Tallinna Tehnikaülikool

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Web-based ticket swapping platform

Course work in Web applications with C#

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Introduction

The aftermarket ticket sale has always been problematic for people to participate in. Most of the deals are done on an *ad-hoc* basis in Facebook groups or similar social media sites leading to inefficient search functionality and increased chance of falling victim to a scammer not to mention the other issues like finding the right group. My project intends to solve this by offering an unified platform for people to quickly and comfortably post their tickets for sale, search for available tickets to buy, filter them by category and also make posts about tickets they want to buy.

Analysis

The aim of the platform is to act as an intermediary between the suppliers and the consumers which means that the buyers and sellers themselves will have to organise the deal via a messaging system provided by the platform. The platform does not support an auction style system, but rather that the price is fixed by the seller and may be negotiated via messages.

It is not unthinkable to also add tiered user levels to the systems so the “premium” users will be able to access extra functionality like notifications about new tickets for events and more, but for now this is out of the scope of this work.

General flows

Flow of the application from the buyers perspective:

1) Home screen will show all of the recently added tickets, showing quickly the most important data
2) In the same window, search box is there alongside toggleable checkboxes which filter out the data
3) When buyer finds a ticket to buy, clicking on it will lead to other screen with more data about the ticket alongside the “message seller” button
4) When navigated to the message seller button, a chat interface is opened. Buyer and seller can now talk with each other
5) Alternatively, the buyer can add a post about the ticket they want to buy, this opens up a form with the following fields:
    a) The event they want the ticket to
    b) Optionally the time on which the event is happening
    c) Optionally the exact seats
    d) Amount of tickets the user wants to buy

Flow of the application from the sellers perspective:

1) Seller can navigate to ticket add form from the home screen
2) The form will contain several fields:
    a) Event the ticket is for
    b) The time the event is starting
    c) The exact seats, if the event has designated seats
    d) The amount of tickets the user wants to sell
    e) File upload menu to which user can upload one or many tickets in either image or pdf form.
3) When the deal has been made, the seller can click the “reveal ticket” button and the uploaded ticket will be shown to the buyer.

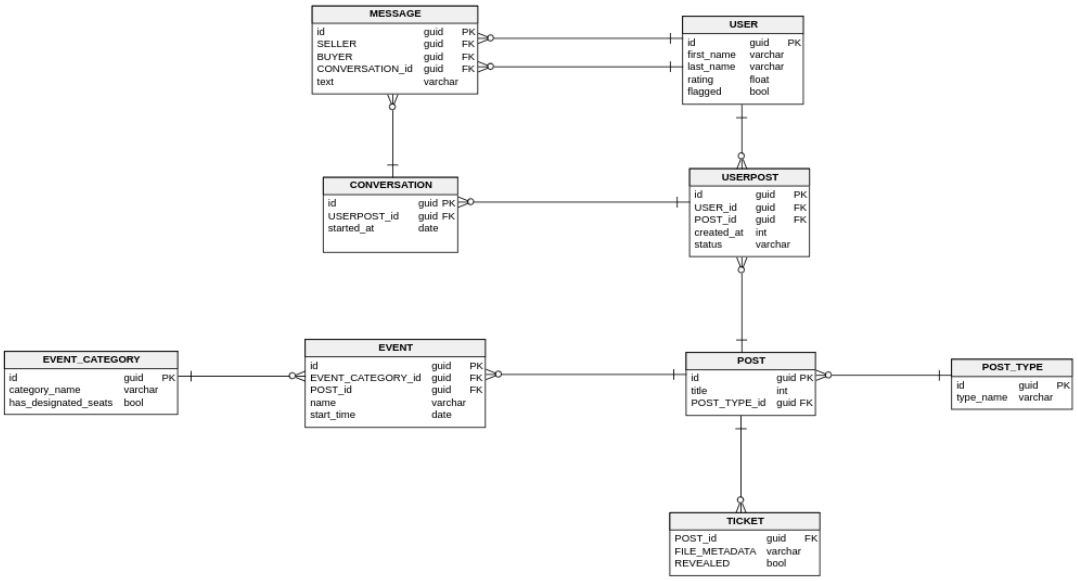
Dealing with malicious actors

As the application is user-input heavy, extreme caution must be taken to ensure that malicious actors will not enter bad input to the system. Not only that, but I must also have some sort of a mechanism to stop scammers from operating on the platform. The current approach will ensure that each user has a rating. For example, users with 5 (number prone to change in the future) or more bad ratings will be unable to post more selling listings to the platform.

The application will also include a rate-limiting mechanism to stop automated accounts from quickly spamming out posts.

