



Ain Shams University

Faculty of Engineering

Computer and Systems Department

Data Structures and Algorithms

# **SNA Project Final Report**

- **Group :25**

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- Github repository : [https://github.com/AbdelrhmanMagdy/sna\\_project](https://github.com/AbdelrhmanMagdy/sna_project)

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## ✓ **Introduction**

- A social network implementation based on web languages(NodeJS) and analysis it using clustering algorithms
- User can login/signup using a login form
- User can add post/like to any of posts on the network ( friends and group friends)
- User can analyze existing data to view the most interacting user on the network
- User can visualize the existing data to find the shortest path between him and any other user on the network
- User can search for someone in the network by just typing a part of his name
- User can create/join different groups
- Each group have its private posts
- We use HTML5 , CSS3, Bootstrap, jquery, javascript , NodeJS to implement frontend and backend and make the network more user friendly
- We use Mongo DB to implement database and retrieve the data using json formatting

## ✓ **Database and backend design**

### ➤ **Database implementation and design**

- Database is implemented by Mongo dB based databases that act as a graph.
- Database is online and we connect to it using “mongo.connect”

### ➤ **Backend implementation and design**

- Backend is implemented by NodeJS (Node JavaScript) web language that widely used now
- We use models to represents users/groups/posts

### ➤ **JSON visualization scripts**

- We use JavaScript library (dracula\_algorithms library) to visualize the existing users and see the relation between the logged-in user and all other users in the network
- We use dijkstra algorithms to calculate the shortest path between the logged-in user and all users in the visualization graph

### ➤ **Statistics plot**

- We use JavaScript library (plot.ly) to represent the statistics in bar graphs

## ✓ Frontend Design:

- We use HTML5 , CSS3, Bootstrap, jquery, javascript to implement frontend and make the network more user friendly

### ➤ Login and Register

- User is able to create a new account to being able to access the SNA website
- After registration, user can log in the SNA website



Login Register

reda@test.com

.....

