ITS-Football Stadium – Solution for a ticket shop

We are a 1st league Football club and own a 32000 all-seater stadium. This season, we are qualified (for the first time in our long history) for the UEFA champions league. Therefore we want to establish an extensible server centric solution for a ticket shop system.

Task:
Create and provide a server centric ticket shop system which provides following features:
- ⑩ Customers should be able to buy tickets (max. 4 per person)
- ⑩ Owner of season cards should be able to reserve tickets (max. 4 per person)
- ⑩ It should be possible to cancel reserved tickets.
- ⑩ It should be possible to pay in cash (only at a stall) or with credit card.

Each client works individual and interacts with the server. Each client will
- ⑩ ask the server for free places in a sector
- ⑩ notifies the server if a ticket/place is sold
- ⑩ notifies the server if a ticket/place is reserved
- ⑩ notifies the server if a reserved ticket/place is canceled
- ⑩ ask the server for billing information

So the server will have to provide following information:
- ⑩ status information about free and occupied(sold or reserved) places
- ⑩ billing information
- ⑩ statistics about the utilization for a given period (eg. game, season, winter season, spring season, champions league games etc...)

Products
Our stadium is divided into 8 sections (see map) and 4 different price categories.
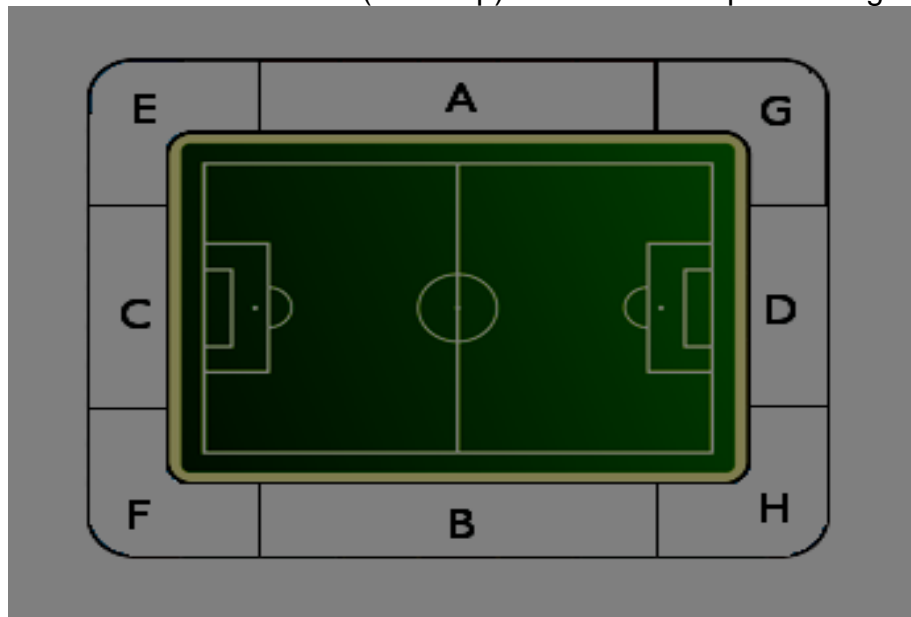
The different sectors has following capacity:
sector A: 8000, sector B: 8000, sector C: 4000, sector D: 4000,   sector E: 2000, sector F:

2000, sector G: 2000, sector H: 2000

Following price categories exists:

Price category	Sectors	Price
Category 1	A, B	****
Category 2	D	***
Category 3	E, F, G, H	**
Category 3	C (Fan sector)	*

Regular Ticket:
This is just a normal ticket for one game.

Season Ticket:
This is a ticket for a whole season. Owners of season card can also reserve normal tickets.

Champions league Ticket:
This is a ticket for games of the UEFA champions league. Owners of a season card has the right for first refusal.

Fan Ticket:
This is ticket for the fan sector and is cheaper as tickets for other sectors. This ticket is only available for members of the FC ITS-Fanclub.

Customers
We divide between different types of customers.

Regular customer:
This is a regular customer which has to pay the regular price for each sector.

Reduced price customer:
These are customers which has to pay just the half price for each sector. These customers are Children (<16) and handicapped persons.

FC ITS-Fanclub members:
Members of the FC ITS-Fanclub are entitled to buy tickets for the fansector C.

Overall objective
Analyze the system which has to be created. Design and implement a simple ticket shop system which allows executing the following tasks:
- ⑩ Create the stadium with all seats
- ⑩ Create customers
- ⑩ Assign seats to customers
- ⑩ Compute billing for customers
- ⑩ Consider different usages of the central server (sell tickets, management, etc..)

Constraints & rules for Stadium Ticketing system

- ⑩ Each sector has a given number of seats
- ⑩ Each sold seat has to be tracked with a customerID and a timestamp
- ⑩ Only fan club members are allowed to buy tickets for sector C
- ⑩ …

To be continued by you …..

Expected Results

Create a Ticketing System along with a standalone client which denotes the turnstile and uses the remote web service to verify that the ticket is valid.

The server application must allow the management of the stadium (sectors, seats) and also the management of seasons and matches. The latter are required to sell/reserve tickets. The turnstile app is to be seen as a touchless device which is capable of reading an identifying ticket id (or the like) from the passing customer.