Evolutionary Shifts

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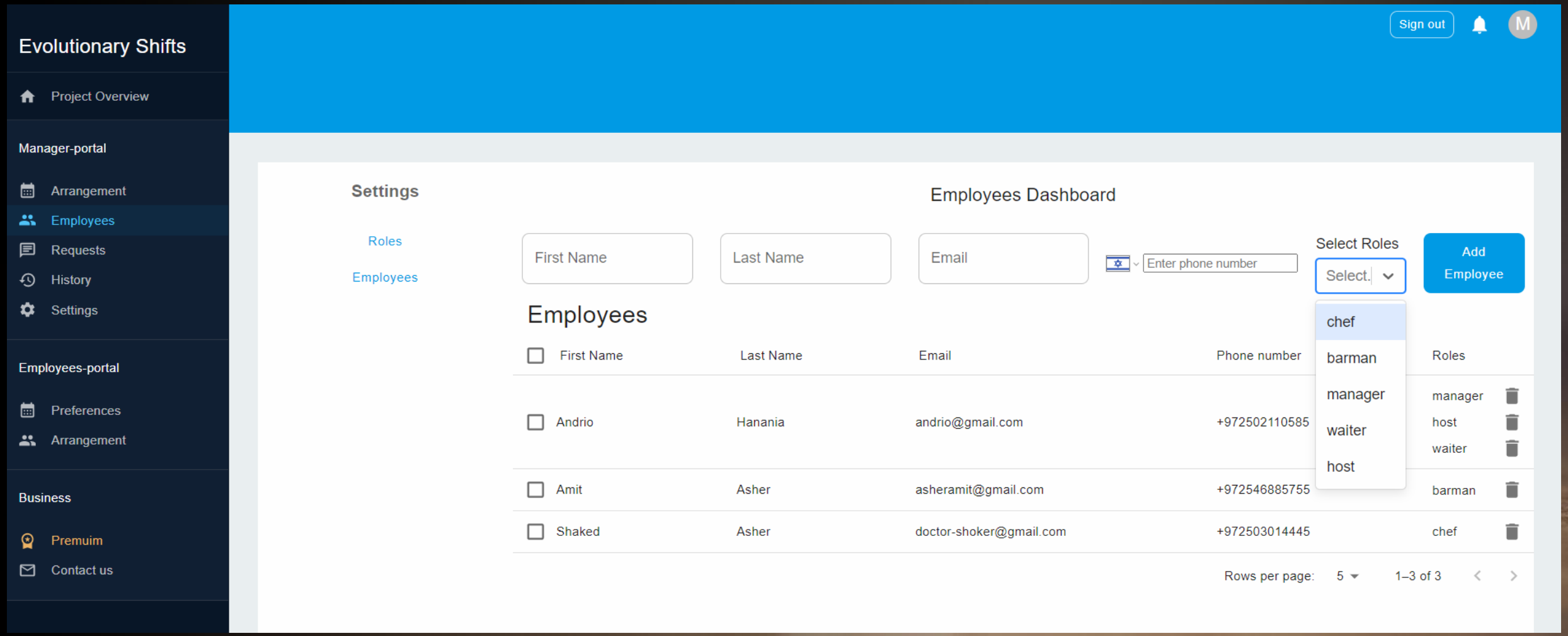
About

