

# SOFTWARE DESIGN DESCRIPTIONS QuoteShot



	Name	ID
Prepared by	Zeynep Havva Dinç	1819283
Prepared by	Burak Aydemir	1745777
Prepared by	Mercan Boz	1941848
Prepared by	Zeliha Yılmaz	1884626

# Table of Content

## [1. Identification of SDD](#)

### [1.1 Date of issue and status](#)

### [1.2 Scope](#)

#### [1.2.1 Purpose](#)

### [1.3 Issuing Organization](#)

### [1.4 Authorship](#)

### [1.5 References](#)

### [1.6 Context](#)

### [1.7 Design languages](#)

### [1.8 Body](#)

## [2. Identified Design Stakeholders](#)

## [3. Conceptual Model for Software Design Descriptions](#)

### [3.1. Software Design in Context](#)

### [3.2. Software Design Descriptions within the Live Cycle](#)

#### [3.2.1. Influences on SDD preparation](#)

#### [3.2.2. Influences on Software Life Cycle Products](#)

#### [3.2.3. Design Verification and Design Role in Validation](#)

## [4. Design Views](#)

### [4.1 Design Viewpoints](#)

## [5 Design Viewpoints](#)

### [5.1 Introduction](#)

### [5.2 Context Viewpoint](#)

#### [5.2.1 Design Concerns](#)

#### [5.2.2 Design Elements](#)

#### [5.2.3 Example Languages](#)

### [5.3 Composition Viewpoint](#)

#### [5.3.1 Design Concerns](#)

#### [5.3.2 Design Elements](#)

##### [5.3.2.1 Function Attribute](#)

#### [5.3.3 Example Languages](#)

### [5.4 Interaction viewpoint](#)

#### [5.4.1 Design Concerns](#)

#### [5.4.2 Design Elements](#)

#### [5.4.3 Example Languages](#)

### [5.5 Interface Viewpoint](#)

#### [5.5.1 Design Concerns](#)

#### [5.5.2 Design Elements](#)

##### [5.5.2.1 Interface Attributes](#)

## 1. Identification of SDD

This document contains the software design descriptions for QuoteShot application and provides the details of how the QuoteShot software should be built. The details are represented by using graphical notations such as use case models, component diagrams, deployment diagrams and interaction overview diagrams and other supporting design information.

## 1.1 Date of issue and status

**Date of issue** : 03th June of, 2016

**Status**: Completed (v1.0 )

## 1.2 Scope

This document contains a structural overview of all modules, interfaces and data. It also covers a detailed design of each module by giving information about the overall software architecture and the design methods for each module of the software product. A set of design views will be presented in order to support the design and development process. This document will serve as a guideline through the implementation phase.

### 1.2.1 Purpose

The purpose of this document is to describe and visualize the design and architecture of QuoteShot application by using different viewpoints.

This document aims to describe the software system which is structured to meet the needs specified in Software Requirements Specification document. This document will be the primary reference for the implementation phase.

## 1.3 Issuing Organization

The Issuing organization of the project is Middle East Technical University.

## 1.4 Authorship

This Software Design Description document is prepared by BlueQuoters.

## 1.5 References

This document is prepared by referencing “IEEE Standard for Information Technology – Systems Design – Software Design Descriptions – IEEE 1016 – 2009” protocol.

## 1.6 Context

The context viewpoint of the system defines the relationships, dependencies, and interactions between the system and its environment. Each design view that are used in this document is governed by a design viewpoint and each design viewpoint states a set of design concerns and introduces design elements which are used to construct and interpret the design view. The design views are used in the document is shown with the help of uml diagrams to represent the design of the system and the design views to provide the understanding of the overall system architecture.

## 1.7 Design languages

As a modeling language UML will be used for the diagrams. The modeling language is used to emphasizing the static structure and dynamic behavior of the system.

## 1.8 Body

This Software Design Description document is prepared by four people in one week for QuoteShot application which is a mobile application.

## 2. Identified Design Stakeholders

In the QuoteShot application there are three stakeholders which are developer team, testers and users. The developer team is responsible for develop the system and providing the maintainability of the system. Users is the target group of the application. Testers are responsible for test the system for verification and validation purposes.

## 3. Conceptual Model for Software Design Descriptions

In this section, conceptual model for the SDD will be presented. This conceptual model mainly explains the context in which SDD is prepared.

### 3.1. Software Design in Context

In QuoteShot application, object oriented approach will be used as a design method. Since it will be easier to implement the project and add possible future features. Furthermore multi-layered system architecture will be used. Layers will help modularity, security and adaptability of the software. With object oriented design and multi-layered architecture, portability and integrity between components will be improved.

### 3.2. Software Design Descriptions within the Live Cycle

#### 3.2.1. Influences on SDD preparation

This document is prepared by considering the opinions of the stakeholders and the SRS document is an important reference to this document.

### 3.2.2. Influences on Software Life Cycle Products

This SDD influences the content of SRS of this project. It also has influences on the whole implementation phase of QuoteShot application. More than that, the test documentation and test plans of the system are also influenced by the SDD. In addition, the contents of SDD is taken into consideration by the developers in order to develop test cases and test procedures.

### 3.2.3. Design Verification and Design Role in Validation

Software design description is the primary reference for the verification and validation of whether the software product designed fulfills the specified requirements in QuoteShot SRS Document. The requirements for each specific intended use of the product are modeled in the design view parts of the document. The verification and validation of the design view models are carried out based on this document. SDD influences test plans and test cases in further stages. The testing process will be handled after the code development.

## 4. Design Views

A set of design views will be presented in order to support the design and development process. This project will be implemented as modular structure. The modular structure focuses on subdivides a system into smaller parts, which focus on specific elements of the organizational process. Object-oriented architecture is also used which is design paradigm based on the division of responsibilities for an application or system into individual reusable and self-sufficient objects, and QuoteShot application also uses database management. The design views and related viewpoints are explained in detail in section 4.1

### 4.1 Design Viewpoints

There are three viewpoints that are used in this project which are context, composition and interaction viewpoints.

