CS 319

MeetBilkent

Use Case Report

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1. Non-functional Requirements

Performance Requirements

- Response Time: Each page in the system should load within 1 second to ensure that users can quickly and easily access their profiles, tours, and other information.
- Form Submission Time: Sending tour requests or profile updates should be completed within 5 seconds.
- Filtering and Sorting Time: Sorting and filtering tour lists, guide assignments, or profiles should occur within 1 second.
- Search Time: Retrieving and displaying search results for tours, users, or guides should be completed within 2 seconds.
- Notification Delivery Time: Notifications (e.g., tour assignments or approvals) should be delivered to users within 0.1 seconds.
- Delete Action Time: User requests to delete profiles or cancel tour applications should be processed within 1 second.

Availability and Reliability

- Uptime: The system must maintain 99.5% uptime, ensuring the platform is accessible for users at nearly all times, especially during peak periods of tour request submissions or fair events.
- Data Recovery: In case of accidental deletion or system failure, the system should restore data within 24 hours using a daily backup system.

Security

- Authentication: Users must log in using verified credentials (e.g., university email addresses for Advisors/Coordinators) to access core features of the system.
- Data Encryption: All data exchanged between users, including personal and tour information, should be encrypted to ensure privacy and security.

Usability

- Interface Design: The user interface should be intuitive, with a clean layout and identifiable icons for navigating through profiles, tour requests, and applications.
- Search Functionality: Users should be able to find specific tours, profiles, or guides quickly, with search results displayed within 2 seconds of entering their criteria.

Scalability

- User Growth: The system must support up to 10,000 concurrent users without experiencing performance degradation.
- Content Volume: The system should efficiently manage over 1,000 tour requests and profiles, ensuring smooth performance as the number of users grows.

Legal and Compliance

- Data Privacy: A clear privacy policy should ensure no data is collected or shared without user consent, in compliance with regulations like GDPR.
- Content Moderation: The platform should offer reporting mechanisms for inappropriate behavior or content, with actions such as account suspension automatically triggered based on report thresholds.

Maintainability and Support

- Updates: The platform should allow seamless updates, with new features or bug fixes deployable within 48 hours of release.
- Support System: Users should receive responses to support requests within 24 hours through a ticketing system.

Compatibility

- Cross-Platform: The system must function seamlessly across various browsers and devices, including desktop and mobile platforms, to ensure a broad reach and accessibility.

2. Tech Stack

Backend: Fast API

We choose FastAPI because it's fast, easy to use, and modern. It supports asynchronous programming, which helps handle many requests efficiently. It also automatically generates API documentation and uses Python's type hints for better code quality. FastAPI is lightweight, works well with other Python tools, and offers great performance.

