SmarTask

Bigger companies, faster scheduling

Team

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00 Index

01 Context and Goals

- Develop a platform that allows

- Test and develop algorithms that generate and optimize

- Employee schedules for a year

- For the best of performance and scalability

02 State of Art - related work

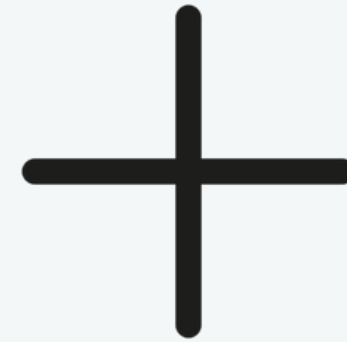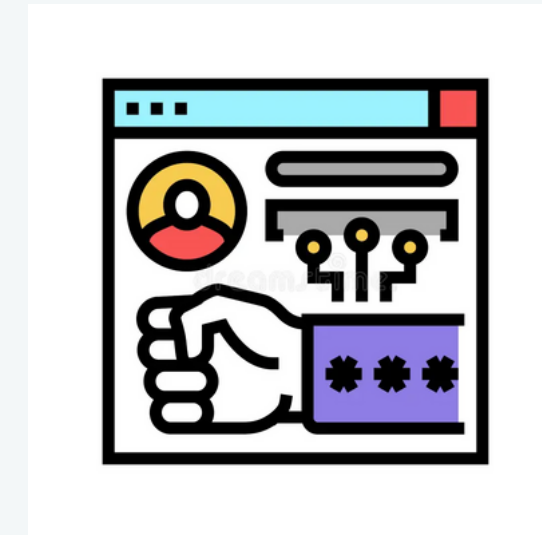|				
deputy	Automates compliance and optimizes labor costs	AI requires fine-tuning, and early schedules may be inaccurate	Complex setup and learning curve for managers.	Provide customized generation
When I Work	Simple interface with easy-to-use templates for scheduling	AI requires fine-tuning, and early schedules may be inaccurate	Doesn't scale well for complex long-term planning	Doesn't provide comparison between generating methods
7SHIFTS	Strong labor law compliance and cost control for restaurants	AI predicts labor needs based on sales and demand patterns	Only suited for restaurants, limiting its flexibility	Doesn't provide comparison between generating methods

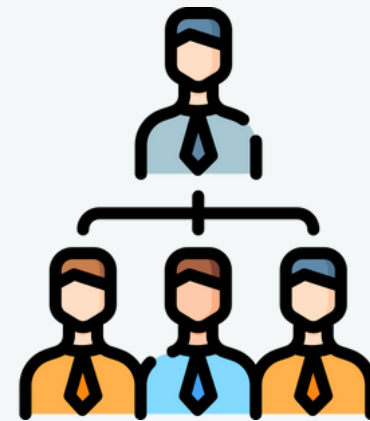# **03** State of Art - company's current solution

30%

70%

+

Partially automated

Brute force

04 Actors

Administrators

Team Managers

05 Use cases

Use Case Model

Use Case Model

Web Application

- ⬭ + Generate schedules ✓
- ⬭ + See generated schedules ✓
- ⬭ + Add/Delete Restrictions
- ⬭ + See calendars in process ✓
- ⬭ + Visualize calendar's history ✓
- ⬭ + Compare different solutions
- ⬭ + Create/Edit Teams
- ⬭ + See employee details ✓

Web Application

- ⬭ + Create new generation algorithms
- ⬭ + Import new algorithms
- ⬭ + Remove existent algorithms

Team Manager

Administrator

Updated Most Relevant Functional Requirements

Request the generation of a new schedule

Optimize generated schedules

Fetch all schedules

Set of algorithms (adapted)

