The task – Online construction equipment rental

We want to create a self-service system for renting construction equipment.
This rental site has potential to become a multinational and multilingual platform with hundreds of thousands of users, so the system must be ready to accommodate growth and be scalable.

Use cases

A customer must be able to:
• See the list of equipment
• For individual machines, enter the number of days for how long he wishes to rent it, and click “Add to Cart”
• Get an invoice

Inventory

There are three types of equipment available:
• Heavy equipment
• Regular equipment
• Specialized equipment
Example:

Name	**Type**
Caterpillar bulldozer	Heavy
KamAZ truck	Regular
Komatsu crane	Heavy
Volvo steamroller	Regular
Bosch jackhammer	Specialized

Inventory can be static and stored in any convenient way (simple file is OK).

Price calculation

The price of rentals is based on equipment type and rental length.

There are three different fees:

• One-time rental fee – 100€

• Premium daily fee – 60€/day

• Regular daily fee – 40€/day

The price calculation for different types of equipment is:

• Heavy – rental price is one-time rental fee plus premium fee for each day rented.

• Regular – rental price is one-time rental fee plus premium fee for the first 2 days each plus regular fee for the number of days over 2.

• Specialized – rental price is premium fee for the first 3 days each plus regular fee times the number of days over 3.

Loyalty points

Customers get loyalty points when renting equipment. A heavy machine gives 2 points and other types give one point per rental (regardless of the time rented).

Other considerations

Do not worry about user management for the time being. Assuming a single user is fine for demonstration purposes.

The implementation

• Solution must be implemented as a two-tier system: a web front-end, and a separate backend service handling the business logic.