



Introduction

Thank you for applying to AltoTech and we appreciate your interest in joining our team. As part of our interview process, we have prepared a take-home assignment for you to showcase your skills and problem-solving abilities.

You will have a total of 5 days to complete the assignment. We understand that everyone has their preferred programming languages, and therefore, you are free to choose any language(s) you are comfortable with to complete the task.

In case you encounter any uncertainties or ambiguities during the assignment, please feel free to make reasonable assumptions. However, kindly state your assumptions clearly in your submission.

Once you have completed the assignment, please upload the code and any relevant documentation to a GitHub repository. We kindly request you to share the repository with the email addresses sirirat.k@altotech.ai and chanawee@altotech.ai.

Assignment #1

Our solution is the property management system. The first version is designed specifically for hotels. Our core functionality is the work order management. Below is the list of basic features for work orders:

- Work orders can be created by multiple sources.
- Work orders consists of the following field:
 - Work Order Number (Unique field)
 - Created By (User)
 - Assigned To (User)
 - Room
 - Started At
 - Finished At
 - Type (Cleaning, Maid Request, Technician Request, Amenity Request)
 - Status (Created, Assigned, In Progress, Done, Cancel)
- Each work order type have different rules as follows:
 - Cleaning
 - can be created by Maid Supervisor only
 - has its proprietary status (Cancelled by Guest)
 - Maid Request
 - can be created by Maid supervisor only
 - has a free-text "Description" field
 - Technician Request
 - can be created by guest or supervisor
 - has its proprietary types for indicating defect in the room (Electricity, Air Con, Plumbing, Internet)
 - Amenity Request
 - can be created by guest only
 - has its proprietary fields (Amenity Type, Quantity) that will be used for deducting inventory later (inventory system is out of scope for this assignment)

Your assignment is the following:

- Write a Work Order module that has APIs to create and update the data.
- Make sure that your code follows the rule above strictly with a degree of extensibility for future improvement.
- Ensure that your module is tested and bullet-proof to the code changes mistakenly applied.
- Choose the repository (database) as you are convenient with. Only make sure that your database is scalable and data integrity is also a major concern for this system.

Assignment #2 (Optional)

Your assignment is to design the software architecture for the Work Order module that can be scaled for future business growth. The work order module will also be extended for future use in the other business context of property management, such as predefined work orders for regular electricity maintenance.

In the next 2 years, there will be around 1000 hotels, more than 30000 active users and more than million transactions of work order per day.

You can choose the architecture to be cloud based, on premise, hybrid, or any other options as you see fit. Clearly state your reasons in the submission.

The work order data will be later used for an analytical module which will generate data for presentation in the dashboard for management purposes. Make sure that your architecture supports this requirement for future enhancements.