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Project Report

CPIT-455

LifeQuest Website

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Abstract

Most patients who need blood transfusions post their requests for blood donors on their social media, which is a slow, inefficient approach, and might require direct contact between the donor and the patient.

LifeQuest is a medical Web-based Blood Donation System that aims to find blood donors for emergency patients who need blood transfusions. LifeQuest allows the patients to post requests with the specifications of the required blood in addition to some other information. Using the LifeQuest website, donors can search for patients who need blood to donate. Also, the website allows users to be either patients or donors without creating an account for each use.

This project aims to make blood donation requests as easy as possible and hasten the process (addition to/in order to) of searching for patients who need blood donations.

Introduction

In our daily lives, we come across people on social media who are looking for blood donors for their ill relatives. These people publish the patient's name and age and other information. As a result of the large number of messages we receive on our social media every day, these messages are often skipped or ignored by people. This method is ineffective for finding blood donors. Especially in emergency situations, the patient may not be able to wait long for a suitable blood donation. Furthermore, the patient may not accept the publication of their personal information. In order to speed up the process of finding donors, we developed a website that would enable people to share the message requesting blood donations.

The website aims to help users quickly locate a suitable blood donor. As well, all participants on the website will not be able to see the patient's personal information. Everyone can register and post a request for blood donations.

Problem statement

Many posts are created and shared daily on social media to request a specific blood type for emergency patients. The patients and their families spend a lot of time looking for potential blood donors with no health contraindications that may prevent blood donation. Using social media platforms to connect blood donors with recipients may be ineffective.

Proposed solution

Create [LifeQuest] web application that assists in finding potential blood donors for emergency patients easily by posting a request on the website to find blood donors that match their blood type. The post will include information such as blood type, and hospital name. To make it more secure, extra information will be sent via email to those who will donate. Besides allowing donors to schedule blood donation appointments for the selected patient via this website.

Approach

Scrum is an agile development methodology we used in the development and implementation of the project based on an iterative and incremental processes. It is an adaptable, fast, flexible, and effective agile framework.

This approach requires particular roles and responsibilities, including the scrum master, backlog, sprints, daily meetings, and retrospectives.

Scrum is executed in temporary blocks that are short and periodic, called Sprints. In each Sprint, we provided a complete result.

These sprints can be summarized as follows:

- **Sprint1:** Creating a Google drive, creating a Trello account, creating a GitHub repository, writing the problem statement and proposed solution, writing the requirements, and drawing the use case diagram.
- **Sprint2:** Preliminary Risk assessment, and Security Requirements.
- **Sprint3:** Finalizing Preliminary Risk assessment, finalizing Security Requirements, and Design risk assessment.
- **Sprint4:** Finalizing Design risk assessment, and adding any additional security requirements based on the design.
- **Sprint5:** Starting implementation (creation of database, creation of HTML files, creation of JSP files, and creation of Java classes), and ensuring the use of programming guidelines.
- **Sprint6:** Continue working on implementation.

Requirements and analysis

Functional requirements

- The user shall be able to register.
- The user shall be able to log in by username and password.
- The user shall be able to update their profile.
- The user shall be able to delete the account.
- The user shall be able to post a blood donation request including blood (type/donation type).
- The user shall be able to filter posts for blood requests by blood type, donation type, and/or location.
- The system shall only accept unique username from user.
- The system shall display blood donation instructions for donors.
- The system shall redirect donor to mail program to send an email to the patient when a donor clicks the donate button.

Non-functional requirements

- Usability: The website is simple and straightforward to use, so users will not encounter any challenges.
- Security: The system shall be highly secure by encrypting sensitive information.
- Security: The system shall authorize users by their username and password.

Preliminary risk assessment

Table 1: Asset analysis in preliminary risk assessment

Assets	Value	Exposure
User login information	High. Sign-in information for system users must be inaccessible in case of any attempt of unauthorized access.	High. System confidentiality is lost and may cause harm to many users. Also, may manipulate these information and use it impersonate users.
Users' information records	Medium. Contain confidential information related to all users in the system to prevent spammers from registering.	High. Possible to harm users. There will be legal problems and a loss of reputation as a result.
Website Posts records	Low. Used to display the blood donation requests posted by system users.	Low. Does not cause any harm to system security and system users.

Table 2: Threat and control analysis in preliminary risk assessment

Threat	Probability	Control	Feasibility
Spammers access website and create spam and fake posts.	High	Require all users to authenticate themselves by register to the system using their national ID, then login to their accounts	Medium cost to implement. Possible user resistance.
Structured Query Language (SQL) injection	Medium	Restrict user inputs by input validation and rejecting any potentially malicious code elements, such as single or double quotes, question marks.	An effective and low-cost implementation control can be used to detect an attack before it occurs.
Data breaches and manipulation of blood requests posts by the attacker.	Medium	Save posts information in a disparate places “database”, to provide security against data manipulation attacks, limit program data visibility and backups are also considered an effective tool for protecting data from manipulation.	Technically feasible but high-cost to provide the backups.
Denial of service attack	High	Having servers in different networks with no single point of failure or bottlenecks, as well as ensuring that the network have a high level of security.	Since users want to access the system at any time, this is an extremely helpful feature. In some cases, though, it can be an expensive solution.

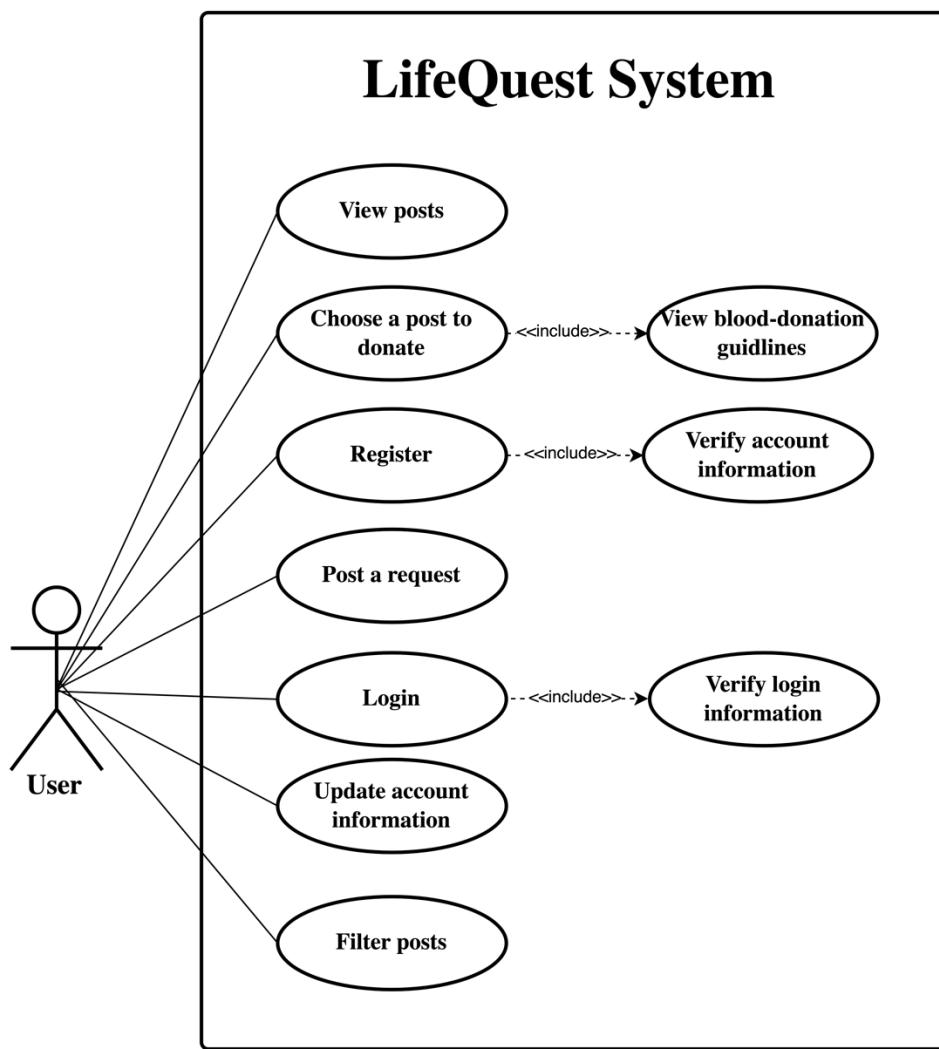
Security requirements

- The system shall allow the user to sign in after successful registration.
- The system shall validate user login by comparing their username and password with the one in the database of the system.
- The system shall allow the authorized users to post blood requests.
- The system shall not accept a weak password.
- The system shall verify the user password before login.
- The system shall check input fields entered by the user.
- The system shall assign a unique session for each user to access the website.

Security Countermeasures

- Authentication
Username/password combination used to authenticate users. Accessing the website pages requires the user's data to be verified and present in the database.
- Authorization
It is not possible for an unauthorized user to enter any secure page of the website pages by directly entering the URL, as the user must log in using username/password combination to visit any website page.
- Access Control
In order to minimize unauthorized access to the website pages, users are unable to access some of the website pages with invalid or undefined login information in the database.

Use case Diagram



Use Case Description

LifeQuest system: choosing a post to donate	
Actors	User.
Description	User can choose one of the blood donations posts to donate for by contacting the post creator via the creator email address.
Data	Posts information and post creators' emails.
Stimulus	The user clicks "Donate" button for specific post.
Response	Open user email's program with post creator email and a page on the website contains a blood donation guideline.
Comments	User can choose post request to start contact post creators to donate for them.

LifeQuest system: View Posts	
Actors	User
Description	Users can view blood request posts based on applied filters. Users can filter results by blood type, location, and/or type of donation (whole blood, platelet, or plasma donation).
Data	Blood donation request posts.
Stimulus	The user wants to view all the posts, or the user wants to find posts based on specific conditions.
Response	View blood donation request posts.
Comments	The user can view posts without any conditions, or with a set of conditions "filters".