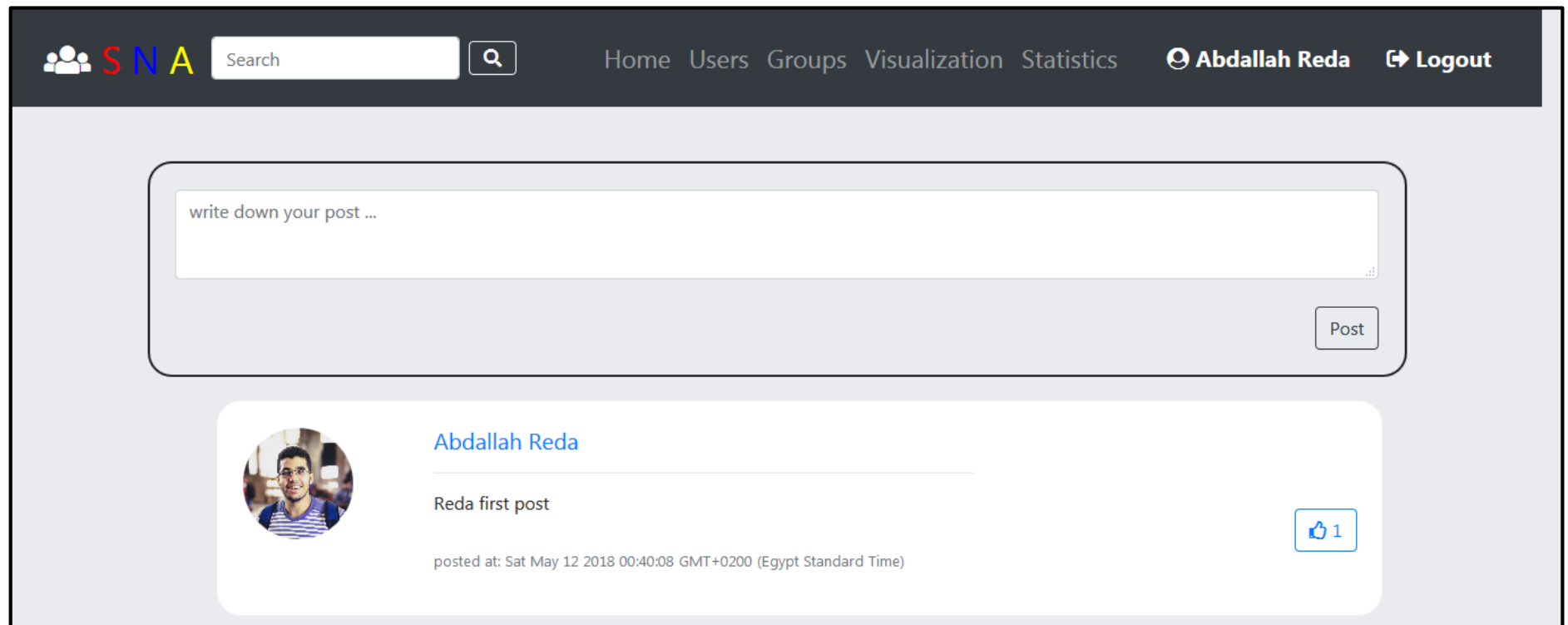
☐ Remember Me

LOG IN

[Forgot Password?](#)

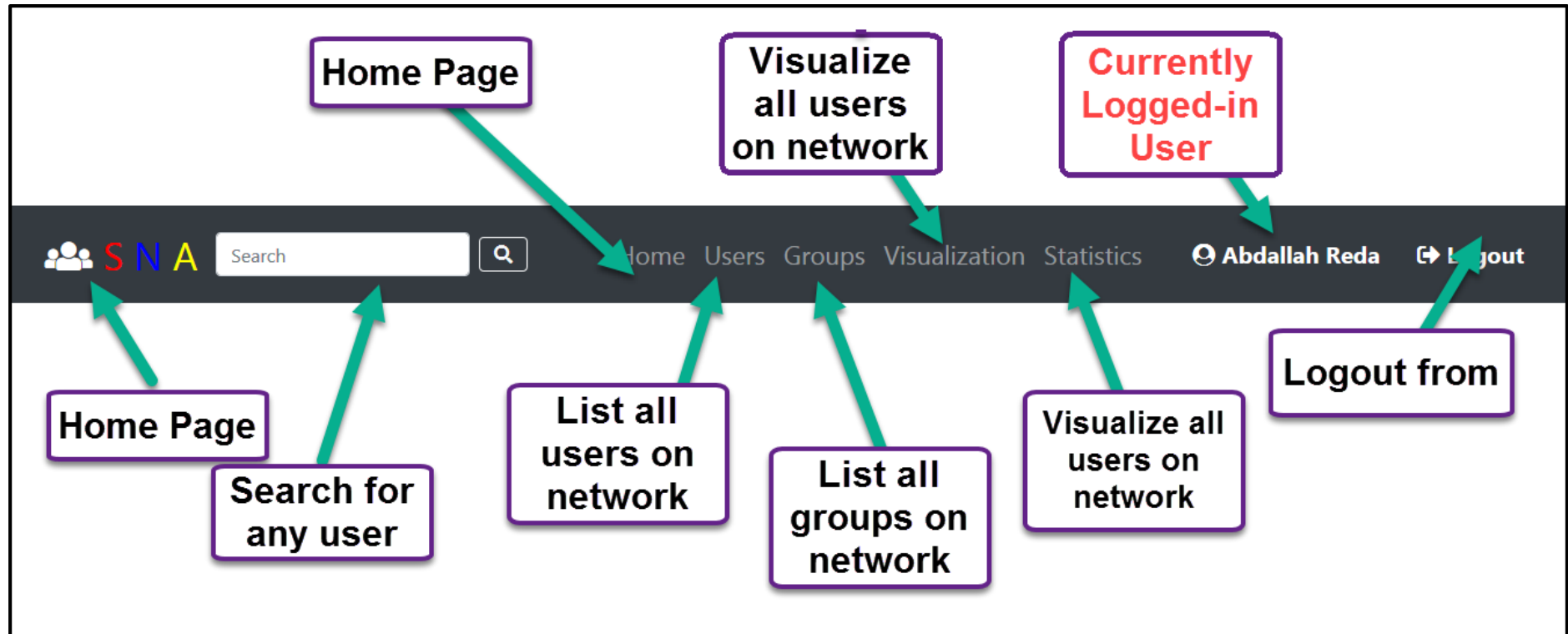
## ➤ Home

- After login , user will be directed to the Home page where his posts and friends' posts in groups and profile pages

