



## **CS319 Term Project**

### **Deliverable 3 - 1st Iteration**

#### **CS319 Section 1**

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# Design Goals

## **Reliability**

Our BTO website must be reliable with its connection to the BTO database. Data stored in the system must be secured and users should rely on the BTO website about tour and fair management, database management and user management. The website is critical for promotion of the university; therefore, reliability and safety of the website is top priority.

### **Reliability v. Flexibility**

Reliable systems could provide less flexibility for developers to add new features.

### **Reliability v. Rapid Development**

Reliable systems could inhibit rapid development as developers should consider reliability in every step and develop accordingly.

### **Reliability v. User Experience**

Reliable systems could provide impractical user experience because of warnings, pop-ups and notifications.

## **Maintainability**

Our BTO website must be maintainable as it will be used for years with proper modifications. All kinds of users including BTO members and students will use the website throughout the year, so that the system will require maintenance to adapt the changes. The website is critical for promotion of the university, welcoming new students and contacting different schools, therefore maintainability is a crucial aspect of our website.

### **Maintainability v. Rapid Development**

Maintainable systems could inhibit rapid development as developers should consider maintainability in every step and develop accordingly.

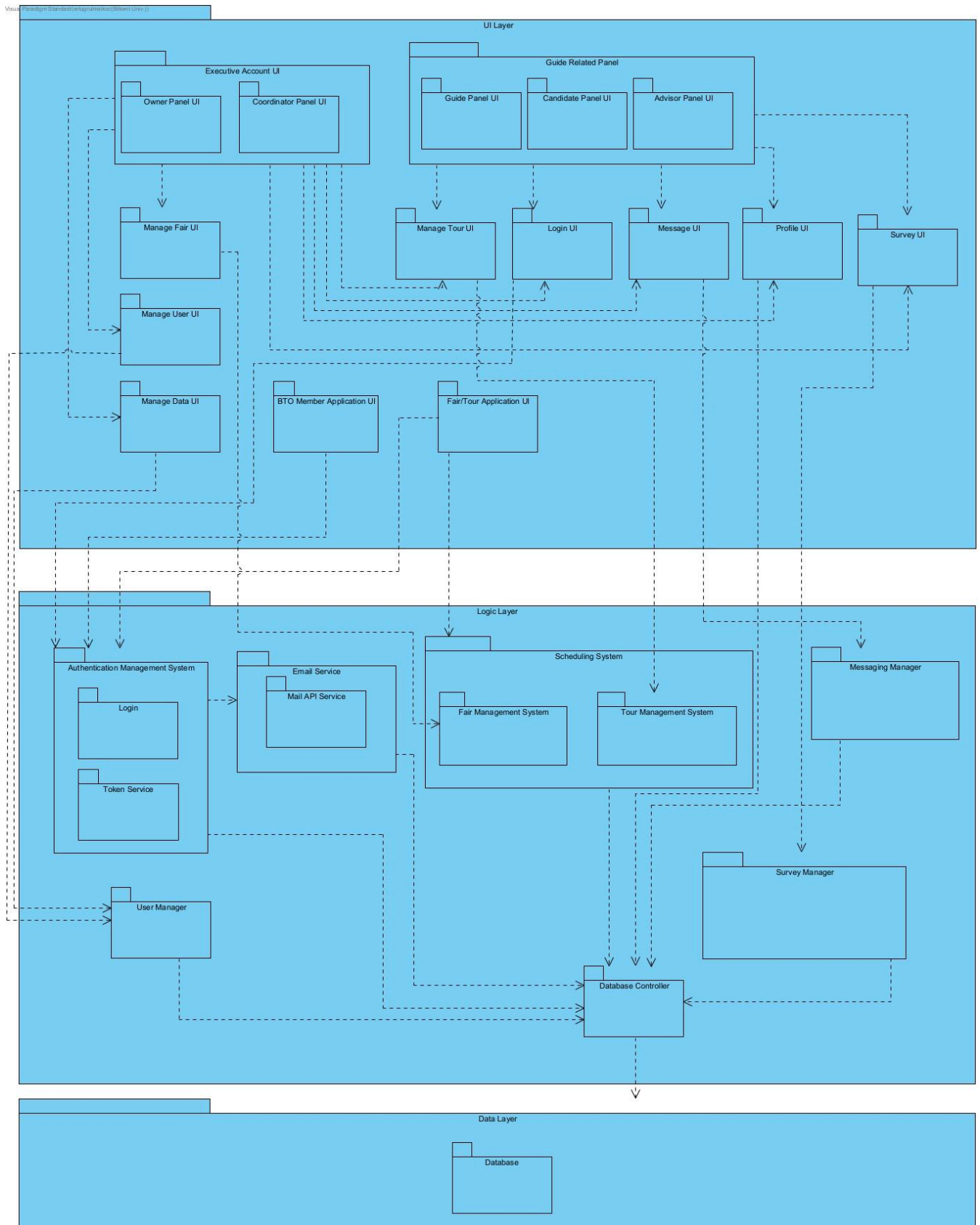
### **Maintainability v. Performance**

Maintainable systems could inhibit the usage of complex algorithms which optimizes performance as they are hard to maintain and manage.