LifeQuest system: Post a Request	
Actors	user
Description	User can fill blood donation request form and post it with all the details on the website. The post will be available for all website users.
Data	Blood donation request posts.
Stimulus	The user open create post page to create post looking for a blood donor.
Response	<ul style="list-style-type: none"> The post is saved in the database successfully and appears on the posts page for all users. If the user didn't fill in all the required fields in the form, the website will show an error message and ask the user to enter the missing fields.
Comments	The user is required to fill in the mandatory fields in order to post a request.

LifeQuest system: Register	
Actors	User.
Description	User account can be created by clicking "Sign up" button. Then, the user must enter right necessary information to create a new user account.
Data	Username, password, email, phone number, blood type, national ID, date of birth.
Stimulus	Open the website and wants to be able to log into their account.
Response	Create new user account.
Comments	The new user account can be created if the user enters all the required information that must be valid.

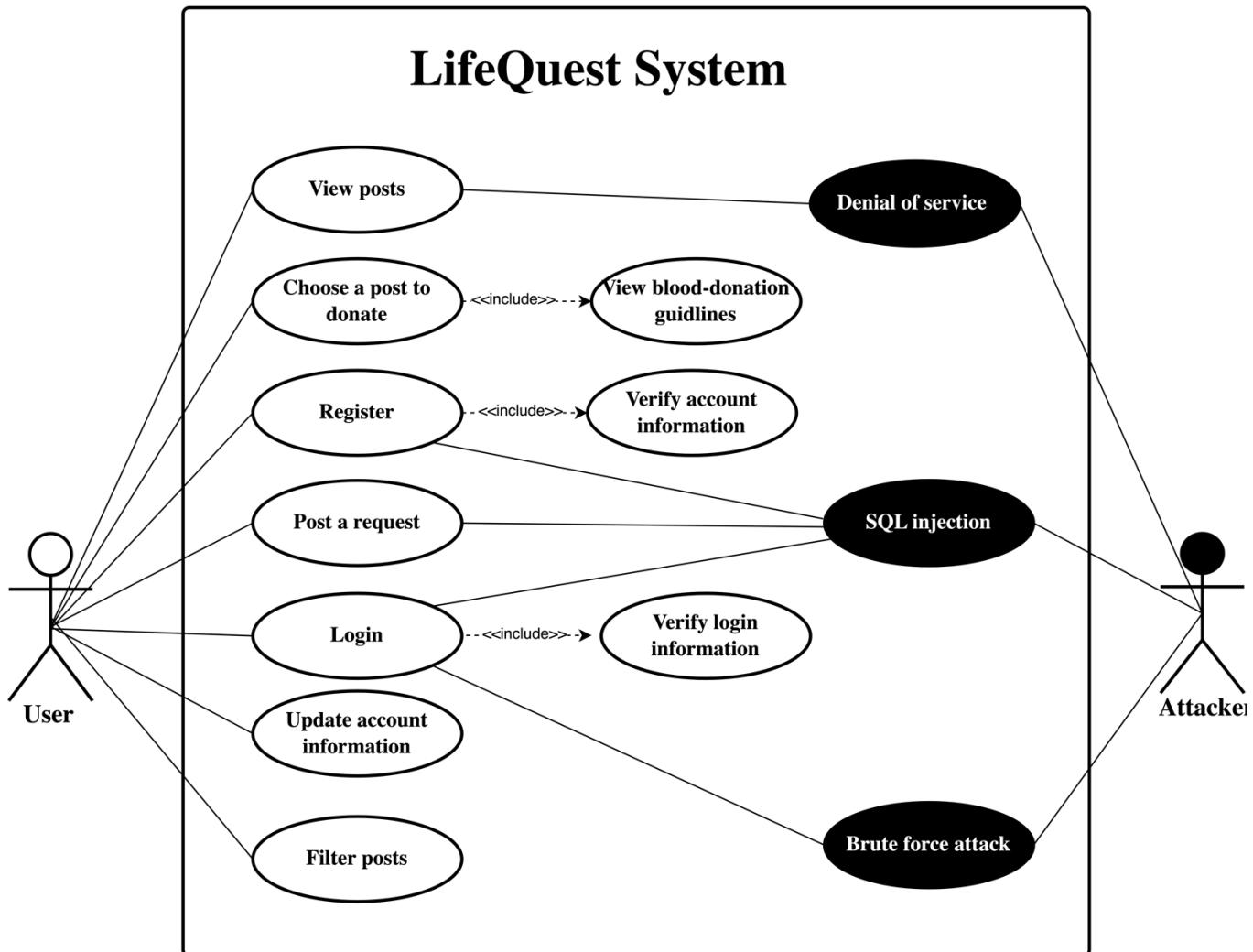
LifeQuest system: view blood donation guidelines	
Actors	User.
Description	User can view all blood donation guidelines and information after choosing a blood donation request.
Data	The blood donation guidelines.
Stimulus	The user clicks "Sure" button.
Response	User receives an email with all required information.
Comments	User can view all blood donation guidelines before confirming the donation offer.

LifeQuest system: Filter posts	
Actors	User.
Description	All website users can filter the posts based on the fields they interest in. Users can filter the displayed posts by blood type, blood donation type, and/or the city name.
Data	Blood donation request posts.
Stimulus	The users want to find blood request posts they can donate to them, e.g., they live in the same city, or they have the same blood type.
Response	Redisplay the posts to show only the post's complaints with filters the user selects.
Comments	The filter is an optional feature for website users. The user can select all the filters, one filter, or none of the filters.

LifeQuest system: Update account information	
Actors	User.
Description	The user can update the account information.
Data	User's account information.
Stimulus	After the user logged in, he can update the account information by clicking the update button.
Response	Update the user's account information and show a confirmation message
Comments	There is no restriction on what the user can update, except for the national id.

LifeQuest system: Login	
Actors	User.
Description	The user account can be accessed by entering the correct username and password after registration. Each time the user logs in, a new session is established.
Data	Username, password.
Stimulus	User command issued by system authentication.
Response	Accessing the website successfully.
Comments	The user must have permission (an account) to access to login to the website.

Misuse case diagram

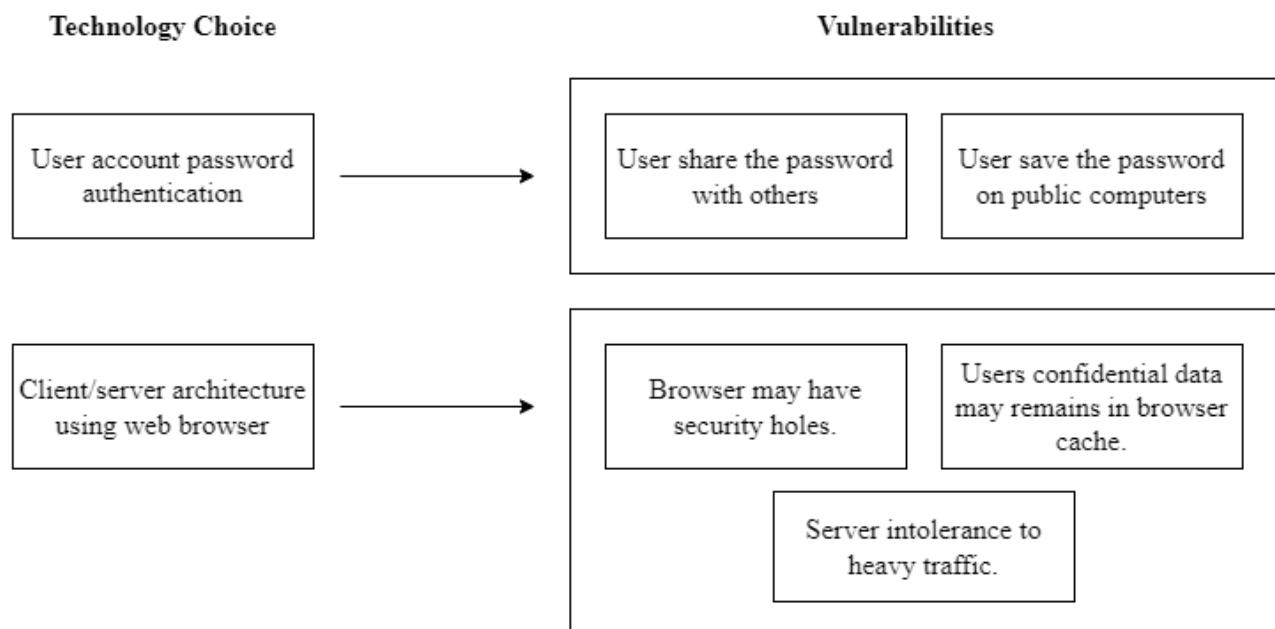


LifeQuest system: Brute Force Attack (Misuse case)	
Actors	User, Attacker
Description	The attacker guesses login info to gain unauthorized access to the web page
Data (assets)	Login information
Attacks	Use excessive automated forceful attempts by working through all possible combinations of usernames and passwords hoping to guess correctly [1]
Mitigations	Ensure that the user is using an advanced strong username and password, certificate-based client-server communication must be used
Requirements	<ul style="list-style-type: none"> • All usernames and passwords must be checked for strength • All communications between the client and the server must use the SSL. The https protocol uses certificate-based authentication and encryption

LifeQuest system: Denial of Service Attack (Misuse case)	
Actors	User, Attacker.
Description	Impact system availability by making the system services inaccessible to its intended users.
Data (assets)	Blood donation requests.
Attacks	Overwhelming or flooding the system servers with requests (traffic) until normal traffic is unable to be processed. [2]
Mitigations	Identifying and banning unauthorized traffic at the routing level, managing and evaluating the services' bandwidth.
Requirements	<ul style="list-style-type: none"> • Attack Detection • Allowing and Denying Specific IPs. • Rate Limiting • Upstream Filtering and DDS. • Programming for Scale

LifeQuest system: SQL injection (Misuse case)	
Actors	User, Attacker.
Description	SQL injection is exploited to read sensitive data, modify database data (insert, update, or delete), or execute some operations on the database. [3]
Data (assets)	Login information, account information.
Attacks	Insertion or injection of SQL query via the input data from the attacker to the website.
Mitigations	Check the validity of all user inputs to the system before process it and store it in the database.
Requirements	<ul style="list-style-type: none"> • Verify user input based on given rules • Set a customized criteria to be checked for each input field. • Provide a dropdown menu whenever it is feasible to reduce user input as possible.

