

Position: **Full Stack Engineer**

Background

This is the part where we want to get to know you better. Since our team builds and develops products on a daily basis, we want to make sure our products work properly. In ListenField. One of our main products is the Farm management system. In this test task, you will be in charge of building one service in the farm management system.

System Design

Once upon a time, there was a group of people called, ListenField. They want to help the agriculture industry by creating a farm management system to manage and track productivity. After discussing with senior farmers. Here are the summary of requirements

- Farm will contain
 - Farm owner → 1 person per farm
 - Farm workers → N person per farm
 - Tractor → any arbitrary number
 - Cropzone → any arbitrary number
- In every 4 months, Farmer owner will decide to plant one of 4 crops (cassava, sugarcane, corn and rice) to their cropzone. For the sake of simplicity, the harvesting period will be 4 months for all crops
- In the planting period, there are 4 activities
 - Soil preparation
 - Sowing
 - Fertilizing
 - Harvesting
- We have to record the details of each activity (who/what/where to do the activity). Do we use any tractor? If so, how much do we spend for each activity? In order to estimate the productivity.



- Price and equipments for each activity
 - Soil preparation : 10 baht/sq.m + Tractor
 - Sowing : 20 baht/sq.m
 - Fertilizing : 30 baht/sq.m
 - Harvesting : 100 baht/sq.m + Tractor
- All activity can be done within 1 day

Please design the system architecture to serve all business requirements above

1. Draw system diagram for above system (it can be any stack / cloud / services)
2. Draw class diagram to show data structure

* Please design to make flexible system as much as possible

Coding

After gathering all requirements, we have to implement the MVP product which have these functionalities

- Create farm owner account
 - farm owner has to login before using the system
 - farm owner can create his/her farm
 - add/delete/edit workers in farm
 - add/delete/edit tractors in farm
 - add/delete/edit crop zone in farm
 - add activity log in crop zone
 - summarize all income/expense in each time period
1. You have to implement this system in JS/TS language. It can be Restful or GraphQL (GraphQL is preferable)
 2. Please store your code in any Git repository including all instructions and send the link back to us via email :)