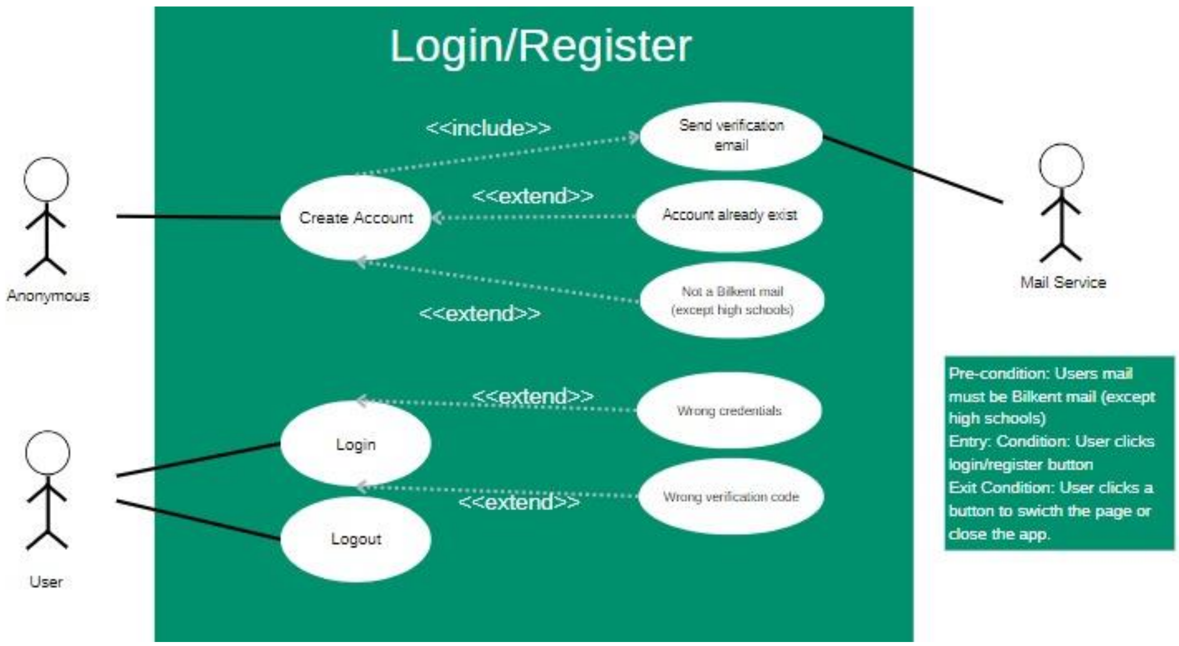
Frontend: React

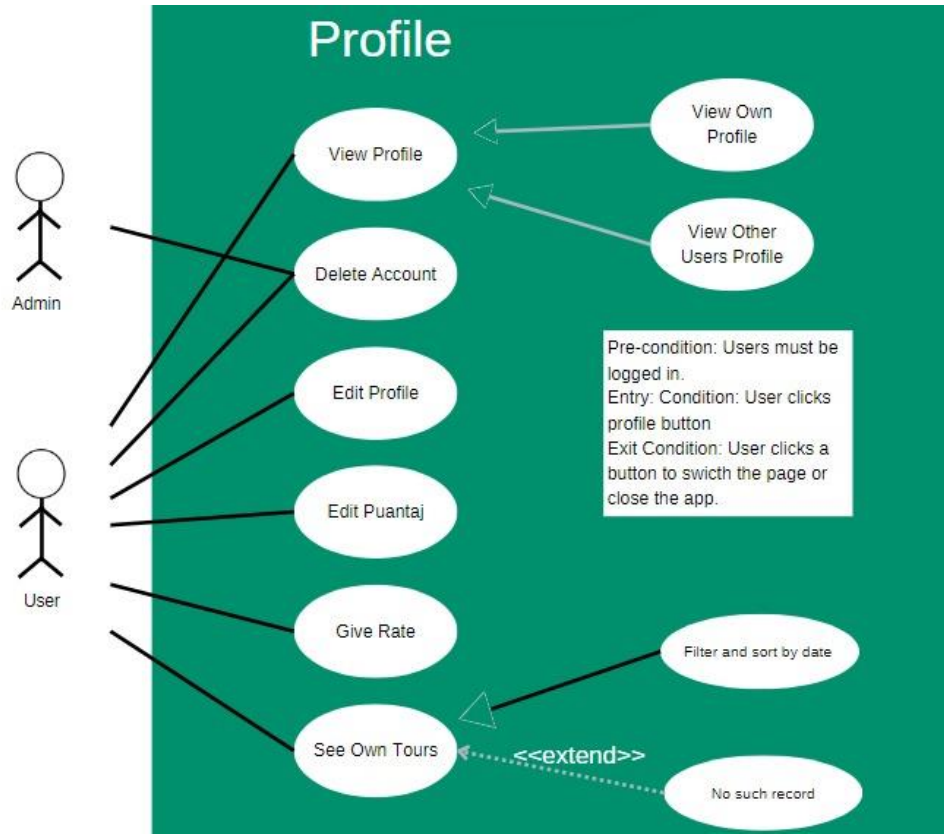
Because of its component-based architecture, React is reusable and modular. Due to this, scaling and maintaining the frontend code is simple. For this reason, we decided to use React for our project's frontend.