The short descriptions of this viewpoints are explained below and detailed explanations and UML diagrams are given in section 5.

- Context viewpoint defines the relationships, dependencies, and interactions between the system and its environment (the users, systems etc ).
- Composition viewpoint describes the way the design subject is structured into constituent parts and establishes the roles of those parts.
- Interaction viewpoint represents how each object operates one another.

## 5 Design Viewpoints

### 5.1 Introduction

The standard SDD is organized into one or more design views. Each view is governed by design viewpoint. Design views are explained with related UML diagrams. In this chapter following viewpoints are explained.

- Context viewpoint
- Composition viewpoint
- Interaction viewpoints

### 5.2 Context Viewpoint

The context viewpoint of the system defines the relationships, dependencies, and interactions between the system and its environment (the people, systems, and external entities with which it interacts). It defines what the system does and does not do; where the boundaries are



between it and the outside world; and how the system interacts with other systems, organizations, and people across these boundaries. The context of the system is given on Figure 1.

### 5.2.1 Design Concerns

Identifying a design subjects offered services, its users and other stakeholders to establish the system boundary.

### 5.2.2 Design Elements

In the QuoteShot application there is one actor who is user of the application. He should first login to the system and then he has following use cases ;

1. **Login:** User logs in to the system.
2. **Registration:** A non-member user registers to the system.
3. **Follow:** A member user follows another member to get posts about them.
4. **Unfollow:** A member user unfollows another member user followed before.
5. **Edit Profile:** A member user edits their profile information.
6. **Comment:** A member user comments on a post in the system.
7. **Like:** A member user likes a post in the system.
8. **Unlike:** A member user unlikes a post in the system.
9. **Share a Quote:** A member user shares any quote they have visibility to.
10. **Block a User:** A user blocks another user to stop communication with them.
11. **Send Message:** A member user sends a message(text or media) to another member.
12. **Report:** A user reports another user in case of an abuse or any breach of rule.
13. **Settings:** A user changes settings of their account or general settings of application.
14. **Book Exchange:** A user either offers their book for an exchange or searches a book.
15. **Logout:** A user logs out from the system.

### 5.2.3 Example Languages

Use case diagram and corresponding use case descriptions can be found below.

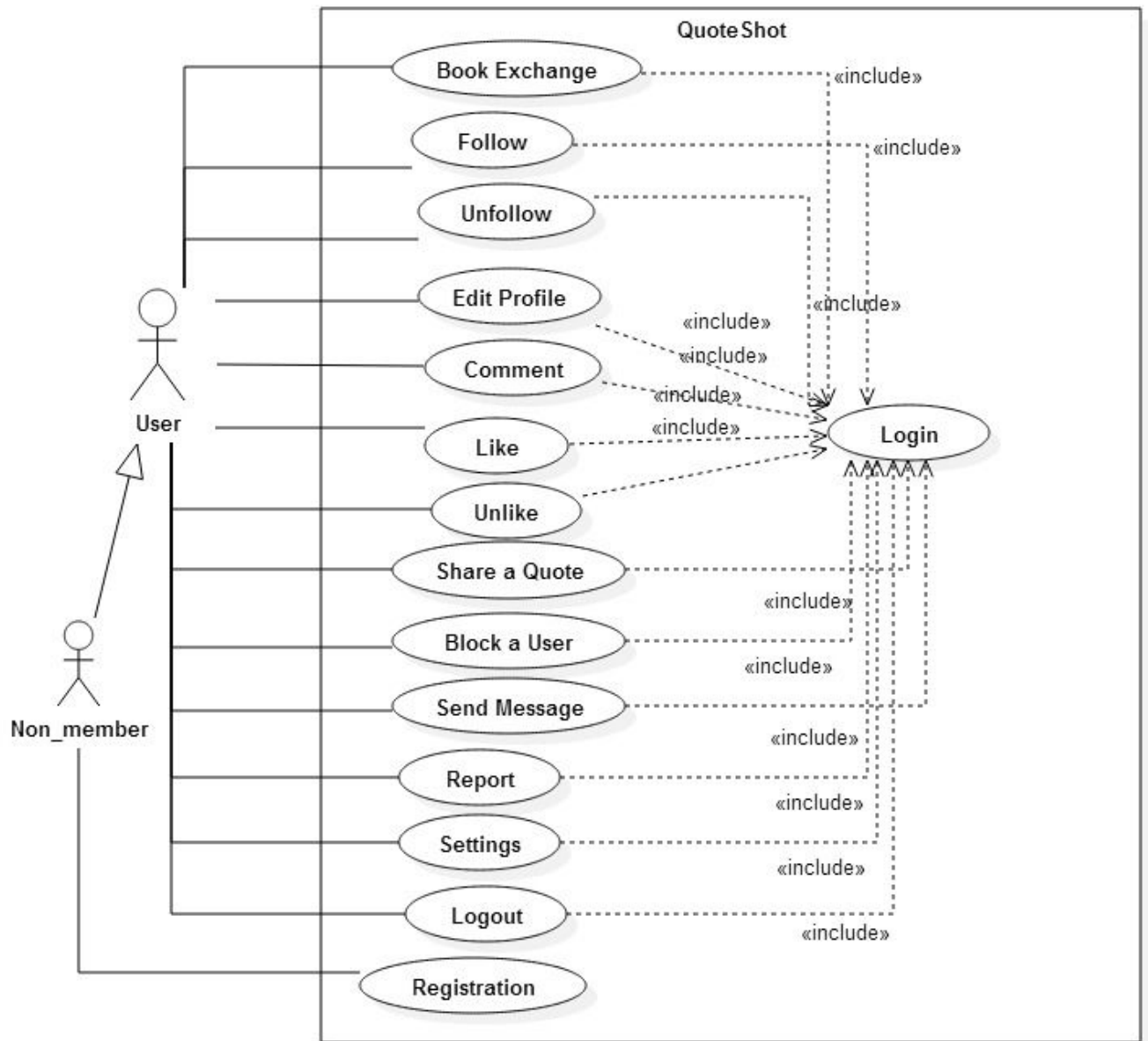


Figure 1: Use Case Diagram

Use Case ID	The QS UC.1
Use Case Name	Login

Description	User who completes the registration process, can login to QuoteShot application.
Actors	User
Preconditions	User must have already registered.
Trigger	This use case is activated when user enters username and password and clicks Login button.
Basic Flow	<ol style="list-style-type: none"> <li>1. User clicks on “Login” section.</li> <li>2. User enters his credentials in the area provided for that.</li> <li>3. System checks if the entered login parameters are valid.</li> <li>4. System creates a new session for the user.</li> </ol>
Alternate Flow	<ul style="list-style-type: none"> <li>-User can login via Facebook account.</li> <li>-User can login via Gmail account.</li> </ul>
Exception Flow	- If the user provides invalid login information, the system notifies the user and redirects him to login section.
Post Condition	User logs in to the system successfully.