Design risk assessment



Design decisions

Dependable programming guidelines

Guidelines	Applicable?	How?
Limit the visibility of information in a program	Yes	Storing user information in a private sql tables and using private variables in the system whenever is possible.
Check all inputs for validity	Yes	Validate all input entered by the user is valid (email address must contain @), national ID must contain only numbers, password must contain at least 8 characters and 1 uppercase letter and 1 lowercase letter, and phone number should be at most 10 characters. Also, validate all the input fields for creating new post.
Provide a handler for all exceptions	Yes	Handler exceptions for all methods that handle all exceptions are provided.
Minimize the use of error-prone constructs	Yes	Processing inputs after ensuring its type and validity. Avoid using more than one name to refer to state variable.
Provide restart capabilities	Yes	Our website is providing restart capabilities by allowing the user to just re-enter the wrong input.
Check array bounds	No	-
Include timeouts when calling external components	No	-
Name all constants that represent real-world values	No	-

Security guidelines

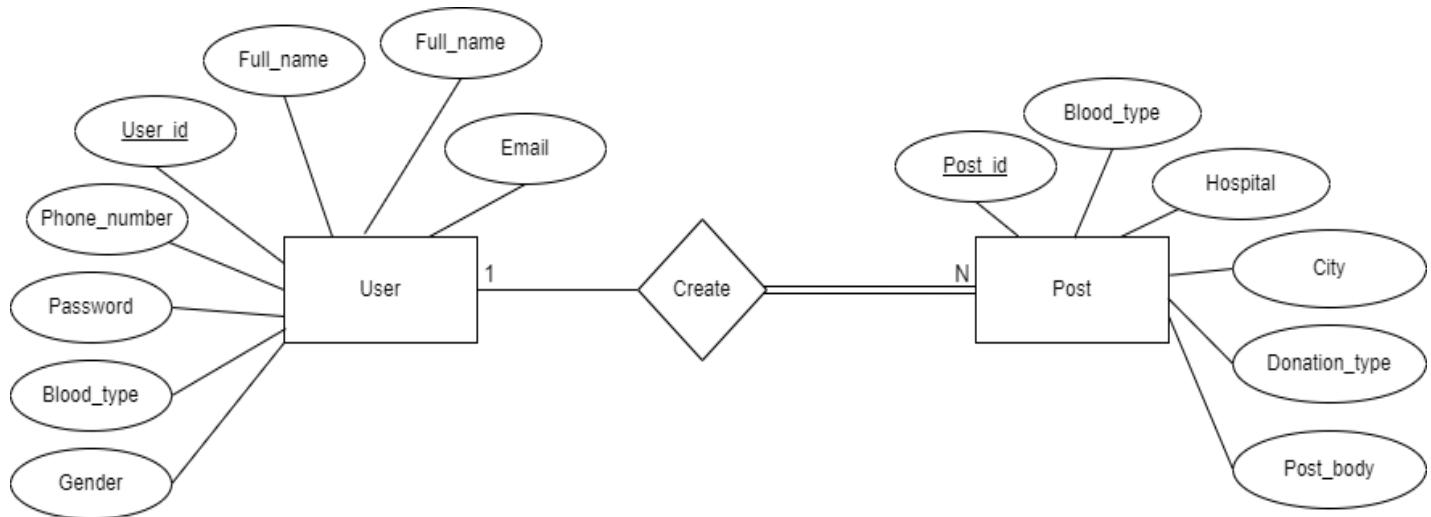
Security Guidelines	Applicable?	What design used?
Base security decisions on an explicit security policy	No	
Avoid a single point of failure	Yes	Ensure that when several procedures are carried out, the system may fail. As an illustration, if an attacker attempts to get into the system and enters the correct email address but the incorrect password, a warning stating "Your email address or password incorrect" will appear, making it difficult for the attacker to access the user login information.
Fail securely	Yes	We retain user information in distinct places from other information.
Balance security and usability	Yes	While concentrating on building a secure website that guards its assets against failure situations, we also provide a simple navigation process and a friendly user experience to boost usability.
Log user actions	No	
Use redundancy and diversity to reduce risk	Yes	We won't lose our work if the attacker or any other external resource damages our project because we are using a different server from our database to store our project files.
Specify the format of all system inputs	Yes	To prevent issues from being caused by unexpected inputs, all system input formats in forms are known, specified as being within range, and compared with a potential pattern. An email address should, for instance, begin with "example.com."
Compartmentalize your assets	Yes	We keep our assets in disparate places "database", so when the system displays information, just the user-required data is shown.
Design for deployment	No	
Design for recoverability	No	

Security Testing

Security checklist	Input	Expected output	Actual output	Pass /fail
Create new user account with all correct inputs.	Username, password, email, national ID, phone number, birthday, blood type.	The page contains a welcoming and successful message.	A page contains a welcoming and successful message.	pass
Create new user account with some missing inputs (not entering the username)	Username, password, email, national ID, phone number, birthday, blood type.	Account will not be created, and a “Please fill out the field” message will display	A “Please fill out the field” message is displayed.	pass
Create new user account with some invalid inputs (unrequested format of password)	Username, password, email, national ID, phone number, birthday, blood type.	Account will not be created, and a “Please match the request format” message will display	A “Please match the request format” message is displayed.	pass
Log in into the system (user account) with all correct login information	Username, password	The user will log his account, and the system will display the home page.	The system displays the home page.	pass
Log in into the system (user account) with invalid login information (invalid username)	Username, password	The user cannot access their account, and the system will display the login page again.	The system displays the login page again.	pass
Accessing account page while user doesn't authorize themselves	No inputs	Redirect the user to the login page to be authorized.	The system redirects the user to the login page.	pass
Accessing create post page while user doesn't authorize themselves	No inputs	User can not access it and the website ask to login or sign up first to access it.	The system shows a message that asks the user to login or sign up first.	pass

Database Design ER model

Since we have a database in the LifeQuest system, we used the Entity Relationship Diagram to sketch out the design of a database and show the relationships of entity sets stored in a database. The figure below shows the ER diagram for the LifeQuest system.



High-level Prototype

LOGO [Home](#) [Donation Requests](#) [Search For Donor](#) [About Us](#) [Log In](#)

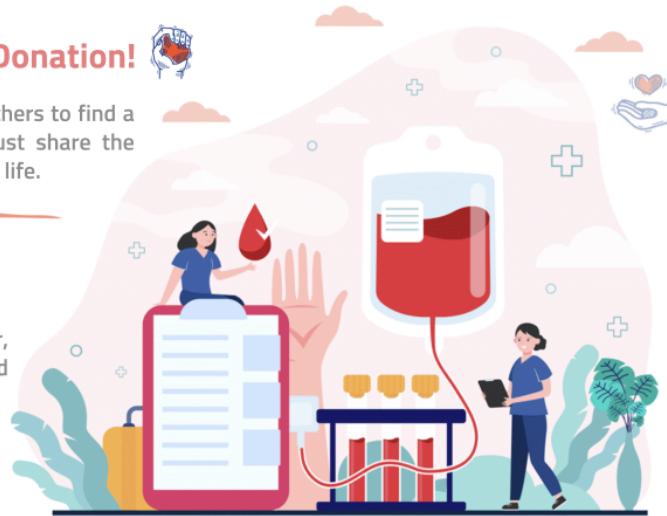
Save Souls By Your Donation! 

By your contribution to help others to find a donor, donate for them, or just share the website; you'll save someone's life.

Find a Donor 

If you look for an urgent donor, post all the details, and definitely someone will help :)

[Register Now!](#)



LOGO 

Registration

First Name	Last Name	
<input type="text"/>	<input type="text"/>	
Email	Phone Number	
<input type="text"/>	<input type="text"/>	
Birthdate	National ID	
<input type="text"/>	<input type="text"/>	
City	Blood Type	Gender
<input type="text"/>	<input type="button" value="▼"/>	<input type="button" value="▼"/>

[Register](#)

Already Have an Account? [Log in](#)



LifeQuest
Join us to help others



LOGO Home [Donation Requests](#) Search For Donor About Us

Welcome Sara Ahmad

Blood Donation Request

Filter Results By: City ▾ Blood Type ▾ Donation Type ▾



Request Type	Type	City	Age
Whole Blood	A+	Jeddah	25
White platelets	AB-	Riyadh	42
White platelets	AB-	Riyadh	42
Whole Blood	A+	Jeddah	25
White platelets	AB-	Riyadh	42
White platelets	AB-	Riyadh	42

LOGO Home [Donation Requests](#) Search For Donor About Us

[Sign up](#) [Login](#)



Create new account.