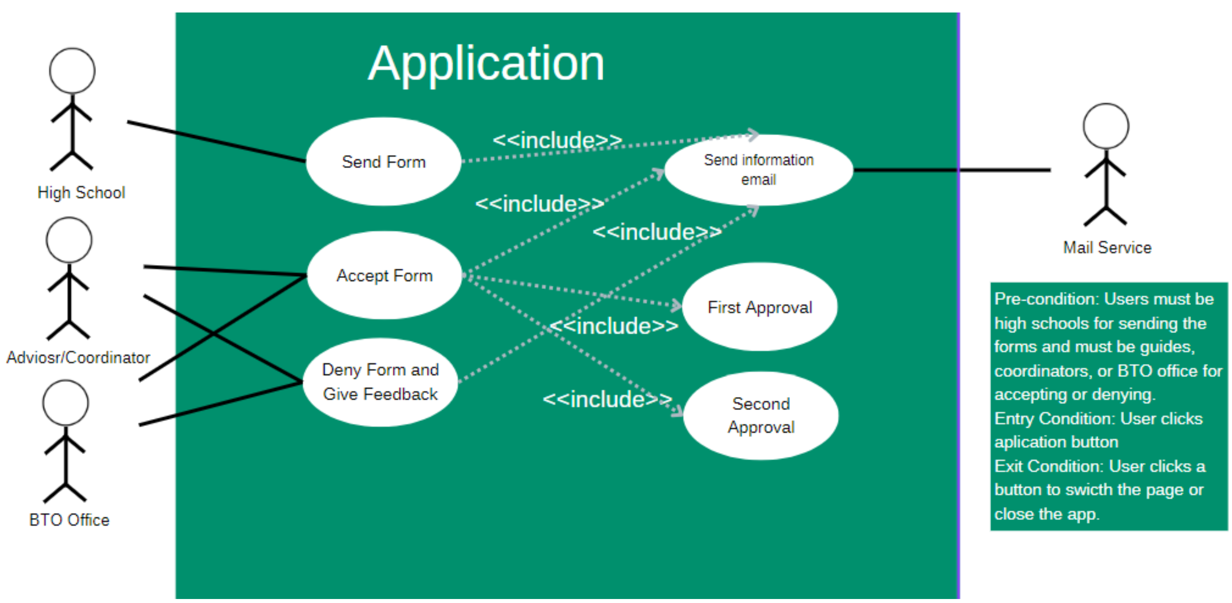
Database: PostgreSQL

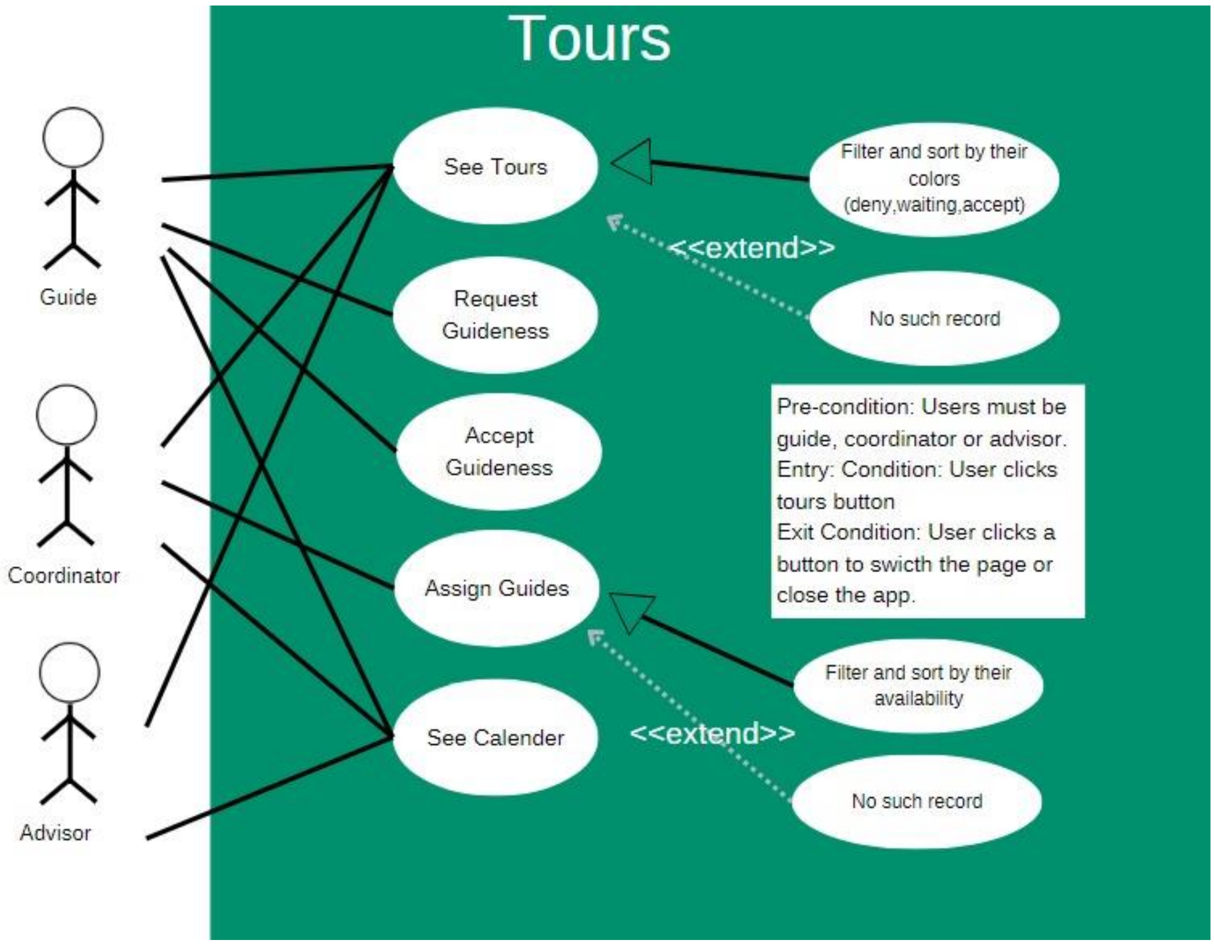
PostgreSQL is built to support several simultaneous tasks. and massive volumes of data. As your data increases, it offers capabilities like partitioning and indexing, which improve performance. We selected PostgreSQL as our database because of these features.

