

iPlanner

A scheduling web platform for
production sites



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Project Number: 221003

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The Problem

- Currently, manufacturing planning in industrial plants is being managed by a human planner, who is 100% dedicated to this task.
- **The planner goal is to maximize production line utility – maximum capacity, minimum “dead time”** (cleaning, set ups, installations etc)
- Other considerations:
 - Forecasts
 - Current stock
 - Available raw materials & packaging materials
 - Available manpower

Problem Dimensions

Day, hour

Product:

- Stock
- Forecast
- Cleaning time
- Priority
- Raw materials (recipe)
- Packaging materials
- HALB ID – semi-finished goods identifier
- SKU – finished goods identifier

Production Line:

- Which product can produce
- Manpower needed (depends on product)
- Setup time
- FFO: fixed costs for line production (takes b, c into account)
- Max/min capacity (depends on product)

Scheduling Rules

Forecast achieved for every product, while considering products priorities

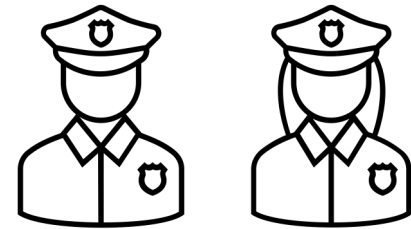
Sufficient manpower

Max product line utilization (less cleaning time, max capacity, etc)

Sufficient raw materials & packaging materials

Max working hours per day not exceeded

One product at a single time slot in one production line



How it works

Scheduling Raw-Data Upload

forecasts, available stock, production lines, raw materials etc.

Algorithm Configuration

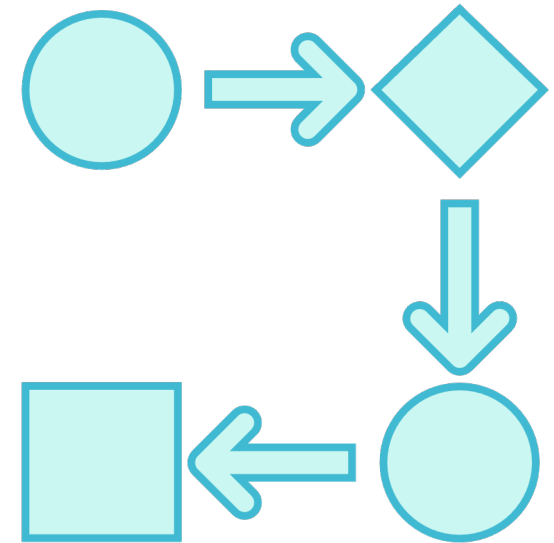
crossover, selection, and mutation methods, probabilities, population size etc.

Algorithm Execution

Algorithm finds an optimized weekly-scheduling-program by using set of constraints

Solution Analysis

line utilization, forecast compliance, manpower usage, raw materials usage etc.



Tech Stack

Backend

Python – DEAP

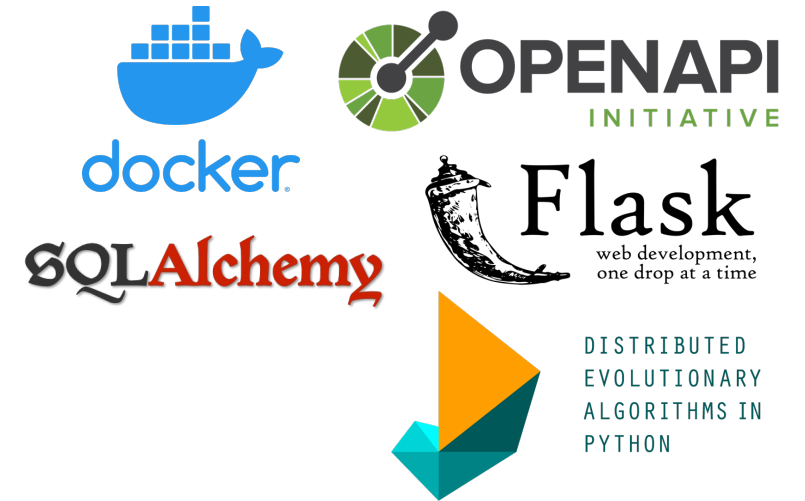
Flask

OpenAPI

SQLite

SQLAlchemy

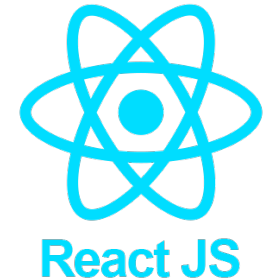
Docker

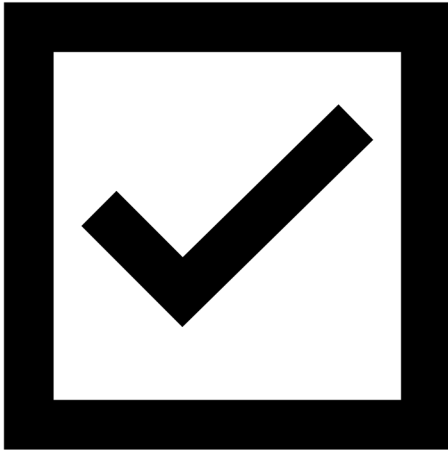


Frontend

React

Ant Design





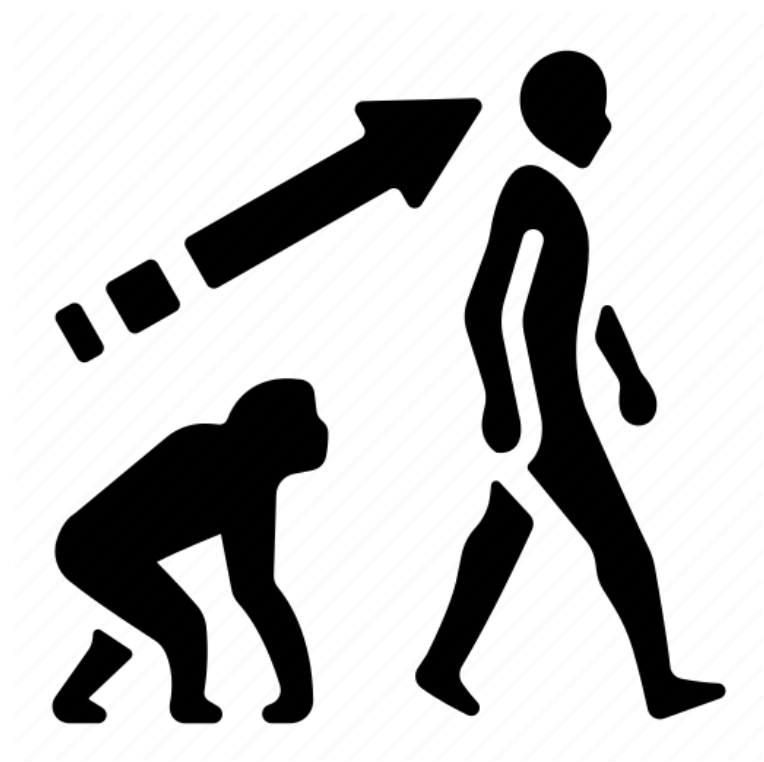
Why iPlanner?

Most plants use human planner who uses several data sources, mainly SAP's MRP and ERP systems while decision making, the process is entirely manual.

Our solution offers an automated tool, which saves human resources, time and enables faster reaction time.

We provide relevant analytics, measuring the quality of the solution according to KPIs.

We provide the option to fine-tune the solution manually.



Thank You