



CS251 – Software Engineering I



CS251: Phase 1 – Shadow/Coders

Project: <Social Network>

Software Requirements Specifications

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Team

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Document Purpose and Audience

Purpose

The result of the requirement analysis activities are documented in this software specification document (SRS). This document lists the functional and non-functional requirements of the system ordered by the client (the TA).

Audience

The audience includes the TA (the customer), the system analysts and designers (which is our team), the project manager (the team leader) and may include the professor.

Introduction

Software Purpose

The purpose is to make a template design for functionalities of social network the access to the network and its usage should be simple for users to use, it should have the ability to talk to other users and add friends

Software Scope

This software will be a back-end API for a relatively small in size social network (something like 15000 Users). This software will be designed to help developer to make social network which gives the users the ability to post posts with text and can add images, talk chat with friends and find friends or get to meet and know other users on the same social network



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Definitions, acronyms, and abbreviations

Requirements

?complexity lvl?

//searching groups

Functional Requirements

1-Sign Up

A user can sign up for an account, enters the username, password, telephone number and email, then check if username already exist or email is already used, if the username or email already exists output message for user to enter another username/email, else register the username and password and create a new user account with no posts, no friends, no friend requests, no pages liked and no notifications or profile picture

2-Log in

A user can log in, logging in includes entering the username and password and verifying the username and password and putting the status of the user as logged in.

3-log out

A user can log out of his account logging out includes putting the status of the user as not logged in.

4-Viewing profile page

A user can view his or others profile page which includes his profile picture, his liked pages, his public posts and if he is a friend the user's friend posts and his friends, and finally any user can view his private posts

5-Find Friends

User can search for other users on the same social network by name or email and send them add friend request, the other user then registers a friend request of the sender's account page

6-Viewing group pages

A member can access a group page and: If member in the group show all group posts, and option to view users in the group, else if not member in the group, if the group is public he can also view the posts and the users in the group and the group photo, if it is private, he can see only the users who are member in the



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group and the group photo, else the group is secret and he will not be able to view anything in the page even if he has its link (exception)

7-Viewing page

A user can access a page to see its posts and what it talks about

8-Setting picture of group, profile picture or page

Any admin of a group or page can choose a picture and upload it and set it as the picture, and any user can set a picture on his wall

9-Posting on wall, page and group

A user can post text and can add image on his wall, on a group if he's a member and admin permits, and on a wall if he's an admin in it, a post has its comments and likes

10-Requesting join in a group

If the group is private or public user can request to join it and a notification is sent to the admins of the group

11-Hash-tagging in the posts

When a post is written with a word that begins with character '#' the post is put into category of the Hash-tag if it doesn't a new one is created

12-Create a page

a user can create a page and becomes its admin

13-Add admin to page

A page admin can add a user as an admin to the page

14-Admin forfeiting admin of page

Admin can forfeit being a page admin if all admins leave the page closes

15-Adding users to group and remove

Admins inside the group permitted to add users to group or delete users from group



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16-Accept or reject group joining request

Any admin accept or reject a join request, and a user can accept or reject an invitation to a group

17-Promote to admin

An admin in a group can upgrade the status of a user member inside it to an admin (unless he's already an admin)

18-Leaving the group

If a normal user leaves the group, just remove him from the group, if he is an admin and he is the last admin to leave the group is deleted

19-Make a group

Create a group by putting its name and user and user becomes admin by default and group is added to system's group

20-Showing timeline

Get posts from friend, groups and liked pages and arranging them in order by date then and priority (friends, group and liked pages) and showing them to the user

21-Notifications

A user can view the notifications he has for friend request and group joining request

22-Changing group settings

An admin can change group setting of letting users post or not see posts, and change the group status to public, private or secret

23-Liking a post

Users can like a post by marking it as liked

24-Commenting on a post

A user can comment on a post by text and can add image to it

25-Search by hash-tag



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Search a for a post by hash-tag the user can search for his posts or his friends post by hash-tag or search for hash-tags in the groups he's in or wall he likes