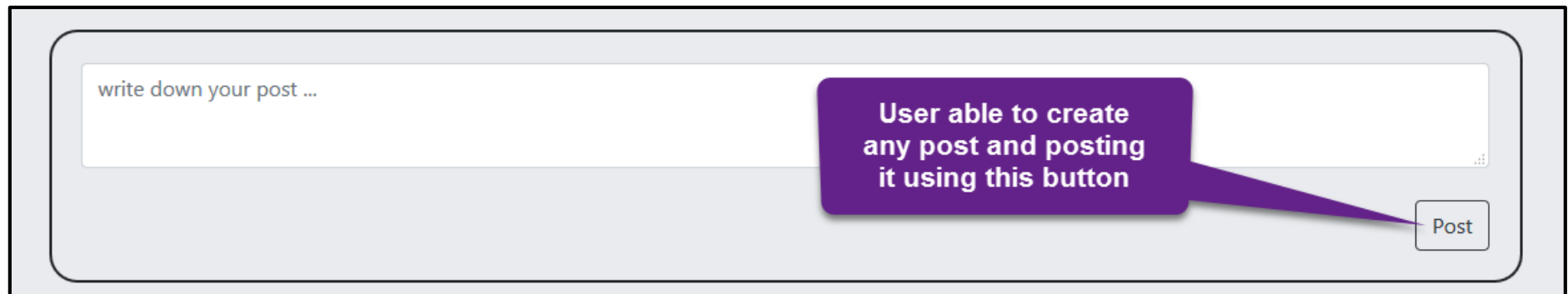


- In home page you will observe:

1. Navigation bar:



2. Creating Posts



### 3. Posts on home page

The diagram illustrates four social media posts on a home page, each with a callout explaining its context and features. The posts are arranged vertically, and the callouts are connected to the posts by lines.

- Post 1:** A post by **Abdallah Reda** with the text "Reda first post on home page" and a timestamp "posted at: Sat May 12 2018 00:40:08 GMT+0200 (Egypt Standard Time)". A callout points to the post: "Viewing a user post on home page". A green callout points to the timestamp: "time of post creation". A blue callout points to the like count (1): "No of likes on post".
- Post 2:** A post by **Abdallah Reda** with the text "reda posted on group MEDIA CENTER" and a timestamp "posted at: Sat May 12 2018 00:40:08 GMT+0200 (Egypt Standard Time)". A callout points to the post: "Viewing a user post on a group".
- Post 3:** A post by **Abdelrahman Magdy** with the text "Magdy Posted on home page" and a timestamp "posted at: Thu May 10 2018 21:11:02 GMT+0200 (Egypt Standard Time)". A callout points to the post: "Viewing a friend post on home page".
- Post 4:** A post by **Abdelrahman Magdy** with the text "Magdy Posted on group CSE 2019" and a timestamp "posted at: Thu May 10 2018 21:48:00 GMT+0200 (Egypt Standard Time)". A callout points to the post: "Viewing a friend post on group page".





## Users

List all users in the network and user have ability to add friends from this list

All Users: 20

No of users  
in network



Ibrahim Ahmed

ibrahim@test.com

Add Friend

Press to add user  
to your **friends**



Samuel Farid

samuel@test.com

Allready Friend

Appears when  
user is already  
added to **friends**



Abdelrhman Ahmed

abdo@test.com

Allready Friend

## ➤ Groups

The screenshot displays a user interface for managing groups. On the left, a list of groups is shown: 'CSE 2019' (CSE 2019 Students Group), 'CSE Exchange' (Knowledge Exchange in CSE field), and 'MEDIA CENTER' (Media Center for news). On the right, there are three buttons: '+ Create Group', 'Join', and 'Joined'. Annotations in purple boxes provide context: 'All Groups: 7' points to the group list; 'No of groups in network' points to the 'All Groups: 7' text; 'ability to create group' points to the '+ Create Group' button; 'Press to join group' points to the 'Join' button; and 'Appears when user is already joined to the group' points to the 'Joined' button.