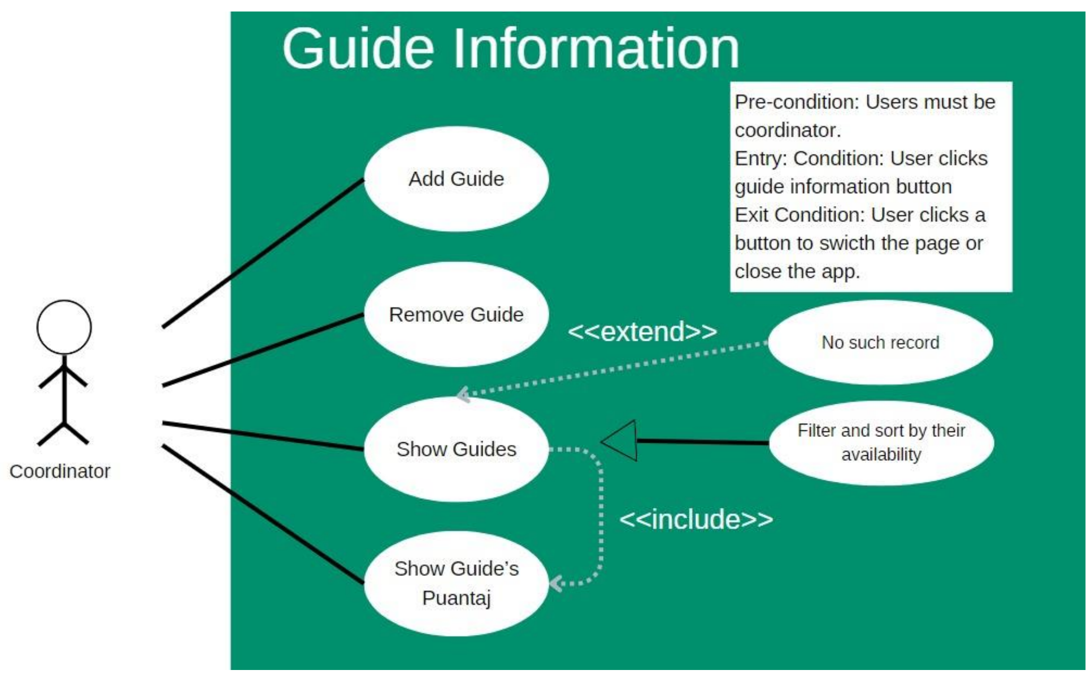
3. Use Case Diagrams

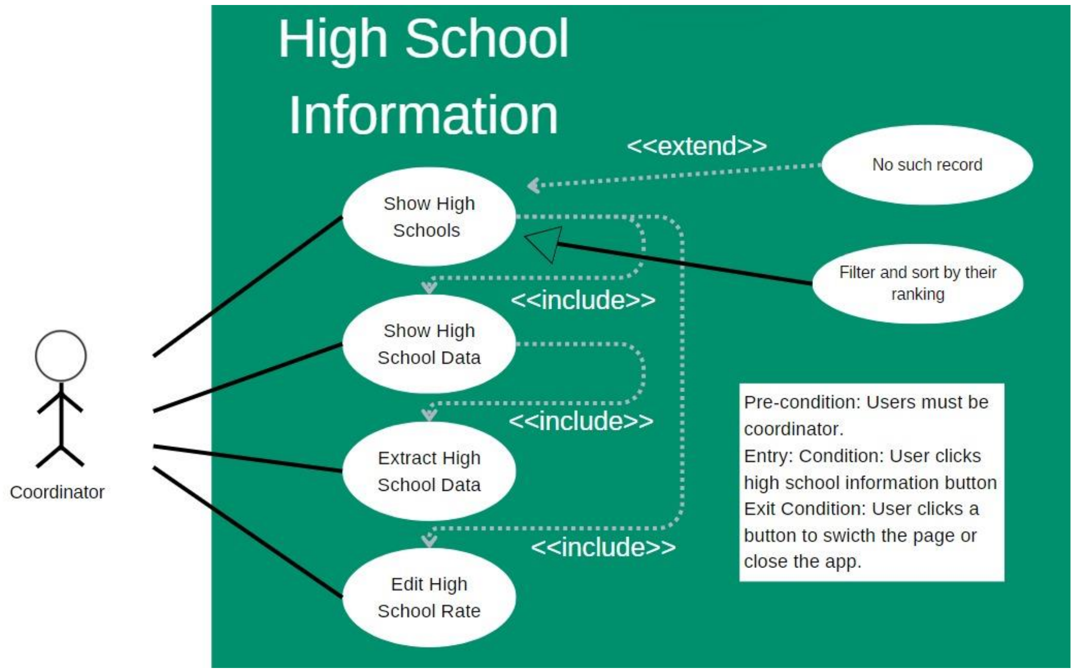


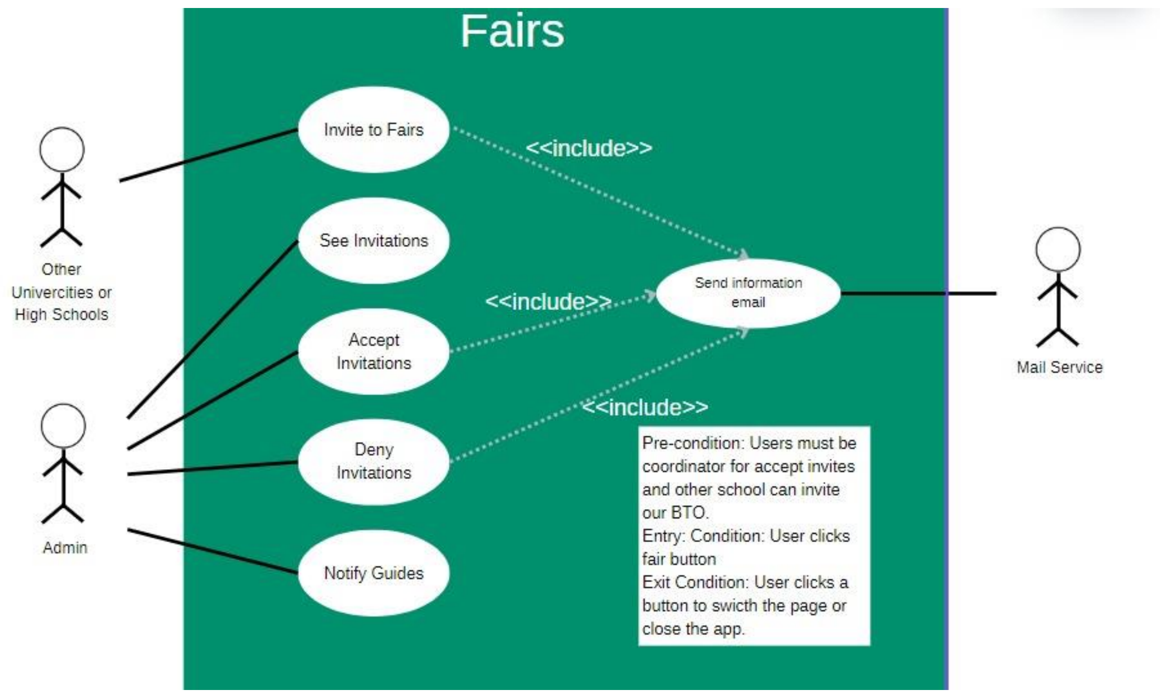

Profile
View Profile
View Own Profile
View Other Users Profile
Admin
Delete Account
Edit Profile
Pre-condition: Users must be logged in.
Entry: Condition: User clicks profile button
Exit Condition: User clicks a button to swicth the page or close the app.
User
Edit Puantaj
Give Rate
Filter and sort by date
See Own Tours
<<extend>>
No such record


Application
High School
Send Form
<<include>>
Send information email
<<include>>
<<include>>
Mail Service
Adviosr/Coordinator
Accept Form
First Approval
<<include>>
Deny Form and Give Feedback
<<include>>
Second Approval
BTO Office
Pre-condition: Users must be high schools for sending the forms and must be guides, coordinators, or BTO office for accepting or denying.
Entry Condition: User clicks aplication button
Exit Condition: User clicks a button to swicth the page or close the app.


Tours
Guide
Coordinator
Advisor
See Tours
Request Guideness
Accept Guideness
Assign Guides
See Calender
Filter and sort by their colors (deny,waiting,accept)
<<extend>>
No such record
Pre-condition: Users must be guide, coordinator or advisor.
Entry: Condition: User clicks tours button
Exit Condition: User clicks a button to swicth the page or close the app.
Filter and sort by their availability
<<extend>>
No such record


Guide Information
Pre-condition: Users must be coordinator.
Entry: Condition: User clicks guide information button
Exit Condition: User clicks a button to swicth the page or close the app.
Add Guide
Remove Guide
<<extend>>
No such record
Coordinator
Show Guides
Filter and sort by their availability
<<include>>
Show Guide's Puantaj


High School Information
<<extend>>
No such record
Show High Schools
Filter and sort by their ranking
<<include>>
Show High School Data
<<include>>
Extract High School Data
<<include>>