Already a member? [Login](#)

Sign Up

Username

Password

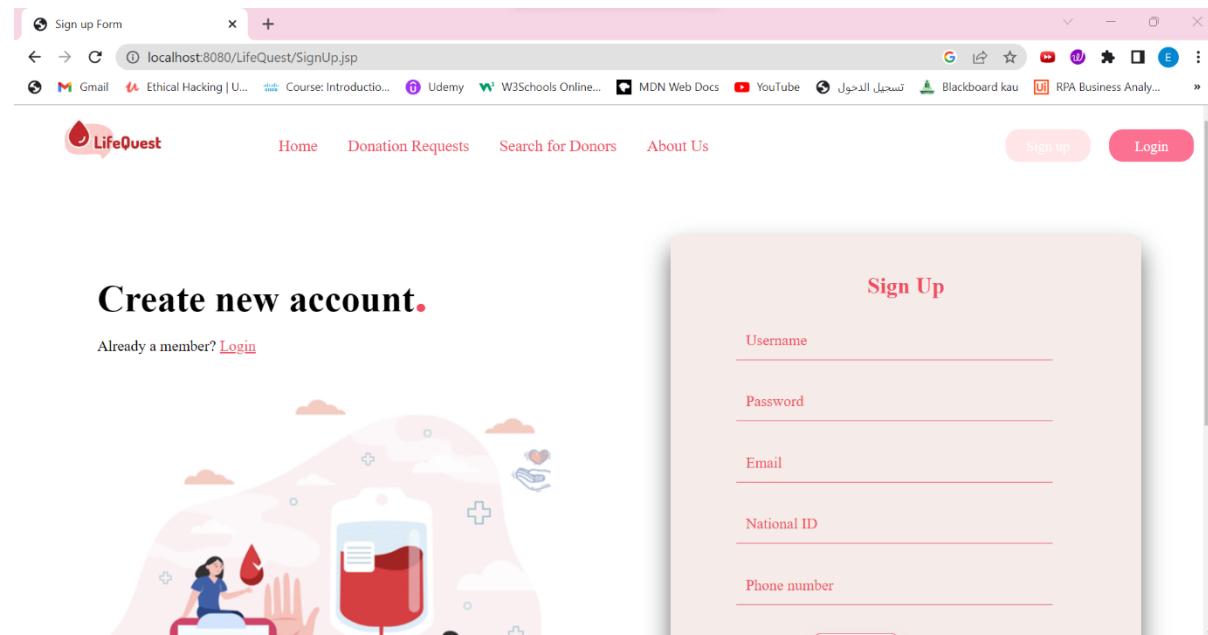
Email

Phone

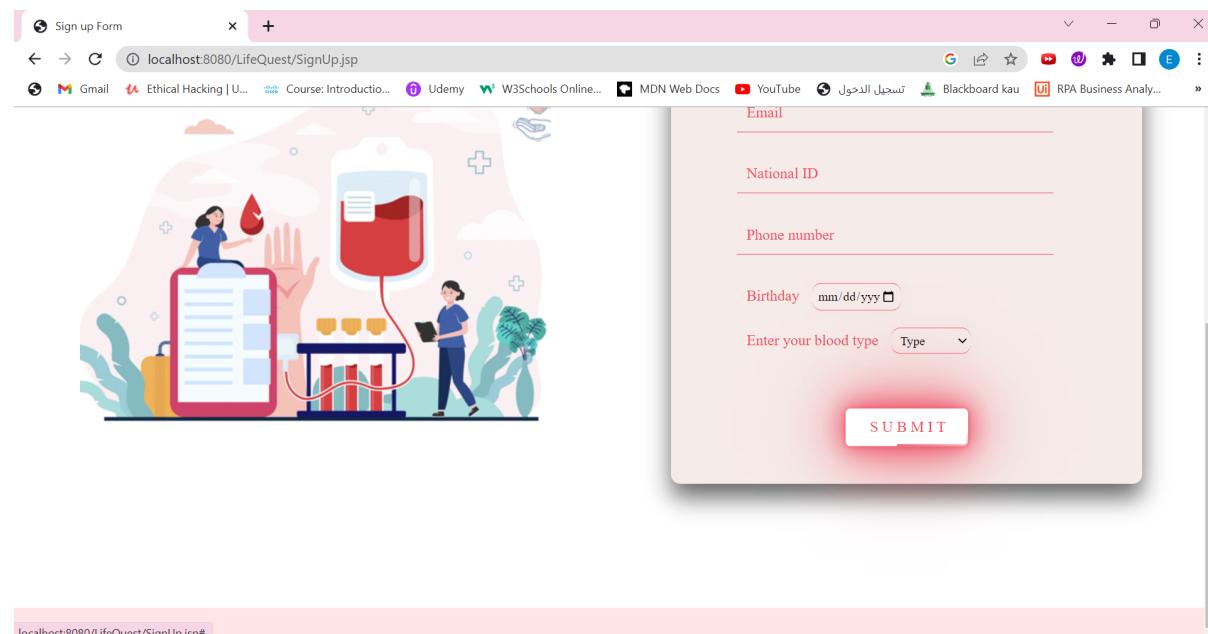
[Sign up](#)

Graphical User Interface

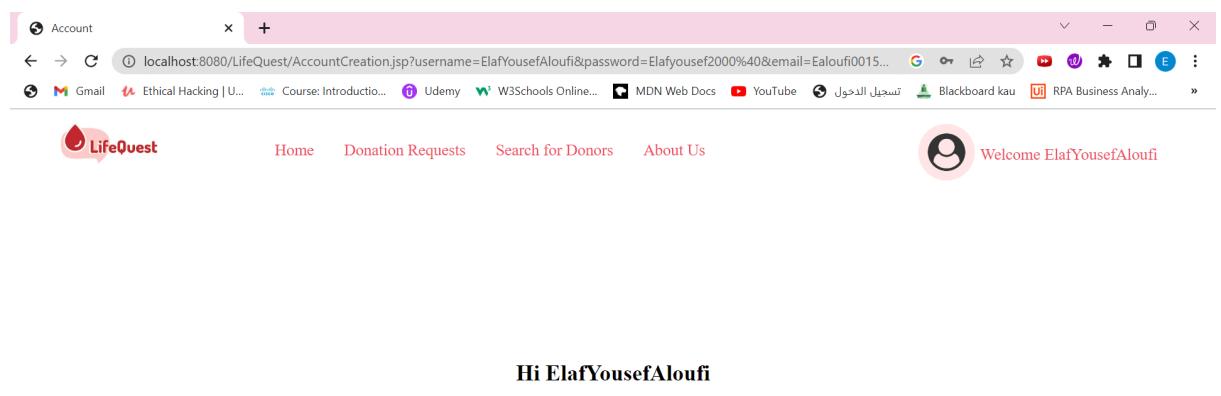
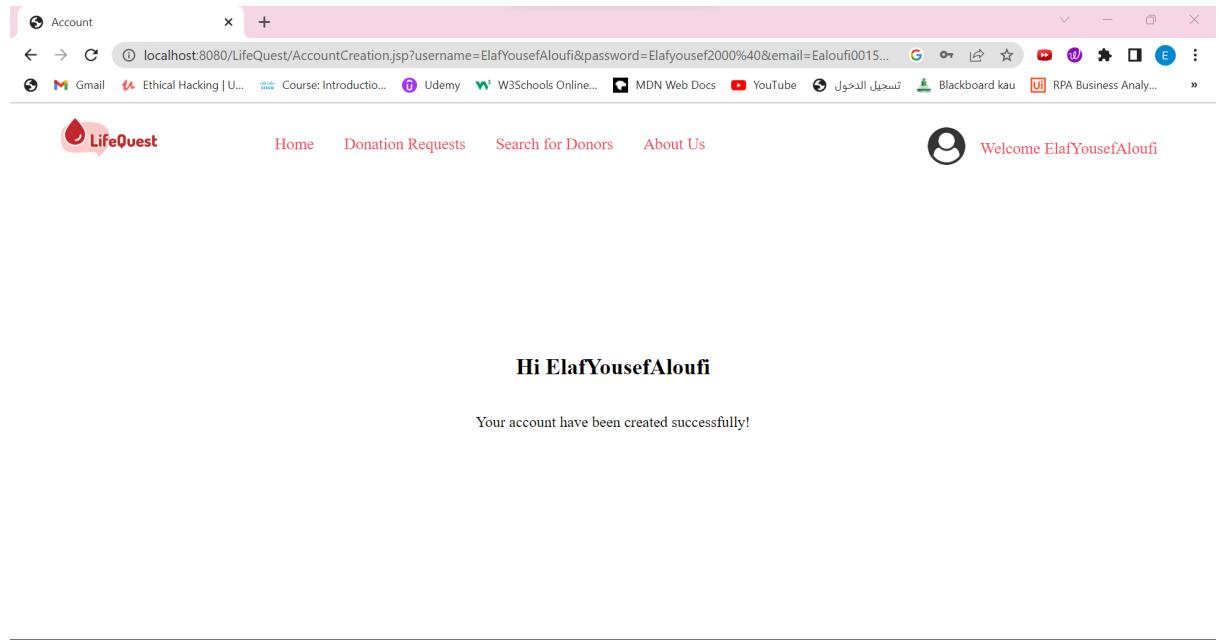
Sign Up Page