All Groups: 7

No of groups in network

+ Create Group

ability to create group

Join

Press to join group

Joined

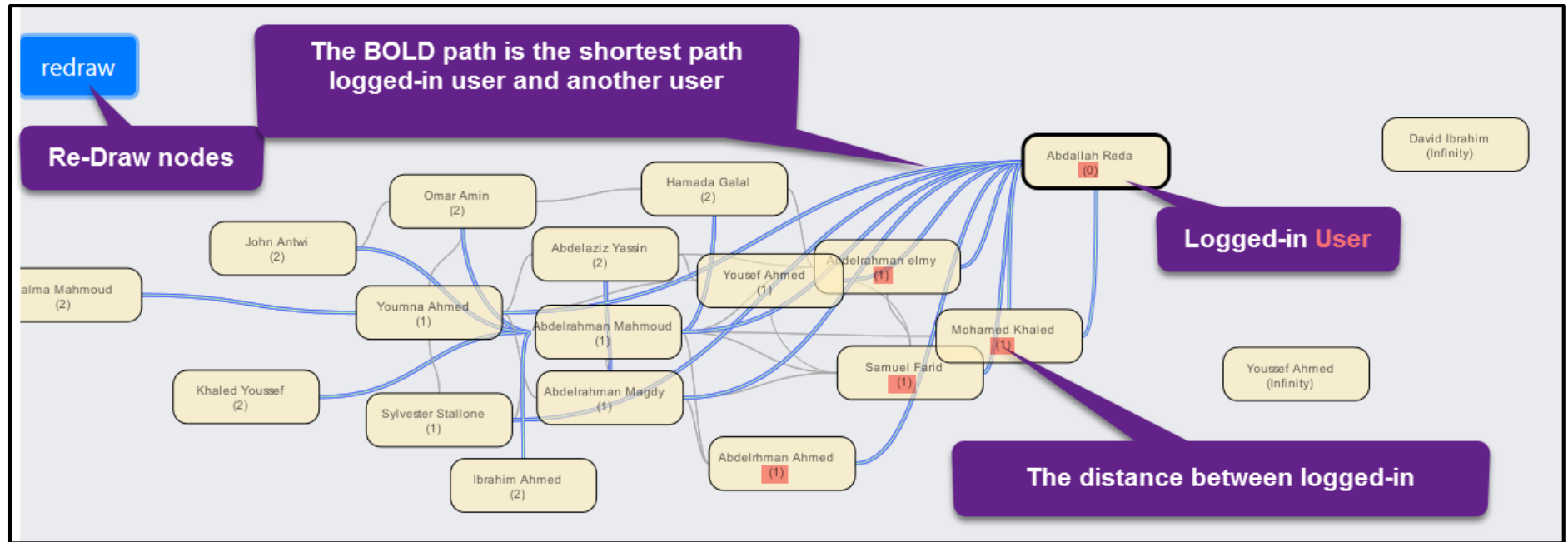
Appears when user is already joined to the group

CSE 2019  
CSE 2019 Students Group

CSE Exchange  
Knowledge Exchange in CSE field

MEDIA CENTER  
Media Center for news

## ➤ Visualization



## ➤ Statistics

- General Statistics

### GENERAL STATISTICS

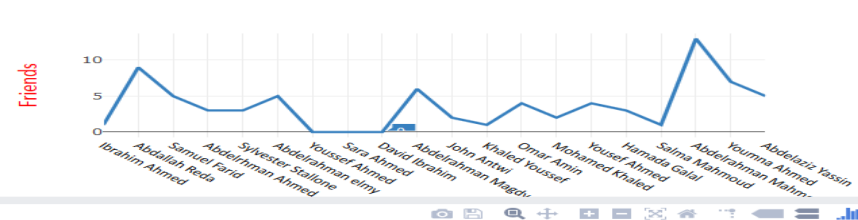
No of users in Network = 20

No of groups in Network = 7

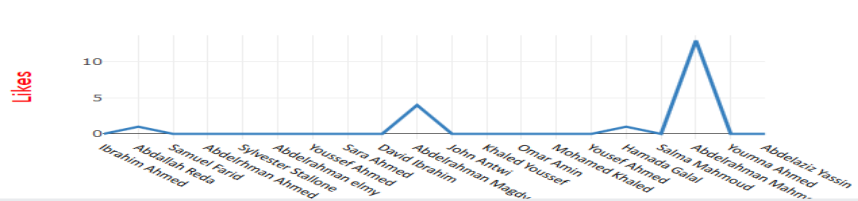
- USER Statistics

### USER STATISTICS

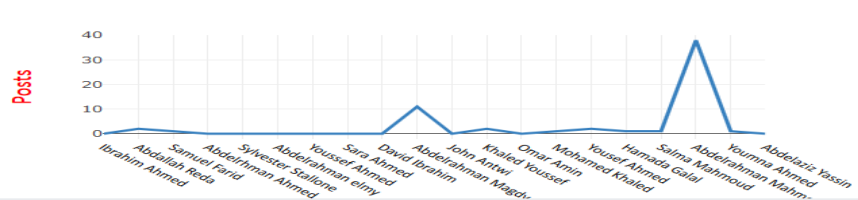
Users vs No. of Friends



Users vs No. of Likes



Users vs No. of Posts



- **GROUP Statistics**