Edit High School Rate
Coordinator
Pre-condition: Users must be coordinator.
Entry: Condition: User clicks high school information button
Exit Condition: User clicks a button to swicth the page or close the app.



4. Functional Requirements

4.1 Profile

Pre-Condition: The user should be registered to the system.

Entry Condition: The user clicks the "My Profile" button.

Exit Condition: The user switches to another page or closes the application

Actors:

- Admin: General administative of the system
- User: Guides or high school personnel with account

Functionalities:

1. View Profile
   - Description: Allows the user to see their credentials in the system.
   - Steps:
     1. Click the "My Profile" button and the profile information will be visible.
2. Delete Account:
   - Description: Allows the user to delete their account from the system.
   - Steps:
     1. Click the ‘More Options’ button in the profile page.
     2. Click the "Delete Profile" option.
     3. Confirm the Profile Deletion, this will remove the account from the system
3. Edit Profile:
   - Description: Allows users to edit their profile credentials like profile image, available times and so on.
   - Steps:
     1. Click the ‘More Options’ button in the profile page
     2. Click the "Edit Profile" option.
     3. Edit the profile credentials as needed and press ‘Save’
4. Edit Puantaj:
   - Description: Allows guides to add/edit their Puantaj for their tours. Puantaj is important for payroll checks of the Guides.
   - Steps:
     1. Click the ‘More Options’ button in the profile page
     2. Click the "Edit Profile" option.
     3. Edit the Puantaj credentials as needed and press ‘Save’
5. Give Rate:
   - Description: Allows administratives to rate users. This is essential for prioritizing schools in the tour confirmations and for evaluating the guides’ performance, which may be helpful for guide assignments in future tours.