Real-time update of schedules generation process

KPI-based comparison between multiple schedules (adapted)
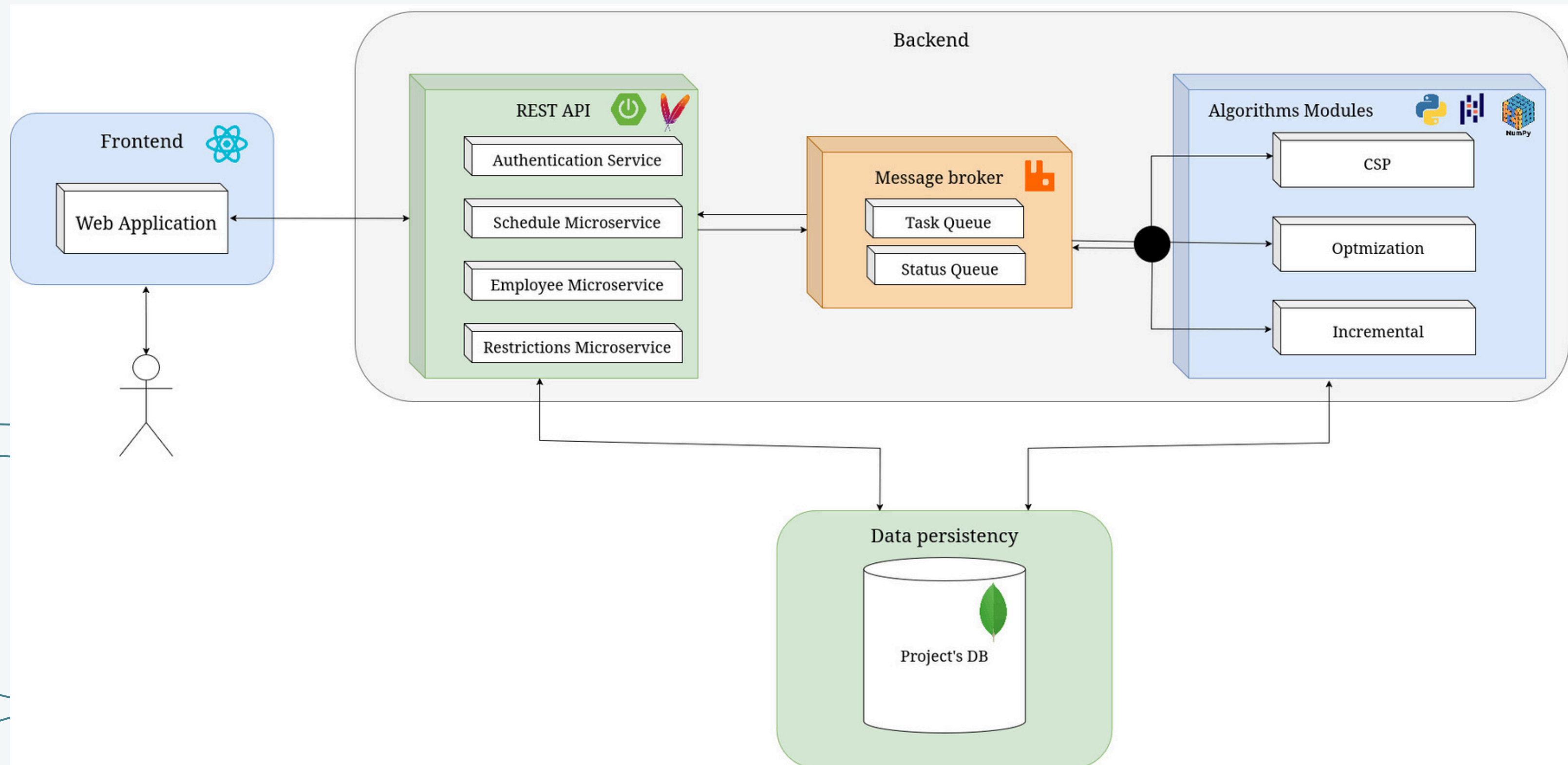
Dynamically management of new methods

07 **Non-Functional Requirements**

Performance and scalability in schedule generation

Availability & Reliability over the schedule generation process

System monitoring and metrics collection

Updated Architecture

09 What is done so far

- Request the production of a new schedule

- Visualize all generated schedules
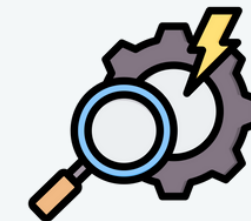
- Real-time update of generating process