*Table 1: Login to QuoteShot*

Use Case ID	The QS UC.1
Use Case Name	Login
Description	User who completes the registration process, can login to QuoteShot application.
Actors	User
Preconditions	User must have already registered.
Trigger	This use case is activated when user enters username and password and clicks Login button.
Basic Flow	<ol style="list-style-type: none"> <li>1. User clicks on “Login” section.</li> <li>2. User enters his credentials in the area provided for that.</li> <li>3. System checks if the entered login parameters are valid.</li> </ol>

	4. System creates a new session for the user.
Alternate Flow	-User can login via Facebook account. -User can login via Gmail account.
Exception Flow	- If the user provides invalid login information, the system notifies the user and redirects him to login section.
Post Condition	User logs in to the system successfully.

*Table 2: Login to QuoteShot*

Use Case ID	The QS UC.3
Use Case Name	Follow
Description	User can follow any of his friends to see their posts.
Actors	User
Preconditions	Users can follow the people who accept the follow request.
Trigger	User clicks the Follow button.
Basic Flow	1. User clicks on “Follow” button and send follow request. 2. According to request response user can follow another user. 3.User can see the posts of the user.
Alternate Flow	-
Exception Flow	- If the person who was sent follow-up request not accept the request then a user can not follow this user. - If the person who was sent follow-up request had blocked the user, the system does not allow to follow.
Post Condition	Any post which is shared by friends who is followed by the user can be seen in user’s main page.

*Table 3 : Follow Another User*

Use Case ID	The QS UC.4
Use Case Name	Unfollow
Description	User can give up follow his friends.
Actors	User
Preconditions	User must have already follow another user.
Trigger	Users click the Unfollow button.
Basic Flow	1. User clicks on “Unfollow” button. 2. User can not see the posts of unfollowed user anymore on main page.
Alternate Flow	1. User clicks on the “report” button on the profile of the user to be unfollowed and automatically unfollows them.
Exception Flow	-
Post Condition	After unfollowing any friends, user will not get any post from them.

*Table 4 : Unfollow Another User*

Use Case ID	The QS UC.5
Use Case Name	Edit Profile
Description	User can edit his profile by changing profile picture, email address, username or location information.
Actors	User
Preconditions	User must have already logged in.
Trigger	User clicks the Edit Profile button.
Basic Flow	1. User clicks on “Edit Profile” button. 2. User redirected Edit Profile page which includes all information about the user.

	3.User chooses the any part that he wants to change. 4.After user finishes his edit process, he clicks “Save” button.
Alternate Flow	-If a user gives up to edit profile, he can cancel this process by clicking “Cancel” button.
Exception Flow	- If a user changes their credentials with invalid information, the application gives warning and redirects them to the edit profile page.
Post Condition	User profile is updated.

*Table 5 : Edit Profile*

Use Case ID	The QS UC.6
Use Case Name	Comment
Description	User can comment another user’s posts.
Actors	User
Preconditions	User must have already logged in.
Trigger	Users click the Comment icon.
Basic Flow	1. User clicks on “Comment” icon. 2. User writes his comment. 3.User clicks Send button.
Alternate Flow	-
Exception Flow	-
Post Condition	User leaves his comment successfully.

*Table 6 : Commenting Quote*

Use Case ID	The QS UC.7
Use Case Name	Like
Description	User can like another user's posts.
Actors	User
Preconditions	User must have already logged in.
Trigger	Users click the Like icon.
Basic Flow	1. User clicks on "Like" icon.
Alternate Flow	-
Exception Flow	-
Post Condition	User likes a post successfully.

*Table 7 : Liking Quote*

Use Case ID	The QS UC.8
Use Case Name	Unlike
Description	User can unlike the posts
Actors	User
Preconditions	User must have already login and liked the post.
Trigger	Users click the Unlike icon.
Basic Flow	1. User clicks on "Unlike" icon.
Alternate Flow	-
Exception Flow	-
Post Condition	User unlikes a post.

*Table 8 : Unliking Quote*

Use Case ID	The QS UC.9
Use Case Name	Share a quote
Description	User can share a quote.
Actors	User
Preconditions	User must have already logged in.
Trigger	Users click the Camera icon.
Basic Flow	<ol style="list-style-type: none"> <li>1. User clicks on Camera icon.</li> <li>2.The application opens the camera.</li> <li>3.User takes photo from his book.</li> <li>4.User specify the lines that he wants to share.</li> <li>5.User choose a book name and author name.</li> <li>6.The application directs the user to the sharing page.</li> <li>7.User choose the one of the platform that he wants to share his quote.</li> <li>8.If the user choose main page option, his quote is appeared on his main page and profile.</li> </ol>
Alternate Flow	<p>-If user wants to share his quote in text form on Facebook or Whatsapp the application converts his image form of the quote into text form using OCR. Then user can share his quote.</p> <p>-If the user wants to share his quote in image form on Facebook, Instagram or Whatsapp, the application shares as image.</p>
Exception Flow	-
Post Condition	User shares his quote.