- Steps:
    1. Click to the relevant user (guide or school) to see their profile page.
    2. Click the "Give Rate" button.
    3. Give rate as needed and press ‘’Save’.

6. See Own Tours:
   Description: Allows users to see their own tours list. Schools and guides are able to see their upcoming or past tours in the system.
   Steps:
    1. Click the ‘More Options’ option in the profile page
    2. Click the "See Own Tours" button, this will show the list of tours the user is involved in.

4.2 Login / Register

Pre-Condition: The user should be registered to the system for the ‘Login’ page, no pre-condition for registering

Entry Condition: The user clicks the "Login" button if an account already exists, else “Register” button should be clicked.

Exit Condition: The user goes to the home page or closes the application.

Actors:

- Anonymous: Unregistered user with limited set of functionalities available, it is asked for them to register either to be a member of the Information Office or a school administrator
- User: Registered users can use any functionalities related to that specific user kind (e.g. guide, school), if a guide, the user can send requests or be assigned for the tours according to their schedule. If a school, the user will be able to send requests for tours, individual tours and fairs.
- Mail Service: is used to send confirmation mails to the users to confirm and activate their account.

Functionalities:

1. Create Account:
    - Description: Allows the Anonymous users to create account and use the main functionalities of the website.
    - Steps:
        1. Click the “Register” button on the home page.
        2. Fill in the required boxes, type a unique email, type a password, click ‘Create Account’ button

3. If the entered email already exists in the system, or for tour guides, if email do not belong to Bilkent University, then an error will show up and user is asked to type the credentials again. If the request is successful, the mail service will send a verification email to the user's email.
4. By clicking to the link sent by the verification email, the account will be activated and user is now able to use the website.

2. Login:
    - Description: Allows the Registered User to log in to their accounts in the system.
    - Steps:
        1. Click the "Login" button.
        2. Type the email and password inside the login page
        3. If incorrect email or password has been entered, then an error will be shown and the user will be asked to type again. If entered credentials are correct, the user is logged in to the website.
        4. Verification code
3. Logout:
    - Description: Allows users to log out of their account.
    - Steps:
        1. Go to 'My Profile', and press 'More Options'
        2. Click the 'Log out' option. Now the user needs to log in again to use the system.

4.3 Applications

Pre-Condition: High School officials should be registered to the system.

Entry Condition: The user clicks 'Send Tour Request' button.

Exit Condition: The user goes to another page, or closes the application, or the request is complete.

Actors:

- High Schools: The high school personnel that is responsible for arranging the tour with the university
- Admins: BTO Office and Advisers which are responsible for evaluating the tour requests.
- Mail Service: Mail Service is used for sending information and validation mails.

Functionalities:

1. **Send Form**
    - o Description: Allows the high schools and students to send requests for tours. The users will be able to send 3 types of requests: First, 'Main Tours' request where high schools come to see the campus, 'Individual tours' request for individual visits of students, and lastly 'fairs' for university fairs held in high schools, where high school personnel can invite the university for participating in the fair.
    - o Steps:
        1. Click to "Send A Tour Application".
        2. Click to the relevant application type (i.e. Main Tour, Individual Tour or Fair Invitation)
        3. Fill in the required information for each case, such as the high school name, date, student count (for Main Tour) and other important credentials. Note that the date of the tour should be at least 2 weeks after the form submission.
        4. Press 'Save' button. With this way the mail service will automatically send a confirmation mail and, if confirmed, information mail for the fact that the university has received the application.

2. **Accept Form**:
    - o Description: Allows the university to Accept the form. When High Schools send the form in the system, that form will be visible in the Applications page for the BTO Office and Advisers to approve or reject. First, Advisers that are responsible for the weekday of the tour date will accept or reject based on factors like availability of guides or validity of the form. Then the request is sent to BTO Office for final validation. If BTO Office approves the request, then a confirmation mail is sent to the High Schools.
    - o Steps:
        1. View the 'Incoming Requests List' from 'Applications'
        2. Click the relevant Request to view. There will be the details of that specific request.
        3. After checking the necessary conditions, Admins may Approve the form by pressing 'Confirm'. A validation pop-up will show up, again press 'Confirm' to continue, 'Return' for reviewing the request.
        4. Upon confirmation of Advisers first and then BTO Office, the Mail Delivery System will send the confirmation mail to the High School.
3. Deny Form and Give Feedback:

- Description: Allows Admins to deny the Request and give feedback to the school. A similar procedure is applied here as in Accepting the form. Admins receive the request, and they are able to deny the form with an optional note that specifies what was the reason of the denial, which will then be sent as a mail to the high school.