26-Search by group

Search for public or private groups in the system and retrieve them

Non Functional Requirements

	Details
Usability	Simple to use, users shouldn't find the system with too many features that are complex to use
Reliability	Crash safe, when users try to access a group or someone's post which he doesn't have an authority to it should handle the exception in this case
Portability	Works on all browsers
Delivery date	The project must be delivered before the end of the semester
Security	User accounts should be secured so that no one can gain access to other users accounts by encrypting the users data
Allowances for reusability	The code should be easy to understand to be able to reuse it in other projects
Short response time	Request shouldn't take more than 8 seconds to respond to a request
Availability	It should not be down more than 1 hour in 3 years and available to use for all users

Use Case Diagram

Page: _____ Date: _____

UML Use Case Diagram for a Social Media Application:

```
graph TD
    User((User)) --> Signup[Signup]
    User --> Login[Login]
    User --> Logout[Logout]
    Signup --> CreatePage[Create Page]
    Login --> CreatePage
    Login --> ViewPage[View Page]
    Login --> FindFriends[Find Friends]
    Login --> SearchGroup[Search by Group]
    Login --> CreateGroup[Create Group]
    Logout --> CreateGroup
    CreatePage --> AddProfilePic[Add Profile Picture]
    CreatePage --> AddAdm[Add Admin]
    ViewPage --> ViewProfile[Viewing Profile]
    ViewPage --> ShowTimeline[Show Timeline]
    ViewPage --> ChangeMySettings[Change my settings]
    FindFriends --> Post[Post]
    FindFriends --> RequestInGroup[requesting in the group]
    SearchGroup --> RequestInGroup
    SearchGroup --> ViewGroupPage[viewing group page]
    CreateGroup --> AddRemoveUser[adding users or remove them]
    CreateGroup --> PromoteUserAdmin[promote users to admin]
    Post --> Hashtag[hashtag]
    Post --> Comment[comment]
    Post --> Like[like]
    Hashtag --> HashtagSearch[hashtag search]
    Like --> Notification[notification]
    Comment --> Notification
    RequestInGroup --> Notification
    ViewGroupPage --> Notification
    Notification --> AcceptReject[Accept or reject group request join]
```

The diagram illustrates the following use cases and their relationships:

- User** (Actor) interacts with **Signup**, **Login**, and **Logout**.
- Signup** leads to **Create Page**.
- Login** leads to **Create Page**, **View Page**, **Find Friends**, **Search by Group**, and **Create Group**.
- Logout** leads to **Create Group**.
- Create Page** leads to **Add profile picture** and **Add admins**.
- View Page** leads to **viewing profile**, **show timeline**, and **Change my settings**.
- Find Friends** leads to **Post** and **requesting in the group**.
- Search by Group** leads to **requesting in the group** and **viewing group page**.
- Create Group** leads to **adding users or remove them** and **promote users to admin**.
- Post** leads to **hashtag**, **comment**, and **like**.
- hashtag** leads to **hashtag search**.
- like**, **comment**, **requesting in the group**, and **viewing group page** all lead to **notification**.
- notification** leads to **Accept or reject group request join**.

Use Case ID:	UC-1
Use Case Name:	Sign up to make account in the social network
Actors:	User and system
Pre-conditions:	User create account in this system



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Post-conditions:	User can post ,make friends and like pages	
Flow of events:	User Action	System Action
	1- User Enter Username, Password ,telephone number and email	
		2- System check if the username and the email are exist or not
		3-add the user data to the data base
		4- create new account to this user
Exceptions:	1-If the username or email already exists output message for user to enter another username/email 2-if the user not type the password or username or email system cannot create the account for him	
Includes:	No-other function included	
Notes and Issues:	1-The length of password must greater than 6 characters and less than 16 character 2-the password should contain upper and lower case characters 3-the username must not contain special characters 4-the telephone must contain numbers only	

Use Case ID:	UC-2
Use Case Name:	Log in to the system
Actors:	User and system
Pre-conditions:	User type username and password to the system and user account exists



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Post-conditions:	User log in the system	
Flow of events:	User Action	System Action
	1- User Enter Username, Password	
		2- System verify the username and the password
		3-User logging to the system
		4-System load all user data
Exceptions:	1-If the username or password already exists output message for user to enter another username/password 2-if the user not type the password or username or email system cannot create the account for him	
Includes:	No-other function included	
Notes and Issues:		