*Table 9 : Sharing Quote*

Use Case ID	The QS UC.10
Use Case Name	Block a user



Description	User can block any other users.
Actors	User
Preconditions	User must have already login.
Trigger	Users click the another user profile.
Basic Flow	1.User clicks another user profile. 2. User clicks block button. 3.The application shows warning dialogue which asks “Are you sure to block this user”. 4.User click YES. 5.The application shows successful message.
Alternate Flow	-
Exception Flow	If the user blocked another user before, s/he can not click the block again.
Post Condition	User can not follow blocked user, can not send and take messages blocked user and can not see the shared posts of blocked user.

*Table 10 : Blocking a User*

Use Case ID	The QS UC.11
Use Case Name	Message
Description	User can send message any member of the QuoteShot.
Actors	User
Preconditions	User must have already logged in.
Trigger	User enters another user profile that he wants to send message.

Basic Flow	1. User enters another user profile that he wants to send message. 2.User clicks “Send message” button. 3.User writes his message. 4.User click send button.
Alternate Flow	-
Exception Flow	- If a user who is intended to send message, closed his messaging process from privacy settings, a user who wants to send message, the user can not send message anymore.
Post Condition	User sends message.

*Table 11 : Sending Message*

Use Case ID	The QS UC.12
Use Case Name	Report
Description	User can report any member of the QuoteShot.
Actors	User
Preconditions	User must have already logged in.
Trigger	User enters another user profile that he wants to report.
Basic Flow	1. User enters another user profile that he wants to report. 2.User clicks “Report” button. 3.The application opens a report page. 4.User writes his reasons why he wants to report that user. 5.User clicks send button.
Alternate Flow	-
Exception Flow	- If the reasons of report are not accepted from the admins, the user can not report.
Post Condition	User reports another user successfully.

*Table 12 : Report a User*

Use Case ID	The QS UC.13
Use Case Name	Book Exchange Request
Description	User can send a book exchange request to another user in a limited range of local area.
Actors	User
Preconditions	User must have already logged in.
Trigger	User clicks Search icon to find books that he wants to exchange with.
Basic Flow	<ol style="list-style-type: none"> <li>1. User clicks on the “Book Exchange” tab in the application.</li> <li>2. User searches a book to exchange, of a specific name or category.</li> <li>3. User clicks on the search button.</li> <li>4. The application brings a list of the books available for exchange in a specified local area, ordered by the distance to the user.</li> <li>5. User clicks on any offer and may send a message to the user to communicate for an exchange appointment.</li> <li>5. User clicks on “send request” button.</li> </ol>
Alternate Flow	-
Exception Flow	-
Post Condition	User sends a book exchange request successfully.

*Table 13 : Book Exchange Request*

Use Case ID	The QS UC.14
Use Case Name	Book Exchange Offer
Description	User can put a book on their exchange list to make it available for exchange offers from other users.

Actors	User
Preconditions	User must have already logged in.
Trigger	User clicks on Offer a Book button in Book Exchange tab to put their book(s) on their exchange list.
Basic Flow	<ol style="list-style-type: none"> <li>1. User clicks on the “Book Exchange” tab in the application.</li> <li>2. User clicks on Offer a Book button.</li> <li>3. The application brings the list of the owned books the user previously has added their books to.</li> <li>5. User clicks on any book to be offered and chooses a location for the book.</li> <li>5. User clicks on “send offer” button.</li> </ol>
Alternate Flow	-
Exception Flow	-
Post Condition	User sends a book exchange offer successfully.

*Table 14 : Book Exchange Offer*

Use Case ID	The QS UC.15
Use Case Name	Settings
Description	User can change his settings such as password, privacy and security.
Actors	User
Preconditions	User must have already logged in.
Trigger	User clicks “Settings” button.
Basic Flow	<ol style="list-style-type: none"> <li>1. User clicks “Settings” button.</li> <li>2. User choose the item that he wants to change its settings.</li> <li>3. After user completed his settings he clicks save button.</li> </ol>
Alternate Flow	-

Exception Flow	-
Post Condition	User changes his settings successfully.

*Table 15 : Settings*

Use Case ID	The QS UC.16
Use Case Name	Logout
Description	User can logout from the application.
Actors	User
Preconditions	User must have already logged in.
Trigger	Users click “Logout” button..
Basic Flow	1.Users click “Logout” button. 2.The application shows warning message which show “Are you sure to logout” 3.User clicks “YES.” 4.The application shows successful message.
Alternate Flow	-
Exception Flow	-
Post Condition	User will be redirected to the login page.

*Table 16 : Logout*

## 5.3 Composition Viewpoint

In this section, the system components and subsystems are explained in detail by giving a comprehensive explanation about the aim and the use of components as well as relationship between them.

### 5.3.1 Design Concerns

The aim of this viewpoint is providing information to stakeholders and programmers for planning and controlling the system. This kind of subsystem level illustration can be used for assembling components, cost estimation and schedules in terms of development effort.

System components as modules, packages, files and their interconnections are illustrated in Component diagram. In the QuoteShot application there is client, server and database. Server establishes connection between the client and the database.

### 5.3.2 Design Elements

Mobile application, accounting system, GPS module, Google App Engine database connection are the components of the system. Their functionalities are explained in Section 5.3.2.1.

#### 5.3.2.1 Function Attribute

Mobile application will provide a user interface of a QuoteShot, by using this component user can take a photo of a quote and after convert it to text form, they can share it. Web Server will behave as a bridge between the client software and the database system for the information transactions and do the relevant manipulations such as image processing. Server is responsible for providing an interaction between client and the database. The database will store information. The DBMS will store user data, generic book information and quotes, and relations.

### 5.3.3 Example Languages

Component and deployment diagram is provided to show the main components of the system and their relationship.