### **Maintainability v. Cost**

Maintainable systems could cost lots of time and money to develop as maintainable systems require proper planning.

# SubSystem Decomposition Diagram



# SubSystem Decomposition Textual Description

## UI Layer

UI layer is required to identify the user interaction. This is the part where people will interact and communicate with the application. This layer is the boundary for users.

### **Guide Related Panels**

- This is the panels which are only visible by the people who have guide or advisor access
- These panels are: Guide Panel UI, Candidate Panel UI and Advisor Panel UI
- The packages inside these are all associated with Manage Tour UI, Login UI, Message UI, Profile UI, and Survey UI

### **Guide Panel UI**

- This package consists of the screens a guide can see and interact with and it is only visible to guides.

### **Candidate Panel UI**

- This package includes the screens for the candidate user and it can only be accessed and modified by candidates.

### **Advisor Panel UI**

- This package includes the screens for the advisors of the system and it can only be accessed by the users with advisor privilege.

### **Executive Account UI**

- This package contains the panels which can only be seen by executive accounts.
- These panels are Owner UI Panel, Coordinator UI Panel.
- This package is associated with Manage Tour UI, Login UI, Message UI, Profile UI, Survey UI, Manage Fair UI, Manage User UI, and Manage Data UI.

### **Owner Panel UI**

- This package contains the screens and the interactions which is only visible to people who are eligible owners

### **Coordinator Panel UI**

- This package contains the screens and the interactions which can be only modified and access by the

### **Manage Fair UI**

- This package contains the screens for managing Fair applications and their related actions.
- This package is associated with Executive Account UI

### **Manage User UI**

- This package consists of screens to add, edit or delete users, and it can be accessed by a coordinator or owner.
- This package is associated with the Executive Account UI.

#### **Manage Data UI**

- This package consists of screens to view, edit or delete data, and it can be accessed by a coordinator or owner.
- This package is associated with the Executive Account UI.

#### **Manage Tour UI**

- This package consists of screens to add, edit or delete tours, and it can be accessed by a coordinator or owner.
- The managed tours can be viewed by guides
- This package is associated with the Guide Related Panel and Executive Account UI.

#### **Login UI**

- This package contains a screen for logging into a BTO account, and it can be accessed by every member of BTO.
- This package is associated with the Guide Related Panel and Executive Account UI.

#### **Message UI**

- This package includes a screen for messaging, and it can be accessed by every BTO member account and the Head of a Tour.
- This package is associated with the Guide Related Panel and Executive Account UI.

#### **Profile UI**

- This package includes a screen for personal account information and option to edit them, and it can be accessed by every member of BTO.
- This package is associated with the Guide Related Panel and Executive Account UI.

#### **Survey UI**

- This package contains survey forms for questions pre-created in the survey manager package. It can be accessed by everyone who joined that specific tour/fair.
- This package is associated with the Guide Related Panel and Executive Account UI.

#### **Fair/Tour Application UI**

- This package includes forms for applying for individual / group tours, as well as fairs for people to join, and it can be accessed by everyone outside of Bilkent.

#### **BTO Member Application UI**

- This package includes a form to apply for a BTO membership, and it can be accessed by all of the Bilkent students.

## **Logic Layer**

Logic layer connects and controls the data flow between the UI layer and the Data layer. This layer gathers user input and data from the UI layer and sends them to the Data layer. This behaviour modifies and ensures consistency and functionality of the data throughout the application.

### **Authentication Management System**

- This package is the control package responsible for managing user authentication throughout the application.

#### **Login**

- Login package consists of control classes responsible for user login functionality.

#### **Token Service**

- Token Service Package manages token generation and validation.
- This package is associated with Database Controller and Email Service Package.

### **Email Service**

- This package handles email related functionalities such as sending notification mails and password reset tokens.

#### **Mail API Service**

- This external package helps for sending and receiving emails through third-party APIs
- This package is associated with the Database Controller Package.

### **Scheduling System**

- This package handles the main logic of the system and manages automated tasks.

#### **Fair Management System**

- This package handles the organization and management of fairs.

#### **Tour Management System**

- This package manages tours, such as creating, editing, updating tour details.
- This package is associated with the Database Controller Package.

### **Messaging Manager**

- This package manages user messaging functionalities, including sending, receiving, and organizing messages
- This package is associated with the Database Controller Package.

### **User Manager**

- This package manages user management functionalities, including adding, removing, searching and promoting users.
- This package is associated with the Database Controller Package.

### **Survey Manager**

- This package manages survey related functionalities, including creating, removing, editing, assigning surveys and generating links.
- This package is associated with the Database Controller Package.

### **Database Controller**

- This package manages database related functionalities, including getting, creating, deleting, and editing information in the database.

## Data Layer

### **Database**

- This package refers to the external PostgreSQL Database used.
- It contains the overall information needed for the operation of the system.