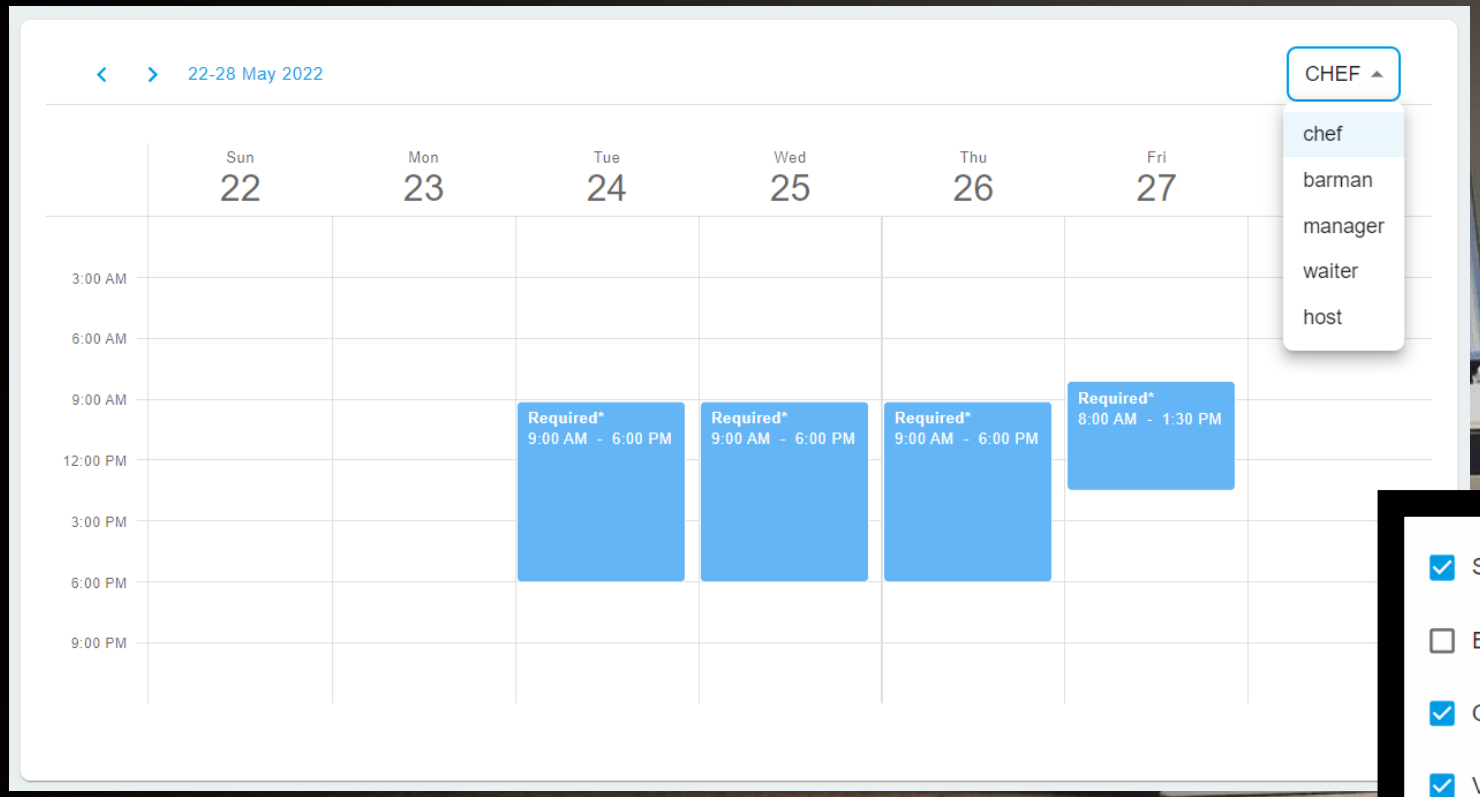
Many businesses such as restaurants, hotels, security companies and hospitals have employees that work in shifts.