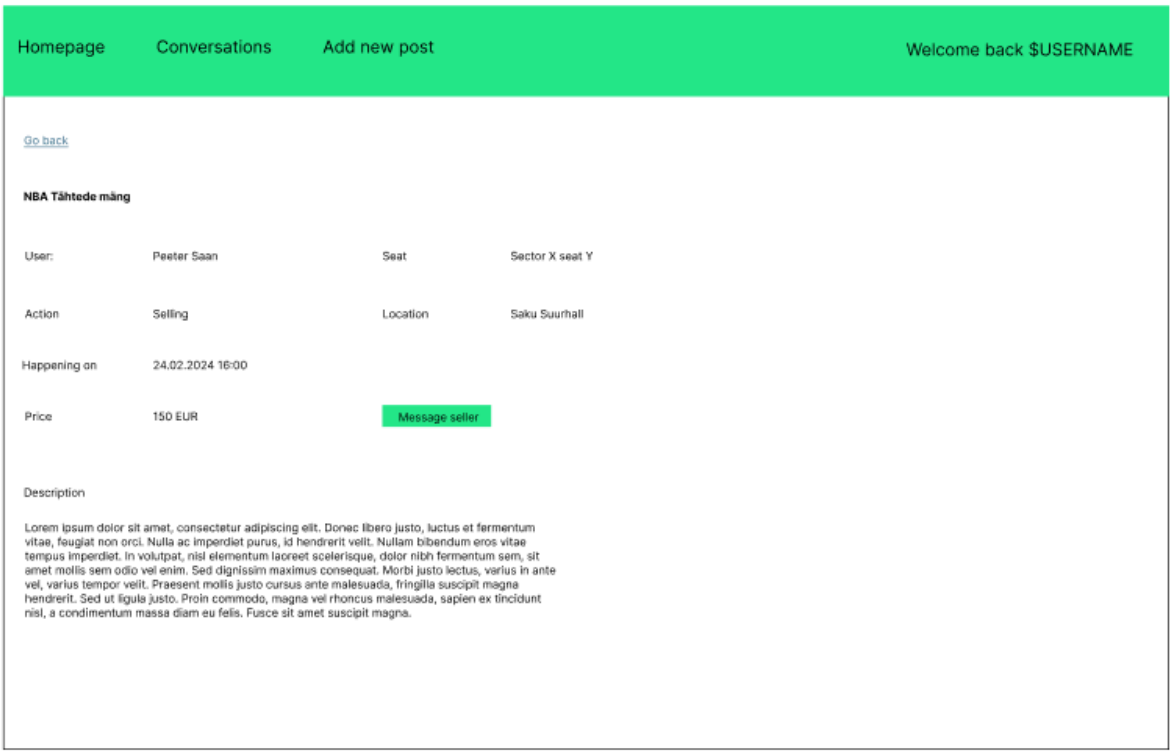
I also have an idea to make it mandatory to base accounts on Estonian ID-card, which will make it nearly impossible to spam the site with automated accounts, as each account is linked to real identity, furthermore this approach will discourage scammers from operating, as mentioned before, the user's identity is unmistakably known. However this measure is out of scope for this project right now so I will not implement it yet.

ERD schema


MESSAGE
id guid PK
SELLER guid FK
BUYER guid FK
CONVERSATION_id guid FK
text varchar
USER
id guid PK
first_name varchar
last_name varchar
rating float
flagged bool
CONVERSATION
id guid PK
USERPOST_id guid FK
started_at date
USERPOST
id guid PK
USER_id guid FK
POST_id guid FK
created_at int
status varchar
EVENT_CATEGORY
id guid PK
category_name varchar
has_designated_seats bool
EVENT
id guid PK
EVENT_CATEGORY_id guid FK
POST_id guid FK
name varchar
start_time date
POST
id guid PK
title int
POST_TYPE_id guid FK
POST_TYPE
id guid PK
type_name varchar
TICKET
POST_id guid FK
FILE_METADATA varchar
REVEALED bool

UI sketches

Homepage
Conversations
Add new post
Welcome back $USERNAME
Recently added:
User
Action
Event
When
Peeter Saan
Selling
NBA tähtede mäng
24.02.2024 16:00
Aivar Kelk
Selling
Bussipilet Tartu-Tallinn
25.02.2024 12:30
Jaan Kask
Buying
Metallica kontsert
26.02.2024 19:00


Homepage
Conversations
Add new post
Welcome back $USERNAME
Go back
NBA Tähtede mäng
User:
Peeter Saan
Seat
Sector X seat Y
Action
Selling
Location
Saku Suurhall
Happening on
24.02.2024 16:00
Price
150 EUR
Message seller
Description
Lorem ipsum dolor sit amet, consectetur adipiscing elit. Donec libero justo, luctus et fermentum vitae, feugiat non orci. Nulla ac imperdiet purus, id hendrerit velit. Nullam bibendum eros vitae tempus imperdiet. In volutpat, nisl elementum laoreet scelerisque, dolor nibh fermentum sem, sit amet mollis sem odio vel enim. Sed dignissim maximus consequat. Morbi justo lectus, varius in ante vel, varius tempor velit. Praesent mollis justo cursus ante malesuada, fringilla suscipit magna hendrerit. Sed ut ligula justo. Proin commodo, magna vel rhoncus malesuada, sapien ex tincidunt nisl, a condimentum massa diam eu felis. Fusce sit amet suscipit magna.

Homepage Conversations Add new post Welcome back $USERNAME

Is this available?

Yes

Write your message here Send

Homepage Conversations Add new post Welcome back $USERNAME

I want to:

Sell a ticket

Buy a ticket

Homepage Conversations Add new post Welcome back $USERNAME

Add a ticket for sale

Enter event name:

Enter event time:

Enter your seats:

Enter the amount of tickets:

Upload the tickets:

Submit

Homepage Conversations Add new post Welcome back $USERNAME

Add a purchasing post

Enter event name:

Enter your preferred time (optional):

Enter the preferred seat number (optional):

Enter the amount of tickets:

Submit

Final notes

Currently there exists only one solution of this problem in Estonia, but from 2024 analysis, that project appears to be inactive. Furthermore my project seems to be larger in scope and addresses several more aspects like buyers being able to make their own posts and more.