Use Case ID:	UC-3	
Use Case Name:	Log out from the system	
Actors:	User and system	
Pre-conditions:	User type exit to the system	
Post-conditions:	User log out from the system	
Flow of events:	User Action	System Action
	1-User request exit from the system	



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		2- System save the change in the user account to the data base
		3-System logs out user
Exceptions:		
Includes:	No-other function included	
Notes and Issues:		

Use Case ID:	UC-4	
Use Case Name:	Viewing profile page	
Actors:	User and system	
Pre-conditions:	User type name/email to the system	
Post-conditions:	System show the profile page to the user	
Flow of events:	User Action	System Action
	1- User type email/name to the system	
		2- System search for the email/name exist/not exist
		3-System load the data to the user about the name /email he typed
Exceptions:	1-System cannot find the name/email ,system type cannot find this name/email	
Includes:	No-other function included	



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Notes and Issues:	Name must not have special character, must not be empty string and name must not be numbers
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Use Case ID:	UC-5	
Use Case Name:	Find Friends in the system	
Actors:	User and system	
Pre-conditions:	User type the name/email to the system	
Post-conditions:	User find the name of the user he wants	
Flow of events:	User Action	System Action
	1- User type email/name to the system	
		2- System search for the email/name exist/not exist
	3-User type friend request to the system	
		4-System send message for the account that has this name to notify him
Exceptions:	1-System cannot find the name/email ,system type cannot find this name/email	
Includes:	No-other function included	
Notes and Issues:	Name must not have special character, must not be empty string and name must not be numbers	



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Use Case ID:	UC-6
Use Case Name:	Viewing group page
Actors:	User and System
Pre-conditions:	User requested viewing group page
Post-conditions:	Group posts is viewed or page not found error message displayed
Flow of events:	<div style="background-color: red; color: white; text-align: center; padding: 5px;">System Action</div> <div>1- If user is member in group display posts and group picture and option to add comment on post or write a post</div> <div>2- If group is public display group posts and picture</div> <div>3- If group is private display group picture only</div>
Exceptions:	Page not found
Includes:	None
Notes and Issues:	None

Use Case ID:	UC-7
Use Case Name:	Viewing page
Actors:	User and System
Pre-conditions:	User is logged in
Post-conditions:	Page is viewed or page not found error message displayed
Flow of events:	<div style="display: flex; justify-content: space-between; background-color: red; color: white; padding: 5px;"> User Action System Action </div>



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	1- User enters page's name	
		2- Search for the page with the same name written
		3- If page is found retrieve page posts and picture
		4- If page not found display error
Exceptions:	Page not found	
Includes:	None	
Notes and Issues:	None	

Use Case ID:	UC-8	
Use Case Name:	Setting picture of group, profile picture or page	
Actors:	User and System	
Pre-conditions:	User is logged in	
Post-conditions:	Picture is set	
Flow of events:	User Action	System Action
	1- User or admin of page or group uploads a photo	
		2- If user is setting profile picture save picture as profile picture of user
		3- If admin of group or page is setting picture then save new



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		picture of page or group
Exceptions:	Picture fails to be uploaded	
Includes:	None	
Notes and Issues:	None	

Use Case ID:	UC-9	
Use Case Name:	Posting on wall, page and group	
Actors:	User and System	
Pre-conditions:	User is logged in	
Post-conditions:	Post is written or error message displayed	
Flow of events:	User Action	System Action
	1- Enter text and/or images in post	
		2- If user is posting in group if he is admin or he is a member and is admin permits users to write on wall save post in the group
		3- If user is posting on his wall save post in users wall
		4- If user is posting on a page and he is its admin save post in page
		5- If the user posts in a place that he is not permitted to post in output



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		error message
		6- If no error message is displayed check if a hash-tag exists, call case 8 for each hash tag
Exceptions:	A user can't write on a group he's not or write on a page unless he's admin of the page	
Includes:	Case 11	
Notes and Issues:	None	