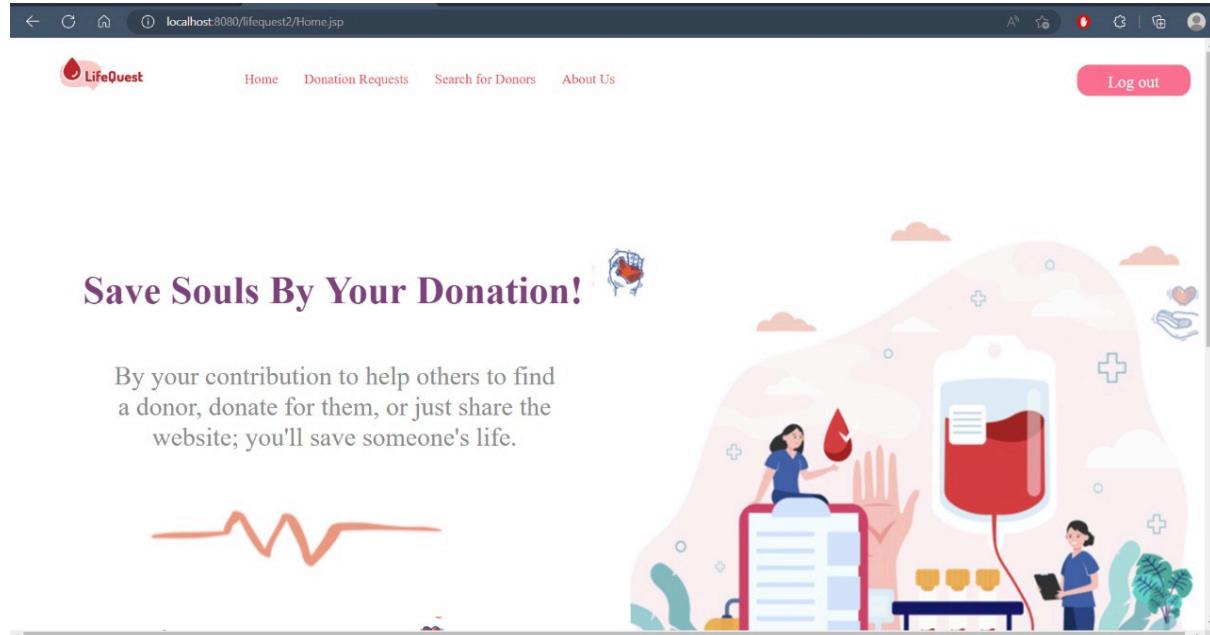
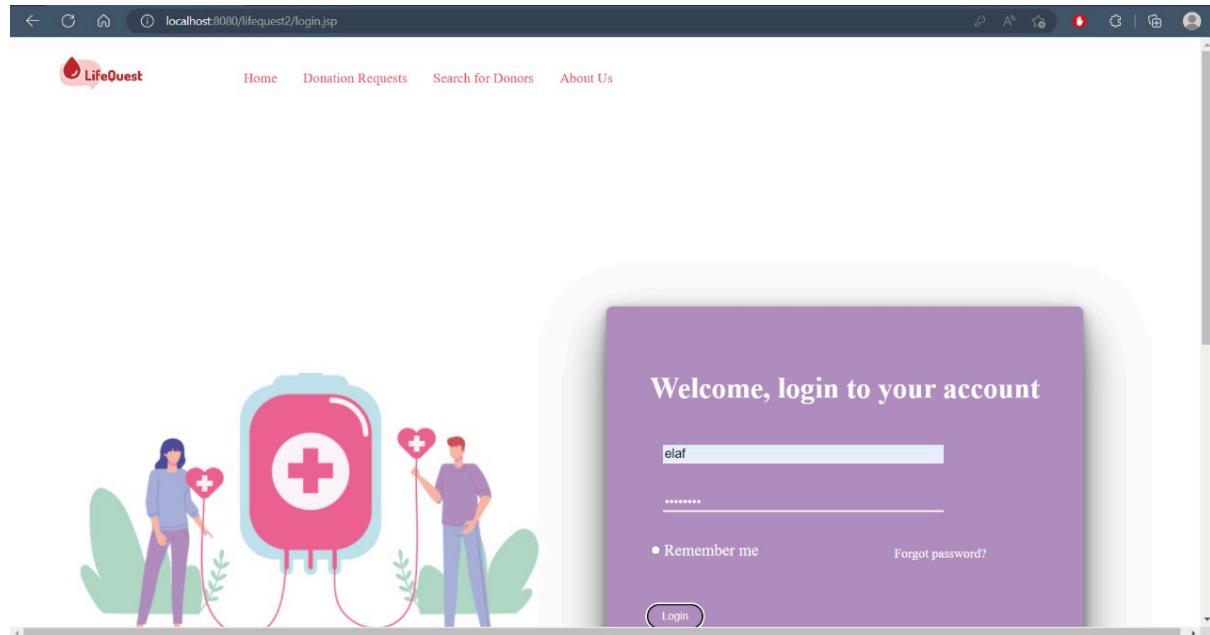
The screenshot shows the initial state of the 'Sign Up' form. It features a header with the 'LifeQuest' logo and navigation links for Home, Donation Requests, Search for Donors, and About Us. Below the header is a large, colorful illustration of a person donating blood, with a blood bag and medical symbols. The main form area has five input fields: 'Username', 'Password', 'Email', 'National ID', and 'Phone number'. A 'Sign Up' button is located at the bottom right of the form.



This screenshot shows the form after some fields have been populated. The 'Email' and 'National ID' fields are now filled with placeholder text. A 'Birthday' field with a date picker icon and a 'Enter your blood type' dropdown menu are also visible. The 'SUBMIT' button is highlighted with a red glow at the bottom of the form.



Login Page



Add Post Page

The screenshot shows a web browser window titled "localhost:8080/LifeQuest/Create_Post.jsp". At the top, there is a navigation bar with links for "Home", "Donation Requests", "Search for Donors", and "About Us". On the right side of the header, there is a user profile icon and the text "Welcome JoudAlghandi". The main content area has a title "Create Blood Donation Request Post" and a subtitle "The Post will be Published on The Website, and Donors Will Then Start Contact You.". Below this, there is a form titled "New Post" with fields for "City" (containing "i.e. Jeddah"), "Hospital Name" (containing "i.e. KAU Hospital"), "Blood Type" (a dropdown menu), "Post Body (Optional)" (a text area with placeholder "Post Length Shouldn't Exceed 140 Letters"), and two buttons at the bottom: "Create" and "Clear".

View Posts Page

The screenshot shows a web browser window titled "localhost:8080/LifeQuest/View_Post.jsp". At the top, there is a navigation bar with links for "Home", "Donation Requests", "Search for Donors", and "About Us". On the right side of the header, there is a user profile icon and the text "Welcome SaraAhmad". The main content area has a title "Blood Donation Requests" and a subtitle "People Posts Their Urgent Blood Request, Donate To Help Them.". Below this, there is a section titled "Filter Results" with dropdown menus for "Blood Type", "Blood Donation Type", and "City", followed by a "Filter" button. There are two main cards displayed. The first card is for "JoudAlghandi" from "In KAU Hospital Looking For A+ Blood Type" posted on "2022-11-05". It says "We need plasma blood donor" and shows an "A+" blood type icon with "Plasma" and "Jeddah, KAU Hospital" details, with a "Donate" button. The second card is for "SaraAhmad" from "In KAH Hospital Looking For AB+ Blood Type" posted on "2022-11-05".

Instruction Page

Blood Donation:

An act of voluntary transfusion in which a healthy person gives blood, or one of its components, to an ill person who needs it. Injuries and diseases that require blood transfusions lead to the necessity of this process every year for millions of people.

Blood Types:

- Full blood.
- Platelets.
- Plasma.
- Red blood cells.

Importance of Blood Donation:

In cases such as these, blood transfusion is a life-saving procedure:

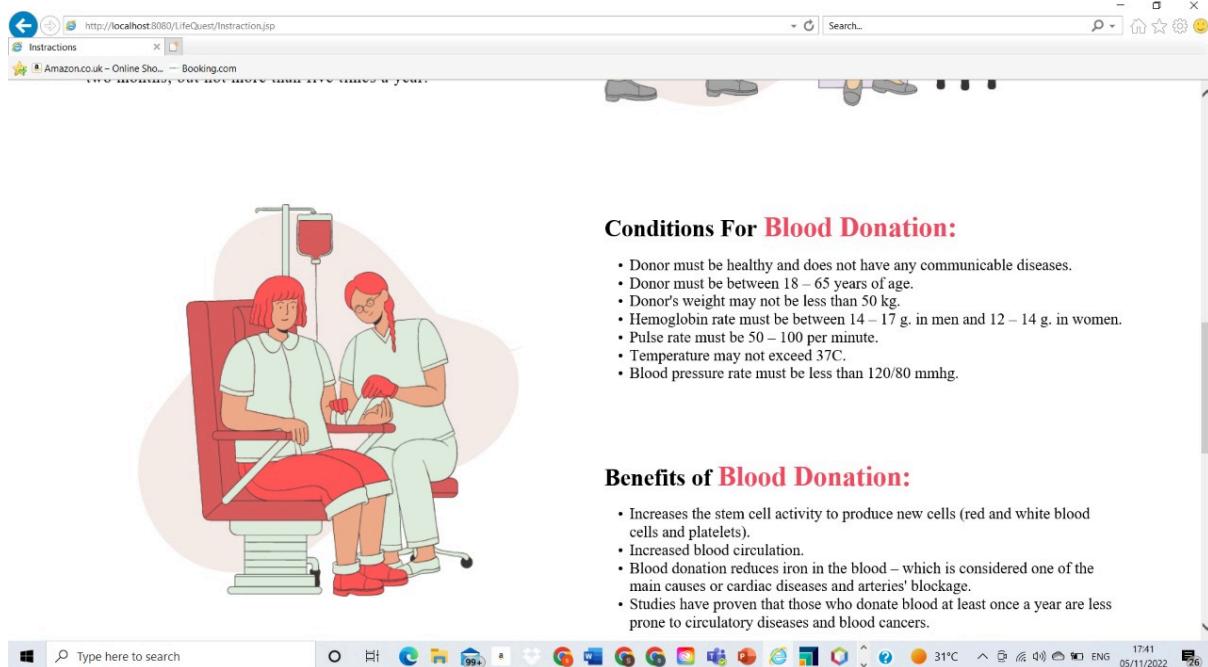
- safe our users information to be secure.
- Increase people focus on blood donation requests.
- Posting donation requests easily.
- Give people information about donation.



Amount of Donated Blood:

A healthy adult may donate 450 – 500 ml. No health risks or concerns are associated with blood donation, and donors may donate blood every two months, but not more than five times a year.