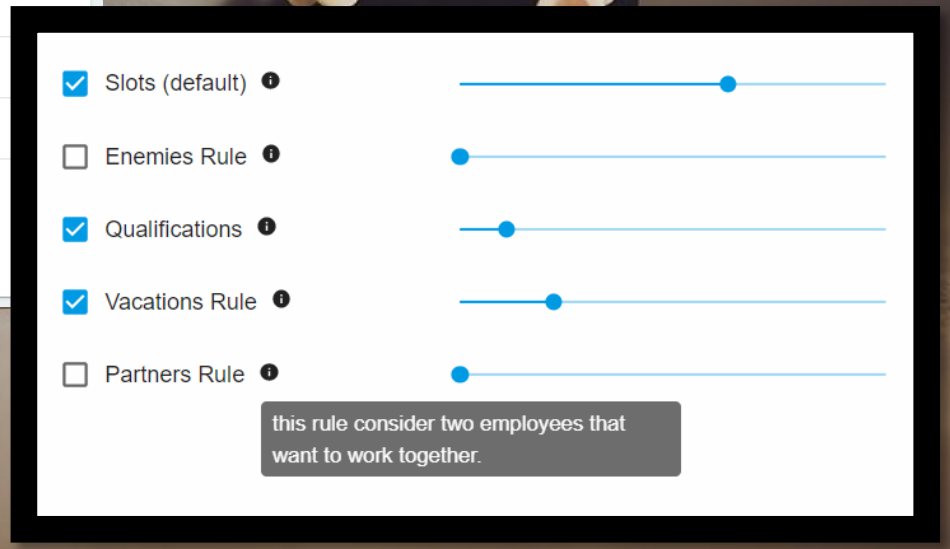
Our project is about scheduling those work shifts automatically for businesses in one generic platform using Evolution algorithms!