Use Case ID:	UC 10	
Use Case Name:	Requesting join in a group	
Actors:	User and System	
Pre-conditions:	User is logged in, group is public or private	
Post-conditions:	User see all post, write posts and can add photos	
Flow of events:	user	system
	1- User requests an addition in the group	
		2- The system sends the request to the admins as notification
Exceptions:	Secret groups can't be requested to be added to	
Includes:	Includes case 16	
Notes and Issues:	None	



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Use Case ID:	UC-11
Use Case Name:	Hash-tag
Actors:	System
Pre-conditions:	Post written, requested and verified
Post-conditions:	Post is added to a hash-tag
Flow of events:	<div style="background-color: red; color: white; text-align: center; padding: 5px;">System</div> <div>1-Check if hash-tag exists</div> <div>2- If hash-tag doesn't exit create one</div> <div>3- Add reference of post to the hash-tag</div>
Exceptions:	None
Includes:	None
Notes and Issues:	This is called by use case 8

Use Case ID:	UC-12
Use Case Name:	Create a page
Actors:	User and System
Pre-conditions:	User is logged in
Post-conditions:	User can write post and user add photos



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Flow of events:	user	system
	1-Choose the type of page	
	2- Enter page name	
		3-System create page
		4-Add user as admin to page
Exceptions:	User has 4 page	
Includes:	None	
Notes and Issues:	None	

Use Case ID:	UC-13	
Use Case Name:	Add admin to page	
Actors:	User and System	
Pre-conditions:	Page exists and user is admin to page	
Post-conditions:	Admin can delete any post and photo	
Flow of events:	user	system
	1-enter user name	
		2-System search for username
		3-If user exist add user as page admin



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Exceptions:	User is already admin or user not exist page or has 5 admins
Includes:	None
Notes and Issues:	None

Use Case ID:	UC-14	
Use Case Name:	Admin forfeiting admin of page	
Actors:	User and System	
Pre-conditions:	User is admin	
Post-conditions:	User is removed from admin and page might be deleted if he is the last one	
Flow of events:	User	system
	1- User requests to forfeit admin	
		2-If user is the last admin remove admin then delete page
		3-If user is not last admin just remove him from page admin
Exceptions:	None	
Includes:	None	
Notes and Issues:	None	

Use Case ID:	UC-15
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Use Case Name:	Adding users to group and remove	
Actors:	User and System	
Pre-conditions:	Adding user to group or remove user from group	
Post-conditions:	User see all post, write post and photo	
Flow of events:	User	system
	1- Admin user requests for an addition of a user in group or removal	
		2- If it is an add request the system searches for user to be added and sends him an add request notification
		3- If it is a delete request system searches for member with same name
Exceptions:	Member doesn't exit or user does not exist in the system	
Includes:	Includes case 16	
Notes and Issues:	None	

Use Case ID:	UC-16	
Use Case Name:	Accepting join request to request	
Actors:	System	
Pre-conditions:	Adding user to group or remove user from group	
Post-conditions:	User see all post, write post ,download file ,photo	
Flow of events:	system	
	1-The system is given the rejection or acceptance	



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	2-If admin is approving an add request delete notification from all admins and add user to group, else just delete notification
	3-If user is approving add request add to group
	4-Delete notification from user
Exceptions:	None
Includes:	None
Notes and Issues:	None

Use Case ID:	UC-17	
Use Case Name:	Promote to admin	
Actors:	User and System	
Pre-conditions:	User is logged in, group exists and user is admin	
Post-conditions:	Member becomes admin or member not found message is displayed	
Flow of events:	User Action	System Action
	1- Choose user to be admin	
		2-Search for chosen user within members in the group
		3- If member is in the group add him to admins in group else display error not found message (an admin user is not considered a member in the group)



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Exceptions:	Member is not found
Includes:	None
Notes and Issues:	None

Use Case ID:	UC-18	
Use Case Name:	leaving a group	
Actors:	User and System	
Pre-conditions:	User is logged in and group exists	
Post-conditions:	User leaves group or group is deleted	
Flow of events:	User Action	System Action
	1- Request leave from group	
		2- If user is admin and the only admin delete user and all users from the group and remove group from the system
		3- If user is a normal user or not last admin just remove user from group
Exceptions:	None	
Includes:	None	
Notes and Issues:	None	