- Steps:
  1. View the ‘Incoming Requests List’ from ‘Applications’
  2. Click the relevant Request to view. There will be the details of that specific request.
  3. After checking the necessary conditions, Admins may decide to deny the Request. Click the Deny button inside the specific Request page. An optional note can be added.
  4. Mail Delivery system will send the denial response back to the high school together with the note.

4.4 Tours Page

Pre-Condition: Coordinators, BTO Office Staff, and advisors are registered users with the necessary permissions to manage tours. Tour guides must be registered and assigned to the system. Schools cannot see that page since they don’t have access. By the authentication system, non-registered users and schools cannot see this page.

Entry Condition: Coordinators, BTO Office Staff, and advisors access the Tours section from their dashboard. That’s the primary (the first page they entered the system) for them.

Exit Condition: The user completes the action (assigning a guide, viewing/editing schedules, approving/rejecting a tour request) or navigates away from the page.

Actors:

- **Coordinator**: Responsible for assigning guides, managing schedules, and overseeing tour approvals.
- **Advisor**: Assists the coordinator with tour management, including guide assignment and tour approval.

- **Guide**: Receives notification about tour assignment and must approve the assignment to finalize it.
- **BTO Office (Dilek Hanım, Örsen Hoca)**: Final approvers for tour requests after the coordinator/advisor's review, communicate the schools by email.

Anonymous users and schools cannot interact and show that page.

Assign Guide:
Allows coordinators and advisors to assign a guide to a tour based on specific criteria.

1. **Select Tour**: The coordinator/advisor can see the approved tour request (for more detailed info, look at "Application Process"). There are several steps to complete that section

   1- Coordinators/Advisors click the "Tours List" section (in table, ordered and colored form) and see tours. Tours are colored by their status, and there are three colors for three situations:
   Completed - All the guides have been assigned, necessary steps such as entrance campus information, etc. completed.
   On Progress - Activities for which tour operations have been started but not completed.
   Not Started - No assigning or such operation has been done for the tour processes that have not been started yet.

   2- Coordinators/Advisors can filter by those colors and see classified tours.
   3. Since it is a sub-section in the Tours page, they don't need to click the button to exit; they can click anywhere except that list and exit the table.

2. **Choose Guide**: Based on criteria like group size, school preferences, and guide availability, the coordinator/advisor selects a guide to assign to the tour. There are several steps to complete that section:

1 - By clicking the “Add Guide(s)” button, Advisors/Coordinators can add guides.
2 - Advisors/Coordinators can filter guides by their “availability (according to the guide’s course schedule and personal times that indicated) and see guides.
3 - They can assign the guides by clicking on the list elements.
4 - After completing the assigning process, they click the button “Submit” and exit the process.

3. **Notify Guide & Coordinator/Advisor**: An automated email is sent to the guide, informing them of their assignment to the tour. There are several steps to complete that section:

1 - Guides receive a “no reply email” when their Advisors/Coordinators assign them.
2 - After the assigning process, there are three images on the guide’s profile on the tour’s “Guide” section

Accepted (✅): The guide is assigned has confirmed the assign.

Waiting (⌛): Response is waiting from the guide.

Rejected (❌): The guide denies the Assignment; they can leave a note for their excuse.

3 - After the guide’s response, the coordinator / advisors will be notified through email.

4.5 Guide Information Page

Pre-Condition: Coordinator must be a registered user with authorization to manage guide information. Unregistered users cannot access this page.

Entry Condition: Coordinator should select "Guide Information" from the main menu.

Exit Condition: Coordinator exits by selecting another page or closing the application entirely.

Actors:

- Coordinator: Main actor who manages guide information.
- System: Validates user inputs accordingly, processes request and responds.

Add Guide:

1. Coordinator clicks the "Add Guide" button.
2. A form opens requesting necessary information such as the guide's name and contact details. Optionally, a photo can also be added.
3. After required information is entered, the coordinator clicks the "Submit" button. If any information is missing, an error message is displayed, and the coordinator is asked to fill in the missing details. After all information is correctly set, the guide will be added, and a message of success will appear.

Show Guides:

1. Coordinator clicks the "Show Guide List" button.
2. The system displays a list of all guides with their basic information.
3. Coordinator can select a guide to view detailed information, including the guide's full profile and schedule.

Show Guide's Puantaj:

1. From the list of guides, the coordinator selects a guide to view his or her performance score based on feedback and reviews.

Remove Guide:

1. Coordinator searches, adapts some filters, or sorts the list and chooses the guide or guides to be removed from the system.
2. The "Remove Guide" button is activated and clicked.
3. A confirmation message emerges and asks, "Are you sure you want to delete the following guide: Jane Doe?" If confirmed (by clicking ‘Yes’), the guide is removed from the system; if not, no action is taken, and the coordinator is navigated back to the Guide Information page.

Transitions:

- Upon successful addition or removal of a guide, the system updates the list of guides displayed under "Show Guide List"
- Error handling for form submissions on this page ensures that all necessary information is collected before processing actions.

This setup enables the coordinators to easily oversee guide operations within the system.