1. The manager loads the company details: employees and their qualifications

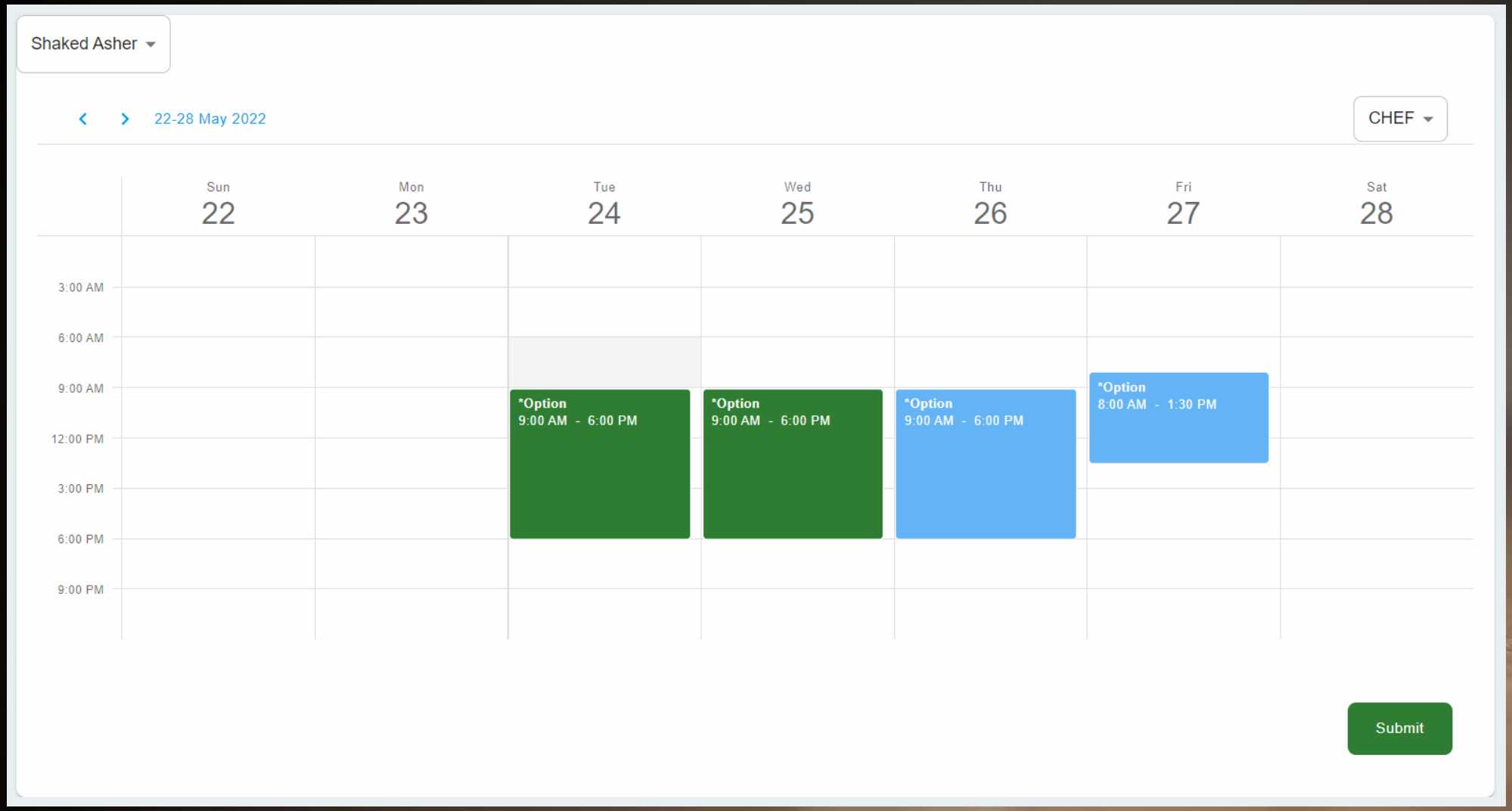


2. The manager defines the properties for the upcoming arrangement:
Slots, participants and additional features.

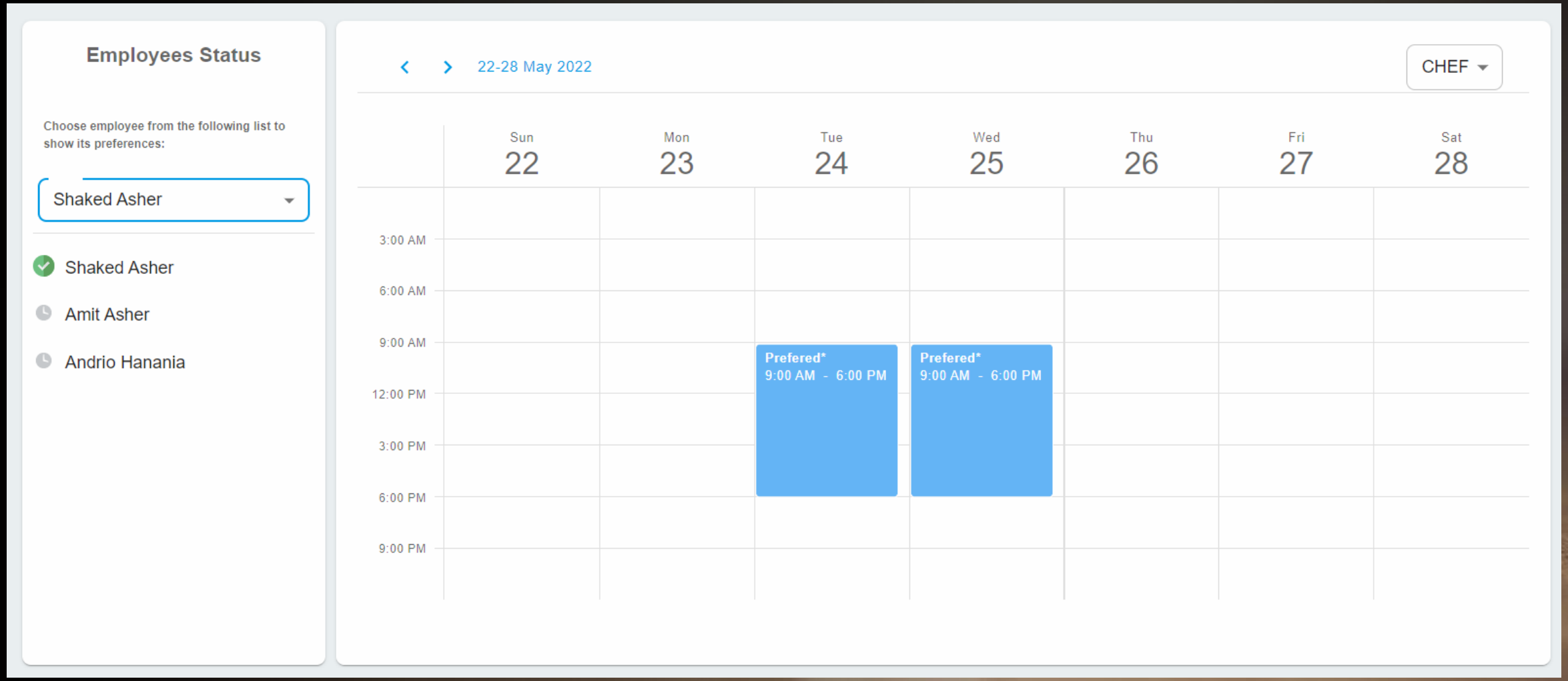




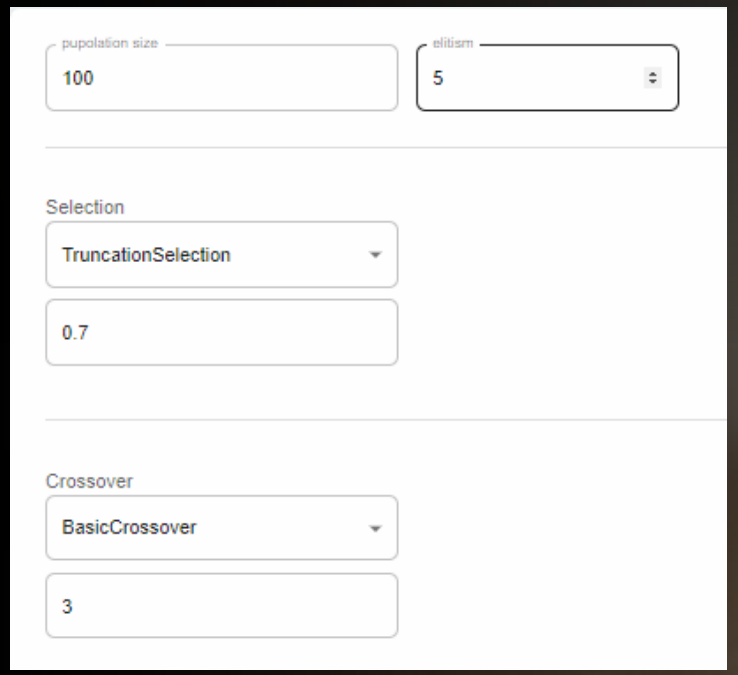
3. Each employee will send its preferences