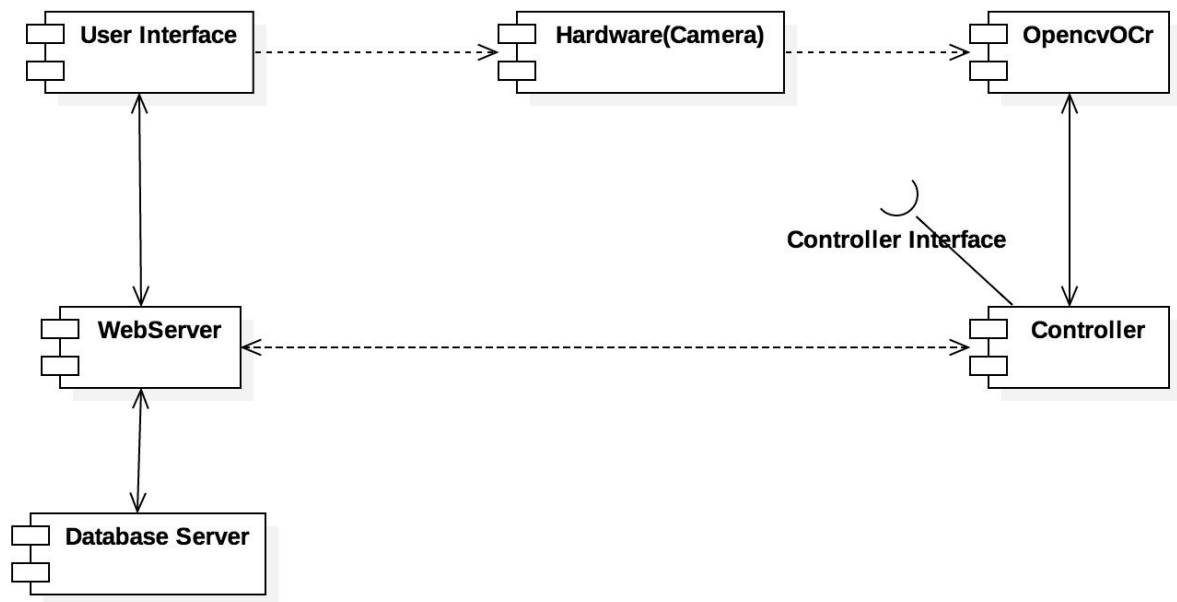


Figure 2: Deployment Diagram

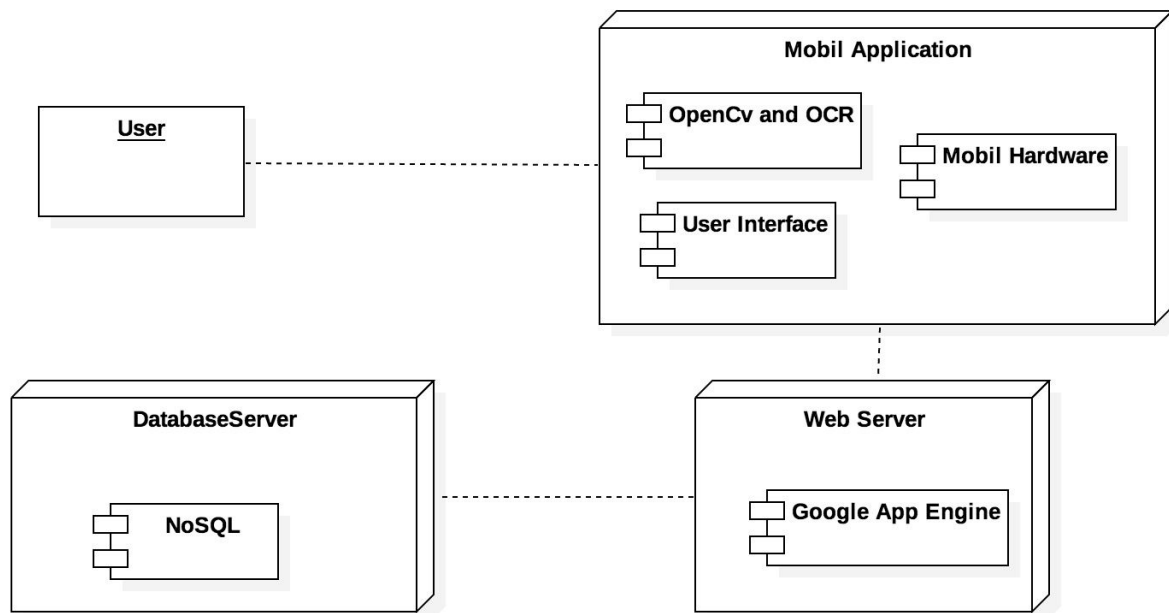


Figure 3: Component Diagram

## 5.4 Interaction viewpoint

The interaction viewpoint of the system represents how each object operates one another.

### 5.4.1 Design Concerns

The interaction viewpoint shows relationships between QuoteShot application classes and it helps the developers to determine the route.

### 5.4.2 Design Elements

Interaction viewpoint design elements includes actors, class and their relations. -----



### 5.4.3 Example Languages

The interaction overview diagrams below show objects' interactions in time sequence. These sequence diagrams are related with the use-case diagrams that are shown in Software Requirements Specification document.