17:41 05/11/2022 26

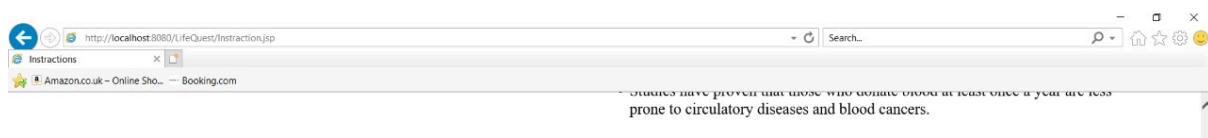


Conditions For Blood Donation:

- Donor must be healthy and does not have any communicable diseases.
- Donor must be between 18 – 65 years of age.
- Donor's weight may not be less than 50 kg.
- Hemoglobin rate must be between 14 – 17 g. in men and 12 – 14 g. in women.
- Pulse rate must be 50 – 100 per minute.
- Temperature may not exceed 37C.
- Blood pressure rate must be less than 120/80 mmhg.

Benefits of Blood Donation:

- Increases the stem cell activity to produce new cells (red and white blood cells and platelets).
- Increased blood circulation.
- Blood donation reduces iron in the blood – which is considered one of the main causes of cardiac diseases and arteries' blockage.
- Studies have proven that those who donate blood at least once a year are less prone to circulatory diseases and blood cancers.



Cases Where Blood Donation is Prohibited:

- People less than 18 years.
- People with communicable diseases such as AIDS, Hepatitis B and C, Syphilis, malaria.
- People with genetic blood diseases.
- People who suffer acute anemia.
- People suffering from chronic diseases such as diabetes, hypertension and cancers.



Tips After Donating Blood:

- After donating blood, take some rest and have a light snack, and you can leave the donation center after 10 – 15 minutes.
- Avoid excessive physical efforts or lifting heavy objects for 5 hours after donation.
- If you feel dizzy, it is advisable to lie down on the back and lift the legs.
- Drink plenty of fluids.



About Us Page



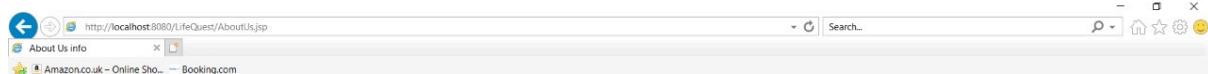
About US.

LifeQuest is a website that aims to assist in finding potential blood donors for emergency patients quickly. Instead of posting the patients' information on all the social media applications, and many people ignore it, they can post their request here to let them know they need blood donation.



Our Objectives.

- safe our users information to be secure.
- Increase people focus on blood donation requests.
- Posting donation requests easily.
- Give people information about donation.



Our Mission

LifeQuest is a nonprofit website whose mission is to focus on requesting blood donation by posting request contains all important patients information. The website strives to provide easiest way to request the blood donation for the patients and their families. LifeQuest is...circulating hope.

Our Purpose

LifeQuest here to provide information about the patients who needs the blood donation and important information about the donation processes and to provide a huge hope for patient's families. We hope that our website as a resource not only for patient's information but for personal support at donation journey for donors. Our community is small but growing and we hope to offer support and information to the patients and their families.



Testing

Sign Up

Screenshot of the 'Create new account.' sign-up page. The page features a medical-themed illustration of a blood donation scene. The URL in the address bar is `localhost:8080/LifeQuest/SignUp.jsp`.

Create new account.

Already a member? [Login](#)

Sign Up

Username	<input type="text"/>
Password	<input type="password"/> Please fill out this field.
Email	<input type="text" value="Elaouf0015@stu.kau.edu.sa"/>
National ID	<input type="text" value="1911265123"/>
Phone number	<input type="text" value="0509117257"/>
Birthday	<input type="text" value="05/15/2000"/>
Enter your blood type	<input type="text" value="O+"/>

Screenshot of the 'Create new account.' sign-up page. The page features a medical-themed illustration of a blood donation scene. The URL in the address bar is `localhost:8080/LifeQuest/SignUp.jsp`.

Create new account.

Already a member? [Login](#)

Sign Up

Username	<input type="text" value="ElaYousefAlouf"/>
Password	<input type="password"/> Please match the requested format. Must contain at least one number and one uppercase and lowercase letter, and at least 8 or more characters
National ID	<input type="text" value="1911265123"/>
Phone number	<input type="text" value="0509117257"/>
Birthday	<input type="text" value="05/15/2000"/>
Enter your blood type	<input type="text" value="O+"/>

Sign up Form

localhost:8080/LifeQuest/SignUp.jsp

Already a member? [Login](#)

Sign Up

Username	ElafYousefAloufi
Password	*****
Email	Elaoufi0015
! Please include an '@' in the email address. 'Elaoufi0015' is missing an '@'.	
Phone number	0509117257
Birthday	05/15/2000
Enter your blood type	O+

Sign up Form

localhost:8080/LifeQuest/SignUp.jsp

Already a member? [Login](#)

ElafYousefAloufi

Password

Email

Elaoufi0015@stu.kau.edu.sa

National ID

191126|

Phone ! Please match the requested format.
05091

Birthday 05/15/2000

Enter your blood type O+

S U B M I T

Sign up Form

localhost:8080/LifeQuest/SignUp.jsp

Already a member? [Login](#)

ElaYousefAloufi

Password

Email

Elaoufi0015@stu.kau.edu.sa

National ID

1911265000

Phone number

0509

Birthday

Please match the requested format.

Enter your blood type O+

S U B M I T

localhost:8080/LifeQuest/SignUp.jsp#

Sign up Form

localhost:8080/LifeQuest/SignUp.jsp

Elaoufi0015@stu.kau.edu.sa

National ID

1911265000

Phone number

0509117257

Birthday 05/15/2000

Enter your blood type O+

S U B M I T

The screenshot shows a web browser window with the URL localhost:8080/LifeQuest/AccountCreation.jsp?username=ElafYousefAloufi&password=Elaf2000%40&email=Elaloui0015%40stu..... The page displays a success message: "Hi ElafYousefAloufi" and "Your account have been created successfully!". The header includes the LifeQuest logo and navigation links for Home, Donation Requests, Search for Donors, and About Us. A welcome message "Welcome ElafYousefAloufi" is also present.

The screenshot shows the MySQL Workbench interface connected to a Local instance MySQL80. In the Navigator pane, the lifequest schema is selected, and the account table is expanded. A query editor window titled "Query 1" contains the following SQL code:

```
use lifequest;
SELECT * FROM account;
```

The Result Grid shows one row of data from the account table:

username	password	email	id	phoneNumber	birthdate	bloodType
ElafYousefAloufi	Elaf2000@	Elaloui0015@stu.kau.edu.sa	1911265000	0509117257	2000-05-15	O+

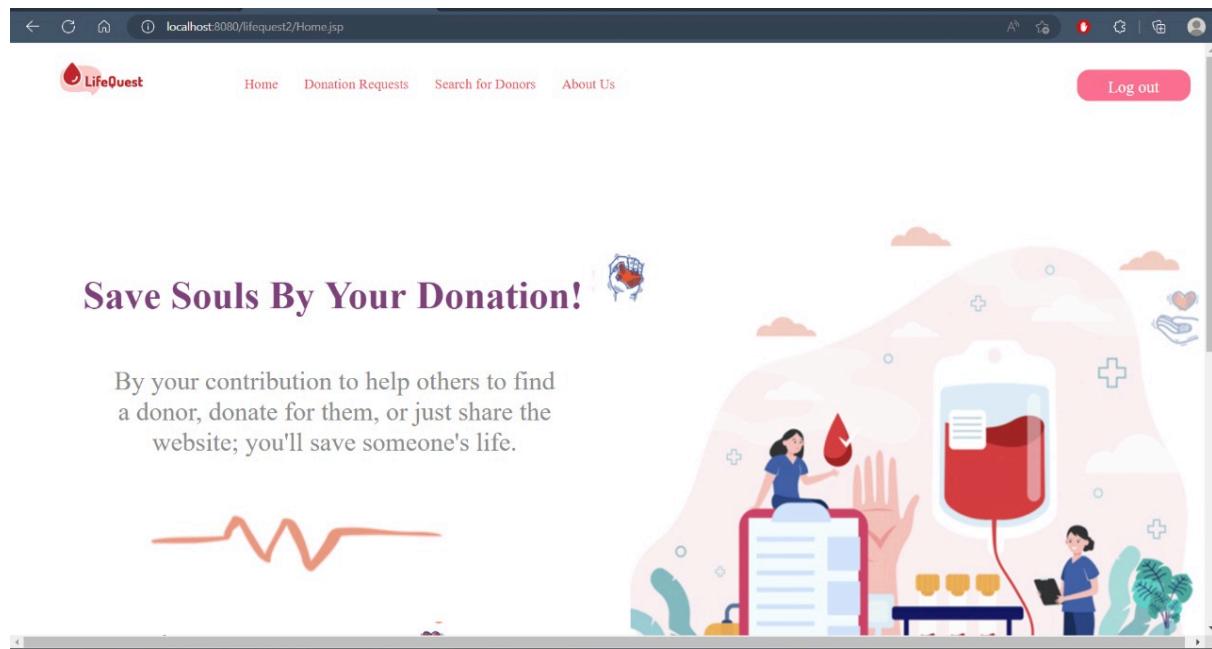
The Output pane shows the execution log for the query:

#	Time	Action	Message	Duration / Fetch
26	17:20:11	use lifequest	0 row(s) affected	0.000 sec
27	17:20:11	SELECT * FROM account LIMIT 0, 1000	3 row(s) returned	0.000 sec / 0.000 sec
28	17:20:01	use lifequest	0 row(s) affected	0.000 sec
29	17:21:01	SELECT * FROM account LIMIT 0, 1000	1 row(s) returned	0.000 sec / 0.000 sec

Login

The screenshot shows a web browser window for the 'LifeQuest' website at localhost:8080/lifequest2/login.jsp. The page features a purple header with the text 'Welcome, login to your account'. Below the header is a login form with fields for 'username' (containing 'elaf') and 'password' (containing '*****'). There is a 'Remember me' checkbox and a 'Forgot password?' link. A 'Login' button is located at the bottom of the form. The background of the page includes a decorative illustration of two people holding heart-shaped balloons and a large red blood bag with a white cross.