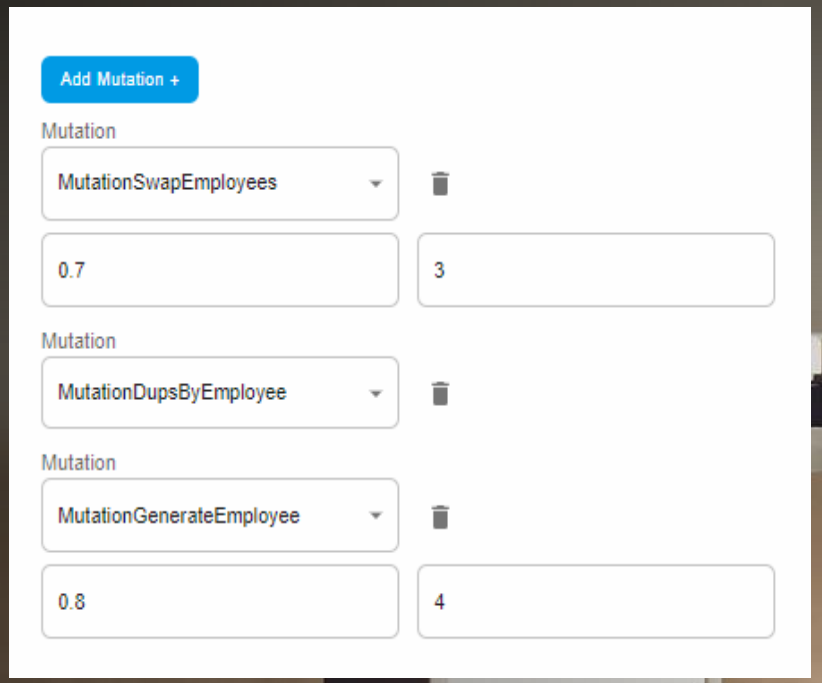


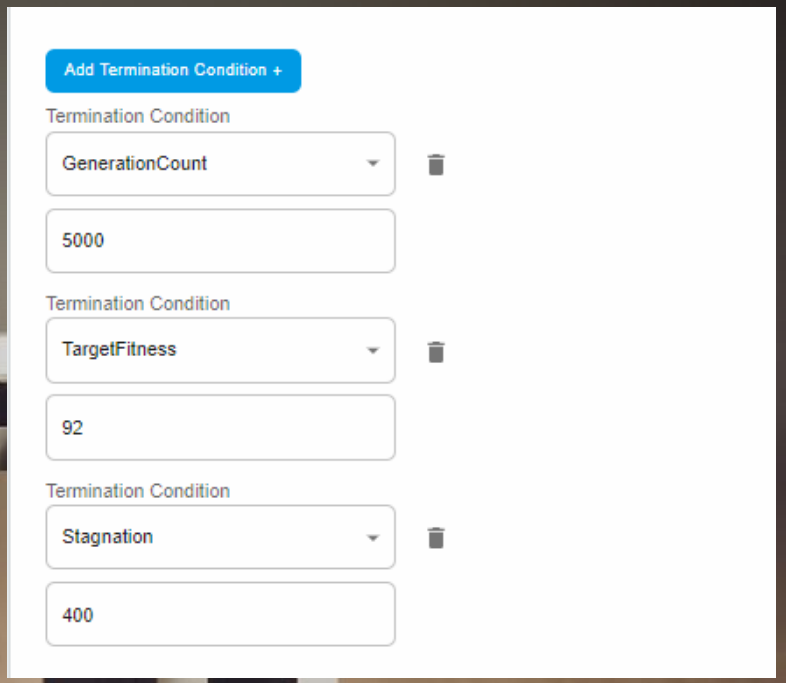
Also, the manager can see the current status of the employee's preferences