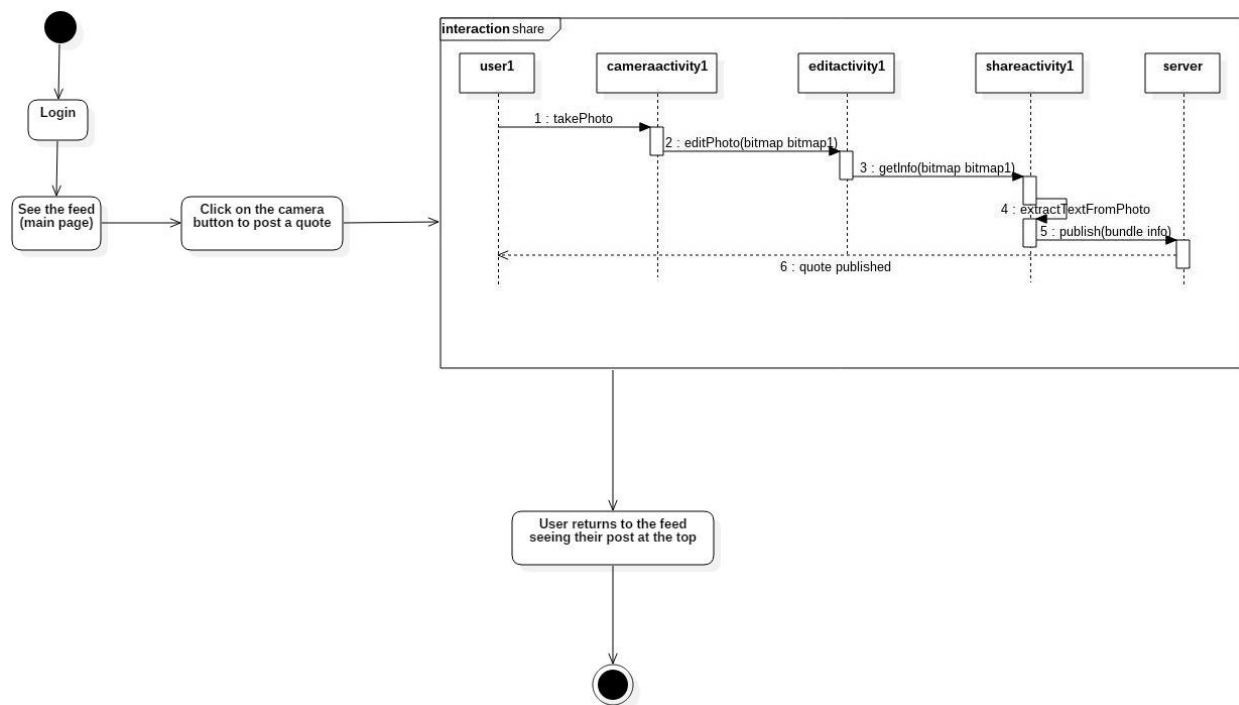


Figure 4 : Interaction Overview Diagram for posting a quote

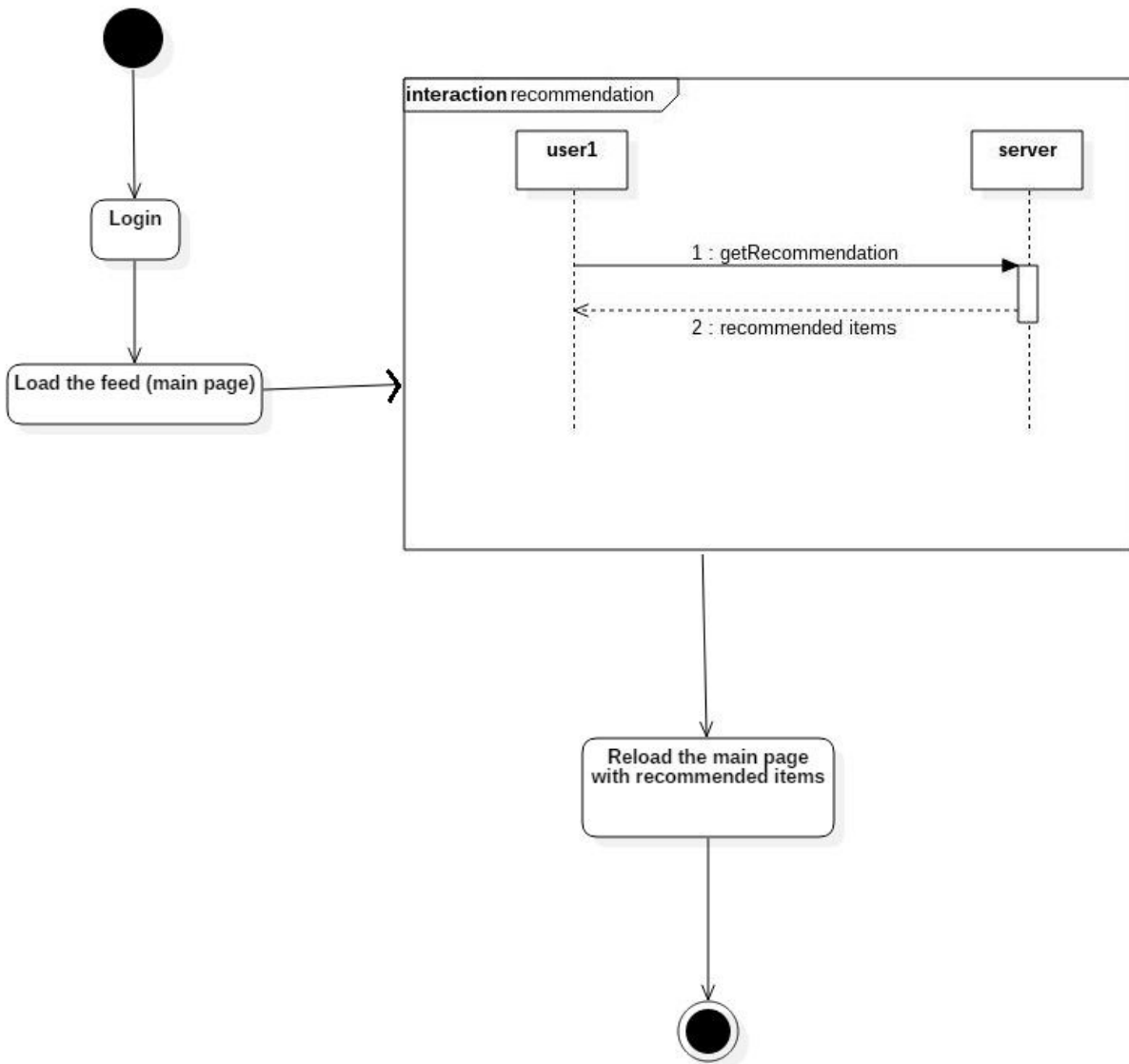


Figure 5 : Interaction Overview Diagram for using the recommendation system

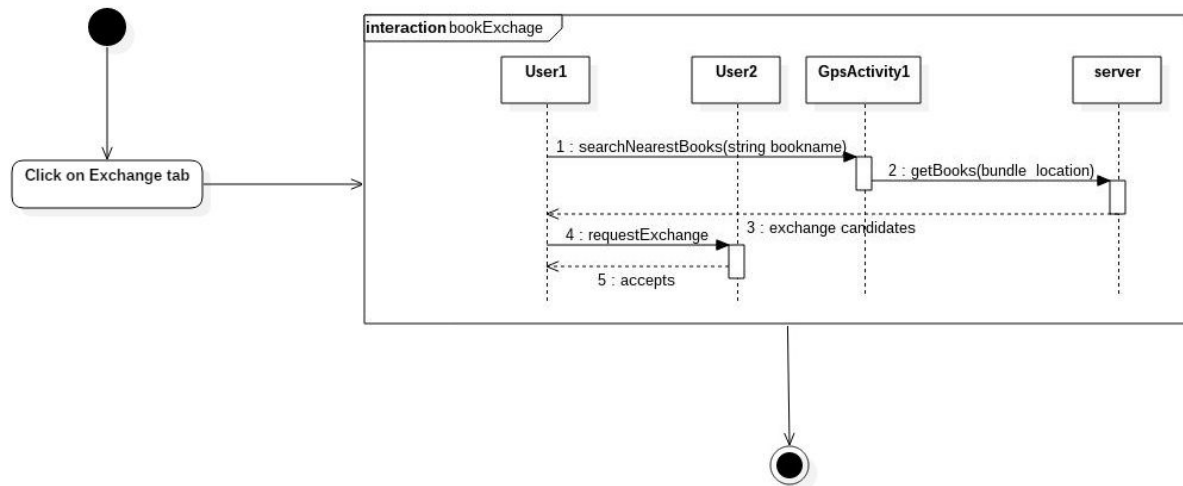


Figure 5 : Interaction Overview Diagram for using the Book Exchange system

## 5.5 Interface Viewpoint

The interface viewpoint gives information to the developers about the correct way of the use of the entities. This viewpoint consists of specifications for each entity in the following sections.

### 5.5.1 Design Concerns

System entities can be produced by different developers or reused from other projects. In such cases, interface