Solutions/Algorithms

AI-based solution, final stages of development and testing

Optimization solution, recently started
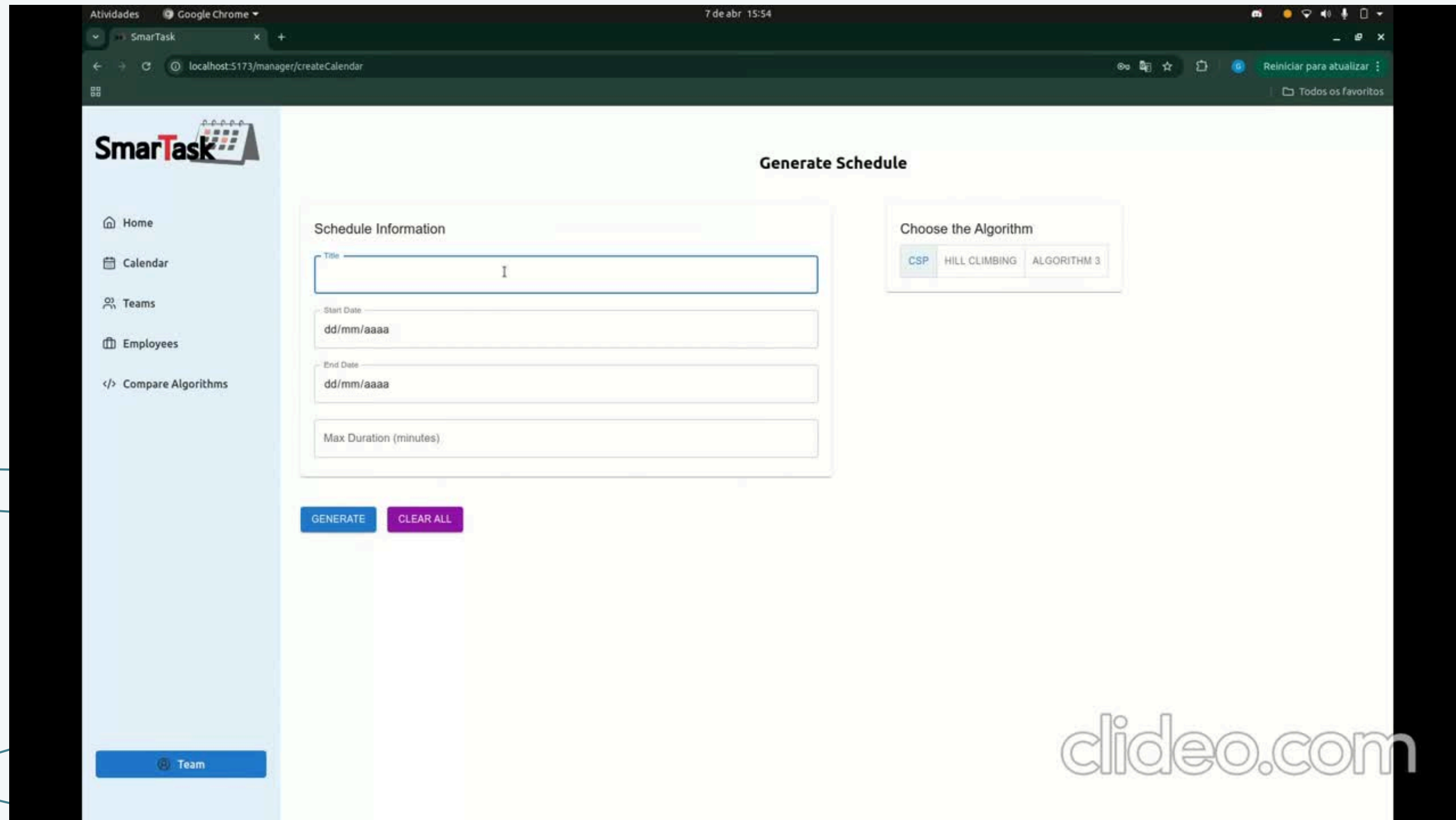
Challenges so far

**Algorithms development pipeline :
Currently CSP & Optimization**

Development

Testing   Validation

Results and performance
**When it comes to evaluation and assurance
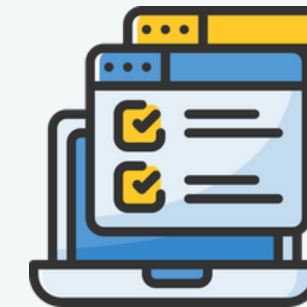of the solutions**

11 DEMO

Future Work 🚀

Feature

- **Optimize generated schedules from previous generated solution**

- **Heuristic-based schedule generation**

- **Vacation templates for base schedules**

Improvement

- **Generating schedule solutions/methods in overall**

- **Graphical interface**

- **KPI-based solutions quality evaluation**

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Thanks!