4.6 High School Information Page

Pre-Condition: Coordinator must be a registered user with permission to manage high school data. Unregistered users cannot access this page and its functionality.

Entry Condition: Coordinator selects the "High School Information" option from the main menu.

Exit Condition: Coordinator navigates away by selecting another page or closing the application entirely.

Actors:

- Coordinator: Responsible for managing high school information in general.
- System: Validates user inputs accordingly, processes request and responds.

Show High Schools:

1. Coordinator clicks the "Show High Schools" button.
2. The system responds with a list of all high schools currently stored in the database.
3. Coordinator can select a school to view detailed information or perform further actions like updating the counselor info or deleting the school’s data entirely.

Show High School Data:

1. Coordinator searches, adapts some filters, or sorts the list and chooses a high school from the list.
2. The "Show High School Data" button is clicked.
3. A pop-up emerges and displays detailed information about the selected high school, including student count, counselor details, and recent performance statistics.

Extract High School Data:

1. Coordinator selects the data extraction feature from the high school data view pop-up.
2. The coordinator specifies which data and the date range for extraction.
3. The system processes the request and provides a downloadable report in the specified format (CSV, Microsoft Excel).

Edit High School Rate:

1. Coordinator searches, adapts some filters, or sorts the list and chooses a high school from the list.
2. The "Edit High School Rate" button is clicked.
3. A form appears where the coordinator can modify the rating of the chosen school based on recent evaluations or recent performance.
4. After saving the changes made, the system validates the data and updates the information in the database accordingly and returns a success message on the screen.

Transitions:

- Upon successful data operations, the system updated the list to visualize changes.
- Error handling ensures input validation before any data modification to maintain the integrity of the system.

This ensures effective management of high school's data in the system, enabling easy updates and effective retrievals by the coordinator.

4.7 Fairs

Pre-Condition: The admin must be a registered user with administrative rights to manage fair invitations (coordinators and Örsan Örge). Other universities or high schools are capable of receiving and responding to invitations.

Entry Condition: The admin selects the "Fairs" option from the main menu.

Exit Condition: The admin navigates to another page closes the entire application.

Actors:

- Admin: Who is responsible for managing fair invitations and all communications between the parties.

- Universities and/or High Schools: Recipients of invitations who have the ability to accept or reject participation.
- Mail Service: An automated mail system used for sending out informational emails to all parties.

Invite to Fairs:

1. Admin selects the "Invite to Fairs" option.
2. Admin enters the details of the fair and selects universities or high schools to invite.
3. The system sends an invitation via email to the selected parties.

See Invitations:

1. Admin clicks on "See Invitations" and the system displays a list showing each sent out invitations with its receiver and the status (pending, accepted, denied).

Accept Invitations:

- When a university or high school accepts an invitation:
    1. Their status is directly being updated by the system in the admin's "See Invitations" list.
    2. The system automatically starts the "Send information email" process, which sends a mail which includes details about the fair to the invited participant.

Deny Invitations:

- When a university or high school denies an invitation:
    1. Their status is directly being updated by the system to 'denied' in the admin's "See Invitations" list.
    2. Optionaly, the admin might want to understand the reasons for the denial and possibly re-invite or discuss the fair details via personal effort.

Notify Guides:

1. The admin can use the "Notify Guides" feature to automatically notify the guides about the details of an upcoming fair.
2. The system sends notifications to guides with information like where, when the fair is, and any specific preparations if required.

Transitions:

- After an invitation is accepted or denied, the system automatically updates the invitation status, ensuring the admin has real-time information.
- Reports based on the acceptance rate from invited parties are generated automatically to improve future fair planning and execution.

This setup is designed to ensure smooth communication between the organizers and the participants of fairs.

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1. Select Tour: The coordinator/advisor can see the approved tour request (for more detailed info, look at “Application Process”). There are several steps to complete that section

   1- Coordinators/Advisors click the “Tours List” section (in table, ordered and colored form) and see tours. Tours are colored by their status, and there are three colors for three situations:
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   2- Coordinators/Advisors can filter by those colors and see classified tours.
   3. Since it is a sub-section on the Tours page, they don’t need to click the button to exit; they can click anywhere except that list and exit the table.

2. Choose Guide: Based on criteria like group size, school preferences, and guide availability, the coordinator/advisor selects a guide to assign to the tour. There are several steps to complete that section:

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   3 - They can assign the guides by clicking on the list elements.
   4 - After completing the assigning process, they click the button “Submit” and exit the process.

3. Notify Guide & Coordinator/Advisor: An automated email is sent to the guide, informing them of their assignment to the tour. There are several steps to complete that section:

    1 - Guides receive a “no reply email” when their Advisors/Coordinators assign them.
    2 - After the assigning process, there are three images on the guide’s profile on the tour’s “Guide” section

        Accepted (✅): The guide is assigned has confirmed the assign.
        Waiting (⌛): Response is waiting from the guide.
        Rejected (✕): The guide denies the Assignment; they can leave a note for their excuse.

    3 - After the guide’s response, the coordinator/advisors will be notified through email.