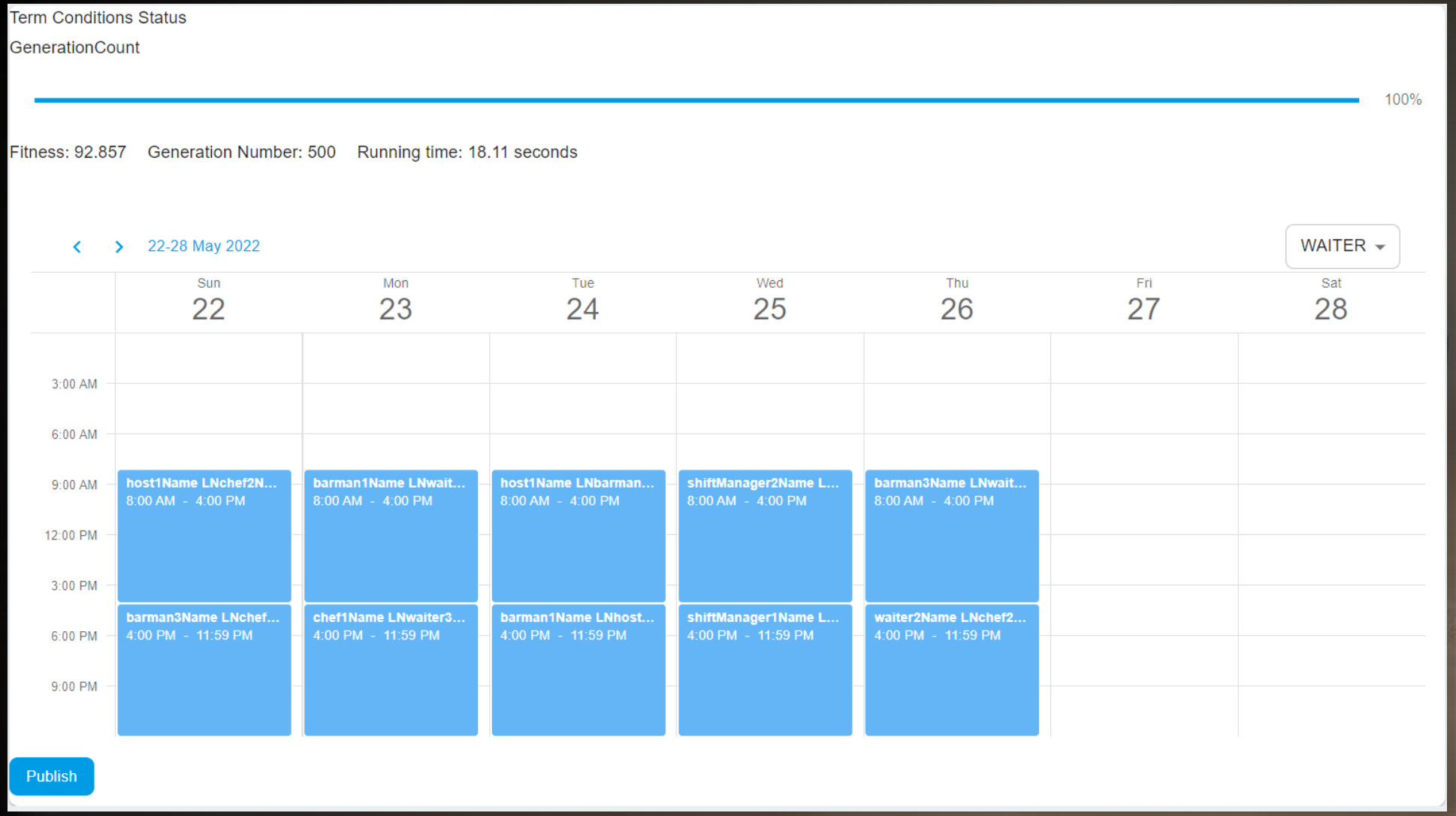
4. The manager will trigger the evolution engine to solve the scheduling problem.