viewpoint is crucial since the interface description for each entity gives information about how this entity communicates with the other components of the system. Hence, it provides a concrete explanation of how the entities will interact

### 5.5.2 Design Elements

In this section, design elements will be explained focusing on the user interfaces and their connection with the other entities through system interfaces and software interfaces. QuoteShot application has mobile application interface and with this interface, member can login and begin to use application

### 5.5.2.1 Interface Attributes

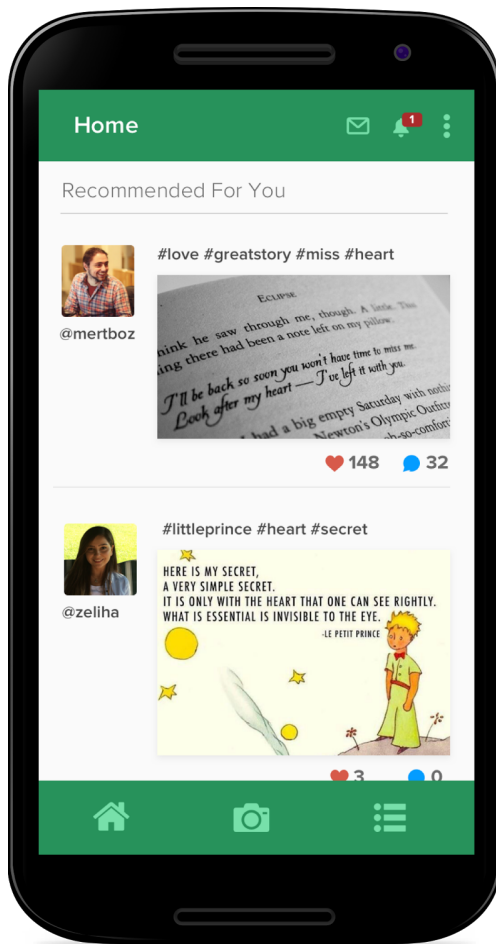
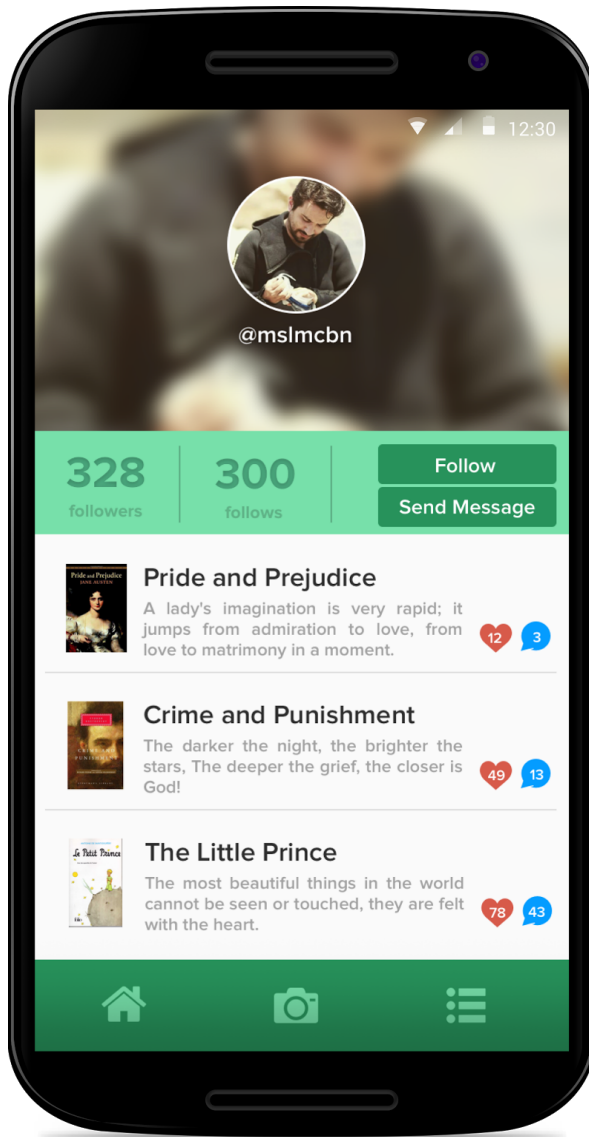