The screenshot shows a web browser window for the 'LifeQuest' website at localhost:8080/lifequest2/login.jsp. The page features a purple header with the text 'Welcome, login to your account'. Below the header is a login form with fields for 'username' (containing 'elaf') and 'password' (containing '*****'). A yellow warning box appears, stating: 'Please match the requested format. Must contain at least one number and one uppercase and lowercase letter, and at least 8 or more characters'. The background of the page includes a decorative illustration of two people holding heart-shaped balloons and a large red blood bag with a white cross.



MySQL Workbench

C3A_4

File Edit View Query Database Server Tools Scripting Help

Navigator

SCHEMAS

- liferequest
 - Tables
 - account
 - Views
 - Stored Procedures
 - Functions
 - manar_1906775
 - skills
 - sys
 - world

Query 1 account account account account

```
1 • SELECT * FROM liferequest.account;
```

Result Grid | Filter Rows: | Edit: | Export/Import: | Wrap Cell Content: |

username	password	email	id	phoneNumber	birthdate	bloodType
Manar	12345	manar.altairy@gmail.com	112233	0501432668	2000-07-17	O
elaf	Aa1234567890	elaf12@gmail.com	1234512345	0501432668	2022-10-31	AB-

SQLAdditions

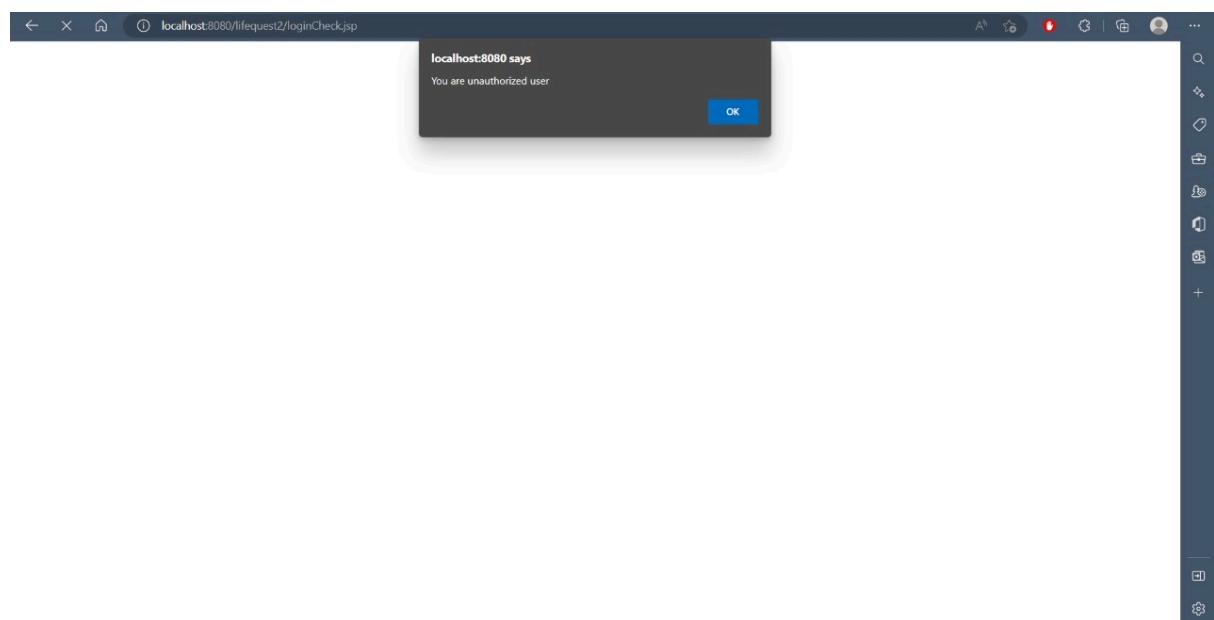
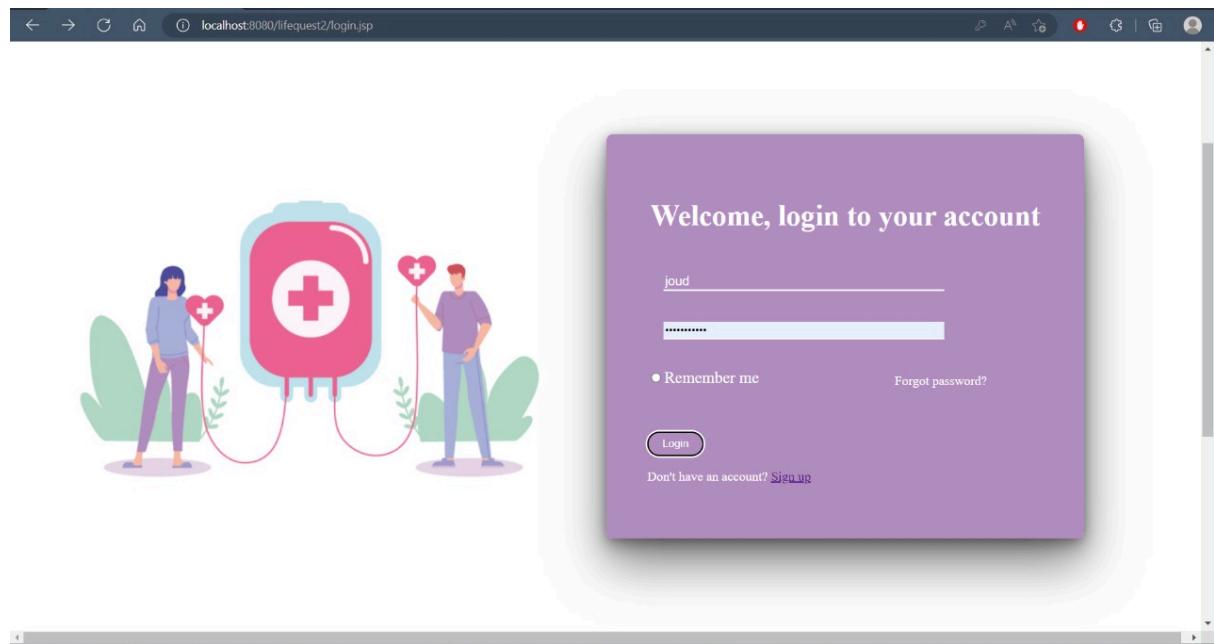
Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.

Result Grid | Form Editor | Field Types

Output

Action Output

#	Time	Action	Message	Duration / Fetch
1	11:52:51	SELECT * FROM liferequest.account LIMIT 0, 1000	2 row(s) returned	0.015 sec / 0.000 sec



Add Post

The screenshot shows a web browser window with the URL `localhost:8080/LifeQuest/Create_Post.jsp`. At the top, there is a navigation bar with links for 'LifeQuest Home', 'Donation Requests', 'Search for Donors', and 'About Us'. On the right side of the header, there is a user profile icon and the text 'Welcome JoudAlghamdi'. The main content area has a title 'Create Blood Donation Request Post' and a subtitle 'The Post will be Published on The Website, and Donors Will Then Start Contact You.' Below this, there is a form titled 'New Post' with fields for 'City' (containing 'i.e. Jeddah'), 'Hospital Name' (containing 'i.e. KAU Hospital'), 'Blood Type' (a dropdown menu), 'Post Body (Optional)' (a text area with placeholder text 'Post Length Shouldn't Exceed 140 Letters'), and two buttons at the bottom: 'Create' and 'Clear'.

The screenshot shows a web browser window with the URL `localhost:8080/LifeQuest/Create_Post.jsp`. At the top, there is a navigation bar with links for 'LifeQuest Home', 'Donation Requests', 'Search for Donors', and 'About Us'. On the right side of the header, there are 'Sign up' and 'Login' buttons. The main content area has a title 'Create Blood Donation Request Post' and a subtitle 'The Post will be Published on The Website, and Donors Will Then Start Contact You.' Below this, there is a large message box with the heading 'You Are Not Authorized to Create a Post' and the subtext 'You Should [Sign up](#) to Create a Post, or [login](#) if You Already Have an Account.'

MySQL Workbench

Administration Schemas Query 1 Create Tables*

SCHEMAS Filter objects Joud_1905554 lifequest Tables Views Stored Procedures Functions sys

```
1 • use lifequest;
2
3 • SELECT * FROM post|
```

Result Grid Filter Rows: Search Edit: Export/Import: Result Grid Form Editor Field Types Query Stats

pid	uid	bloodType	donationType	city	hospital	postBody	date
7	1234524314	A+	Plasma	Jeddah	KAU Hospital	We need plasma blood donor	2022-11-05
HULL	HULL	HULL	HULL	HULL	HULL	HULL	HULL
post 1							

Action Output

Time	Action	Response	Duration / Fetch Time
15:49:07	use lifequest	0 row(s) affected	0.00043 sec
15:49:07	SELECT * FROM post Li...	1 row(s) returned	0.0093 sec / 0.00002...

Query Completed

localhost:8080/LifeQuest/View_Post.jsp

LifeQuest Home Donation Requests Search for Donors About Us Welcome JoudAlghamdi

Blood Donation Requests

People Posts Their Urgent Blood Request, Donate To Help Them.

Your Post Has Been Added Successfully!

Filter Results

- Blood Type ▾
- Blood Donation Type ▾
- City ▾
- Filter**

JoudAlghamdi
In KAU Hospital Looking For A+ Blood Type
2022-11-05

We need plasma blood donor

A+ Plasma
Jeddah, KAU Hospital

Donate

The screenshot shows a web browser window with the URL `localhost:8080/LifeQuest/Create_Post.jsp`. The page title is "Create Blood Donation Request Post". A welcome message "Welcome JoudAlghamdi" is displayed next to a user icon. The main form has a red header "New Post". It contains fields for "City" (Jeddah), "Hospital Name" (KAU Hospital, with a note "Hospital Name Should Contain Only Letters"), "Blood Type" (A+), "Post Body (Optional)" (We need plasma blood donor), and "Post Body (Optional)" dropdown (Plasma). Below the form are "Create" and "Clear" buttons.