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Use Case ID:	UC-19	
Use Case Name:	Make a group	
Actors:	User and System	
Pre-conditions:	User is logged in	
Post-conditions:	Group is made or error message displayed	
Flow of events:	User Action	System Action
	1- Enter name of group	
		2- If user is in 20 groups display error message
		3- Make a new group in the system by the name chose by user
		4- Make the user who made the group admin
Exceptions:	He's already in 20 groups	
Includes:	None	
Notes and Issues:		

Use Case ID:	UC-20
Use Case Name:	Showing timeline
Actors:	Users and System
Pre-conditions:	Logging in



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Post-conditions:	Posts from groups, pages and friends are shown	
Flow of events:	User Action	System Action
	1- User requests to see time line	
		2- System gets latest posts from group, liked pages and friends
		3- System sorts posts in chronological order
		4- Display posts to use
Exceptions:	Page not found	
Includes:	None	
Notes and Issues:	None	

Use Case ID:	UC-21	
Use Case Name:	Notifications	
Actors:	User and System	
Pre-conditions:	User signed in	
Post-conditions:	The List of Notifications in Page of User's is viewed	
Flow of events:	User Action	System Action
	1- User requests to see notifications	
		2- System retrieves notification



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	3- User selects a notification	
		4- If it is an accept/reject group or friend request get users choice if it is accepting then add to group/ or add friend,
		5- If it is a notification like or post or comment notification go to notification's link
		6- Delete notification
Exceptions:	None	
Includes:	None	
Notes and Issues:	None	

Use Case ID:	UC-22	
Use Case Name:	Changing group settings	
Actors:	User (Admin), System	
Pre-conditions:	User is logged in, group exists and user is admin	
Post-conditions:	Admin control of group, the group would be public or private or secret	
Flow of events:	User Action	System Action
	1- Admin selects group setting	
		2- Shown a setting of group , ask the admin what's he want to change in



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		group
		3- ask the admin want the group be public or private or private
	4- Admin selects his choice	
		5-System changes the group status to the chosen status then system asks if other users can write post
	6- Admin chooses what he wants	
		7- Depending on admins choice system changes group's settings
Exceptions:	None	
Includes:	None	
Notes and Issues:	None	

Use Case ID:	UC-23	
Use Case Name:	Liking a post	
Actors:	User ,System	
Pre-conditions:	User is logged in	
Post-conditions:	Post likes increases	
Flow of events:	User Action	System Action
	1- User likes a post	



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		2- System increments number of likes on the post
		3- Send notification to owner of post saying there is one liked on your post
Exceptions:	None	
Includes:	None	
Notes and Issues:	None	

Use Case ID:	UC-24	
Use Case Name:	Commenting on a post	
Actors:	User ,System	
Pre-conditions:	User is logged in	
Post-conditions:	Comment is added to post	
Flow of events:	User Action	System Action
	1- User writes comment and requests adding it to post	
		2- System adds comment to the post and number of comments is incremented
		3- System sends notification to owner of post saying there is one



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		who commented on your post
Exceptions:	None	
Includes:	None	
Notes and Issues:	None	

Use Case ID:	UC-25	
Use Case Name:	Search by hash-tag	
Actors:	User and System	
Pre-conditions:	User is logged in	
Post-conditions:	Hash-tagged posts with same hash-tags is retrieved or page not found error message displayed	
Flow of events:	User Action	System Action
	1- User enters hash-tag name	
		2- Search for the hash-tag with the same name written
		3- If hash-tag is found search for posts that user has authority to view which are his posts, his friends posts, a page's post and a group post that he's in or the group is public
		4- If no hash-tag is retrieved display error not found message



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Exceptions:	Page not found
Includes:	None
Notes and Issues:	None

Use Case ID:	UC-26	
Use Case Name:	Search by Group	
Actors:	User and System	
Pre-conditions:	User is logged in	
Post-conditions:	Group found or error message displayed	
Flow of events:	User Action	System Action
	1- User enters group name	
		2- Search for the group with the same name written
		3- If group name is found and is private or public retrieve information to user
		4- If no group was found that isn't secret display error message
Exceptions:	Group not found	
Includes:	Includes case 6	
Notes and Issues:	None	



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