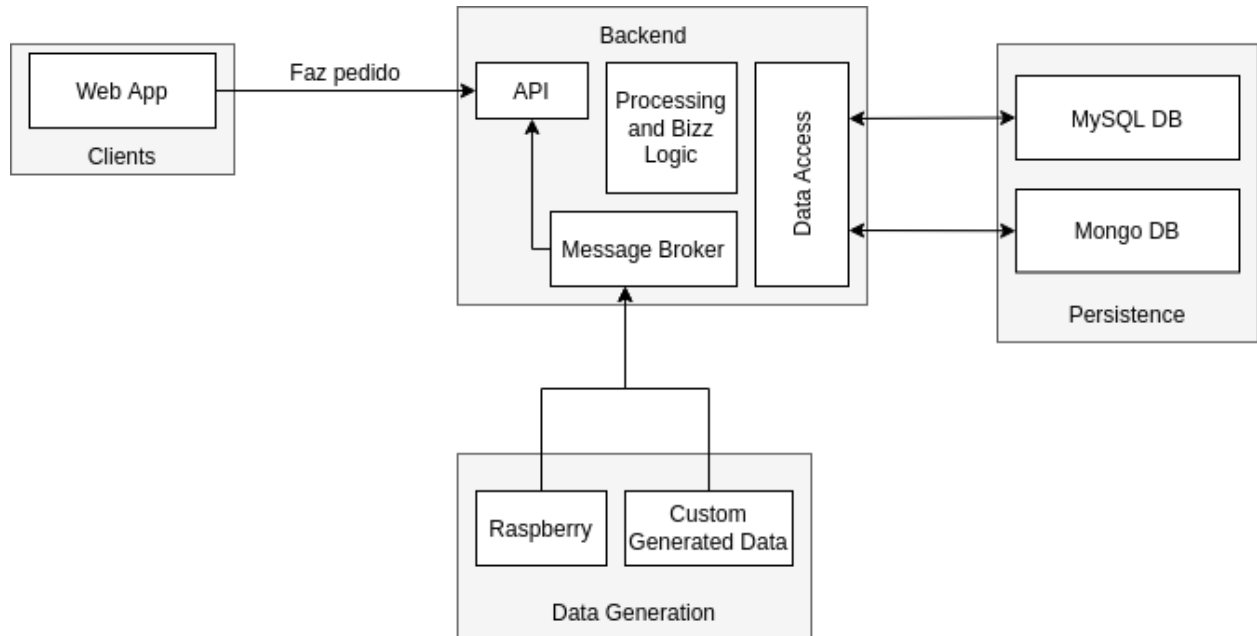
I want to see details about the users

so that I can acquire information about them (such as contact information) if need be

Being done by Tomé (or attempting to be done)

Architect Notebook

Diagram



Structure Elements

- **Web App** → Application that connects with the end-user and allows him to make his necessary operations.
- **Spring Boot** → Java Application responsible for providing the API for the web application. Also, it'll be responsible for the logic operation of the data.
- **Message Broker** → Connects the Generated / Raspberry data to the backend through RabbitMQ.
- **Data Access** → Java Drivers to connect to databases.
- **Raspberry** → Sensor for generating data.
- **Custom Data Generation** → Python script to generate some "random" data.
- **MySQL Database** → Database for operational requests
- **Mongo Database** → Database more specialized in aggregation requests.

Technologies

- Web app → Javascript - ReactJS
- Message Broker → RabbitMQ. PIKA client for Python and AMQP-Client for Java.
- Bizz Logic and API → Java - Spring Boot
- Data generation → Python
- Persistence → MySQL Database for operational requests and Mongo Database for most of the aggregation requests.