5. Finally, the manager will publish the final arrangement.

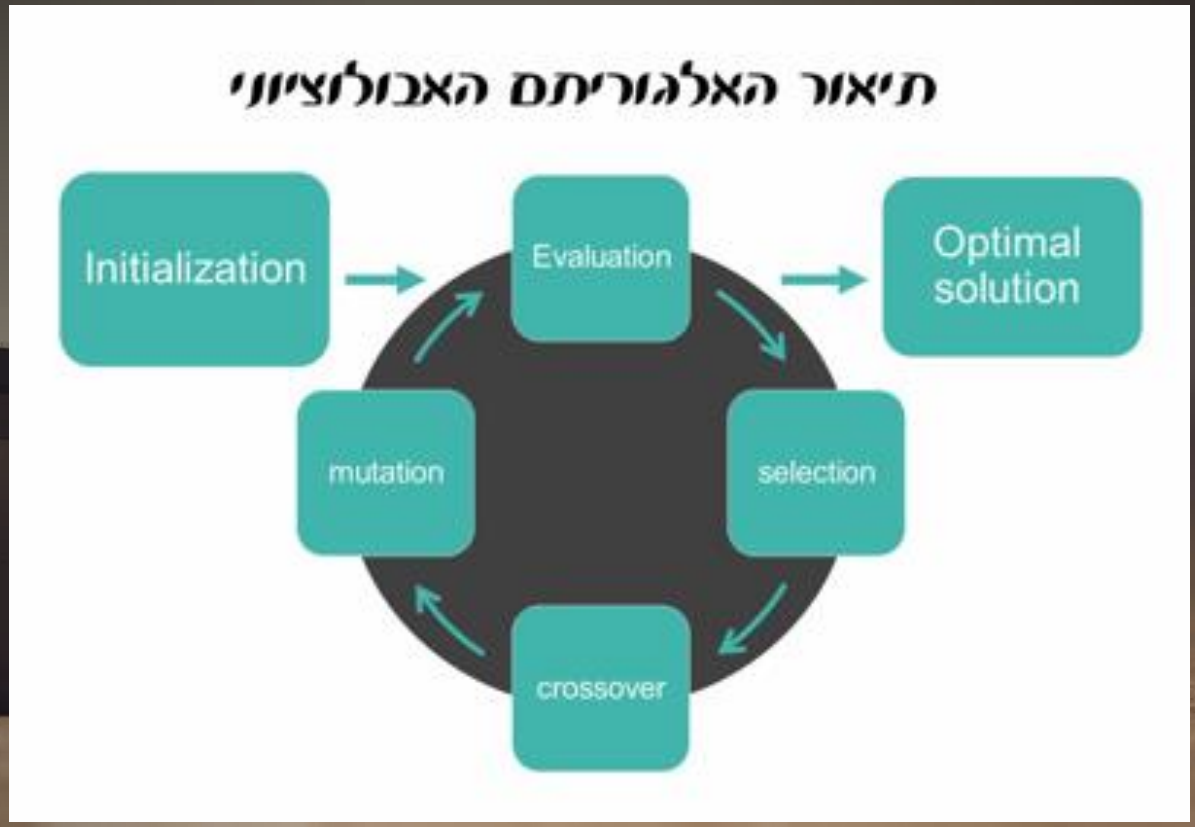


Evolution and shifts scheduling?

Each possible arrangement represents individual solution in the evolution population model.

Every generation (=iteration) the algorithm will produce a finite number of possible arrangements, calculate their fitness and select the best arrangements to survive and continue to the next generation.

When the algorithm finished, the arrangement with the best fitness will return back to the user.



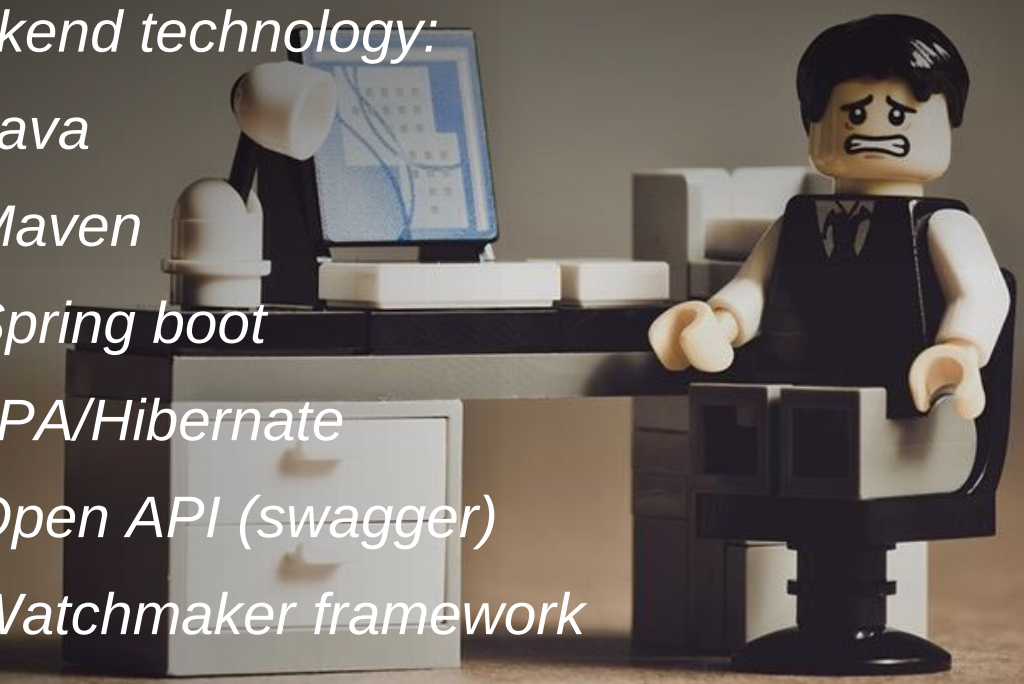
The System Architecture

Frontend technology:

- *React.js*
- *Material UI*
- *Typescript*
- *Mobx (state management)*
- *Swagger codegen*
- *DevExpress*

Backend technology:

- *Java*
- *Maven*
- *Spring boot*
- *JPA/Hibernate*
- *Open API (swagger)*
- *Watchmaker framework*
- *PostgreSQL*
- *JWT*



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So just sit down…
Relax…
And let us shift your business to success!