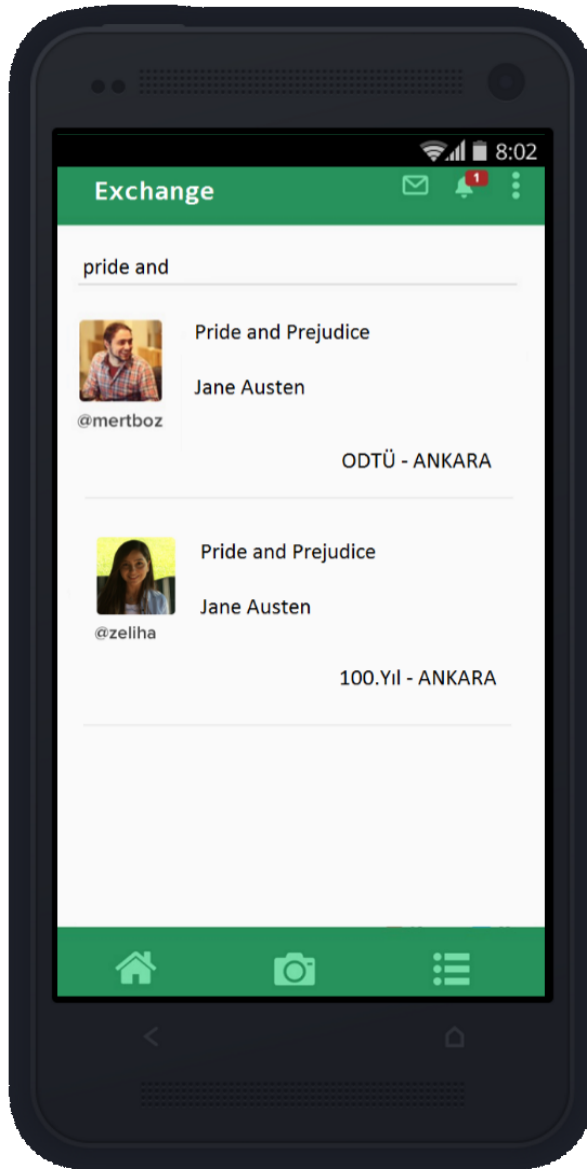
Figure 6: Home Page

The main page in the application can be seen in the Figure 1. User can see the other users posts and he can like and comment this posts. Also according to user shared quotes, quotes are shared by other users are recommended for him. When someone like, comment or send a follow request the notification is came as seen from the figure.



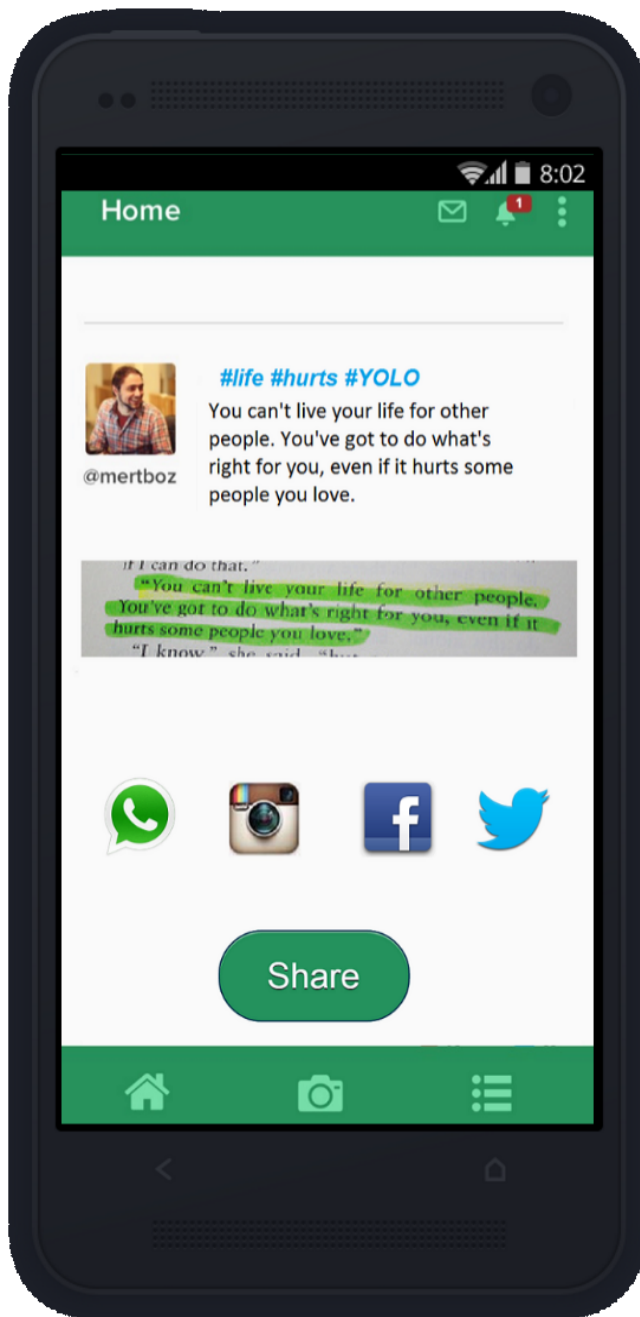
The user profile in the application can be seen in the Figure 2. After user shared his quotes as an image form, using OCR technology the application converts these quotes into text form and holds them in the user profile with the likes and comments. User's follows and followers informations also available from the profile page and when other users want to send a message, they can send by clicking the Send Message button.

*Figure 7 : Profile Page*



Book exchange interface in the Quoteshot can be seen in the figure 3. When user wants to exchange book with the other users, he needs to enter book name and the application lists the user who has this book, based on the address information.

*Figure 8 : Book Exchange*



Post sharing interface can be seen in the Figure 4. When user wants to share book, after he takes a photo of a quote, he redirected to sharing activity and his image form of quote is converted to text form. After user adds tags and comment, he can share it on QuoteShot or other social platforms.

*Figure 9 : Post Sharing*