New Post

City
Jeddah

Hospital Name
KAU Hospital
Hospital Name Should Contain Only Letters

Blood Type
A+

Post Body (Optional)
We need plasma blood donor

Post Body (Optional)
Plasma

Create Clear

This screenshot shows the same form after validation. The "City" field now has a red border and the note "City Name Should Contain Only Letters". The "Post Body (Optional)" field also has a red border and the note "Post Body Should Contain Only Letters, Numbers, Commas, or/and Full Stops". All other fields and buttons remain the same as in the first screenshot.

New Post

City
Jeddah/
City Name Should Contain Only Letters

Hospital Name
KAU Hospital

Blood Type
A+

Post Body (Optional)
We need plasma blood donor;

Post Body (Optional)
Plasma

Create Clear

View Post

The screenshot shows a web browser window with the URL `localhost:8080/LifeQuest/View_Post.jsp`. The page title is "Blood Donation Requests". A sub-header says "People Posts Their Urgent Blood Request, Donate To Help Them.". On the left, there's a "Filter Results" sidebar with dropdowns for "Blood Type", "Blood Donation Type", and "City", followed by a "Filter" button. The main content area displays two posts:

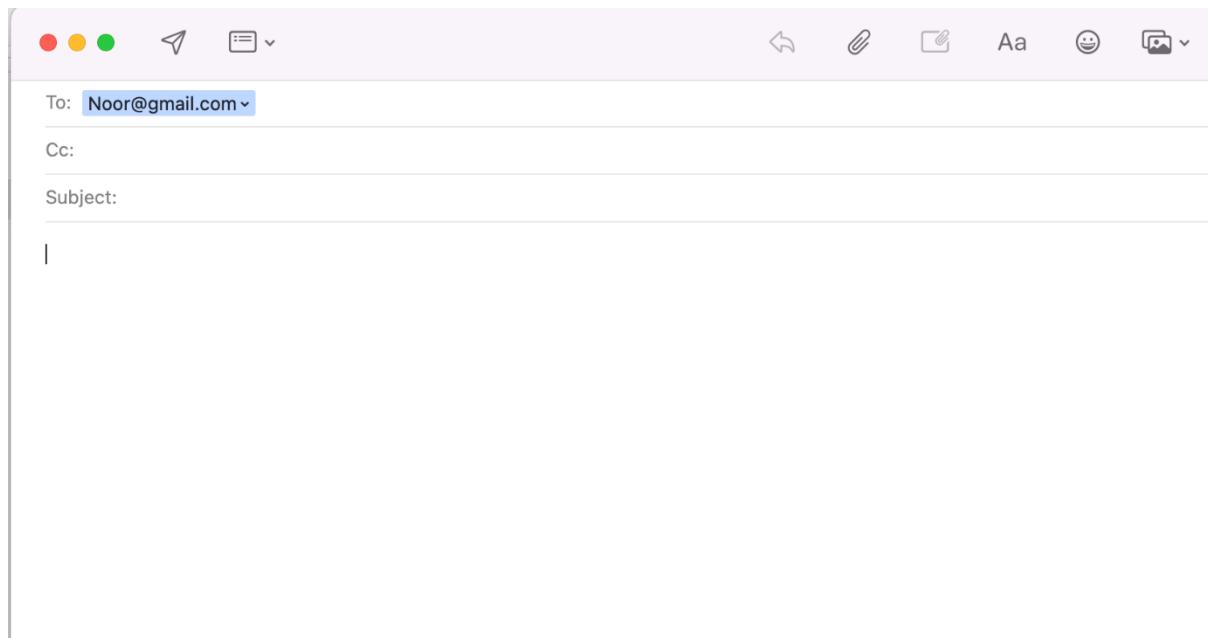
- JoudAlghandi** In KAU Hospital Looking For A+ Blood Type
2022-11-05
We need plasma blood donor
A+ Plasma Jeddah, KAU Hospital
[Donate]
- SaraAhmad** In KAH Hospital Looking For AB+ Blood Type
2022-11-05

View Post - Donate

The screenshot shows a web browser window with the URL `localhost:8080/LifeQuest/View_Post.jsp`. The page title is "Blood Donation Requests". A sub-header says "People Posts Their Urgent Blood Request, Donate To Help Them.". On the left, there's a "Filter Results" sidebar with a "Filter" button. The main content area displays three posts:

- A+** Plasma Jeddah, KAU Hospital
[Donate]
- SaraAhmad** In KAH Hospital Looking For AB+ Blood Type
2022-11-05
As shown in this post, we need whole blood donor in riyadh.
AB+ Whole Blood Riyadh, KAH Hospital
[Donate]
- Noor** In Fakieh Hospital Looking For O+ Blood Type
2022-11-05
O+ Plasma Jeddah, Fakieh Hospital
[Donate]

At the bottom of the page, there is a link: "Open "mailto:%20Noor@gmail.com" in a new tab".



View Post – Filter Posts

localhost:8080/LifeQuest/View_Post.jsp

Welcome SaraAhmad

Blood Donation Requests

People Posts Their Urgent Blood Request, Donate To Help Them.

Filter Results

Blood Type ▾

- AB+
- AB-
- A+
- A-
- B-
- B+
- O+
- O-

JoudAlghamdi
In KAU Hospital Looking For A+ Blood Type
2022-11-05

We need plasma blood donor

A+ Plasma
Jeddah, KAU Hospital

[Donate](#)

SaraAhmad
In KAH Hospital Looking For AB+ Blood Type
2022-11-05

As shown in this post, we need whole blood donor in riyadh.

A B+ Whole Blood



LifeQuest Home

Donation Requests

Search for Donors

About Us



Welcome SaraAhmad

Blood Donation Requests

People Posts Their Urgent Blood Request, Donate To Help Them.

Filter Results

Blood Type ▾

Blood Donation Type ▾

City ▾

Jeddah

Riyadh



JoudAlghamdi

In KAU Hospital Looking For A+ Blood Type

2022-11-05

We need plasma blood donor

A+

Plasma

Jeddah, KAU Hospital

Donate



SaraAhmad

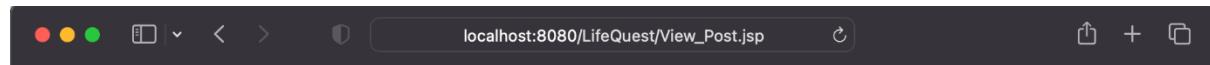
In KAH Hospital Looking For AB+ Blood Type

2022-11-05

As shown in this post, we need whole blood donor in riyadh.

A R+

Whole Blood



LifeQuest

Home

Donation Requests

Search for Donors

About Us



Welcome SaraAhmad

Blood Donation Requests

People Posts Their Urgent Blood Request, Donate To Help Them.

Filter Results

Blood Type ▾

Blood Donation Type ▾

City ▾

Filter



SaraAhmad

In KAH Hospital Looking For AB+ Blood Type

2022-11-05

As shown in this post, we need whole blood donor in riyadh.

AB+

Whole Blood

Riyadh, KAH Hospital

Donate

Update Account

The screenshot shows the MySQL Workbench interface. In the top-left, the 'Schemas' tree shows the 'lifequest' schema with its tables, including 'account'. A query editor window displays the SQL command: 'SELECT * FROM lifequest.account;'. Below it, a 'Result Grid' shows the data from the 'account' table:

username	password	email	id	phoneNumber	birthdate	bloodType
Manar	12345	manar.altairiy@gmail.com	112233	0501432868	2000-07-17	O
elaf	Aa1234567890	elaf12@gmail.com	1234512345	0501432868	2022-09-28	A+

At the bottom, the 'Output' pane shows the execution log: '1 13:59:35 SELECT * FROM lifequest.account LIMIT 0, 1000'.

The screenshot shows a web browser window with the URL 'localhost:8080/lifequest2/Account.jsp'. The page displays a form titled 'Account' with the following fields:

- Username: elaf
- Password: (redacted)
- Email: elaf12@gmail.com
- National ID: 1234512345
- Phone number: 0501432868
- Birthday: 09/28/2022
- Enter your blood type: A+

At the bottom right of the form is a 'UPDATE' button.

Account

Username
elaf

Password

Email
elaf12@gmail.com

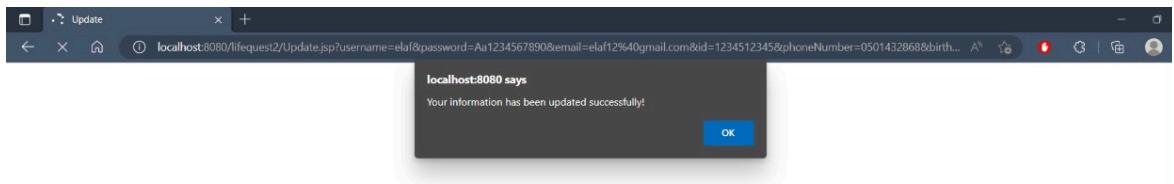
National ID
1234512345

Phone number
0501432868

Birthday
09/28/2022

Enter your blood type
B+

UPDATE



MySQL Workbench

File Edit View Query Database Server Tools Scripting Help

Navigator

SCHEMAS

lifequest

Tables

account

Views

Stored Procedures

Functions

manar_1906775

saliks

sys

world

Result Grid

1 • SELECT * FROM lifequest.account;

username	password	email	id	phoneNumber	birthday	bloodType
manar	12345	manar.altairy@gmail.com	112233	0501432868	2000-07-17	O
elaf	Aa1234567890	elaf12@gmail.com	1234512345	0501432868	2022-09-28	B+

Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.

Result Grid

Form Editor

Field Types

Output

Action Output

1 14:03:37 SELECT * FROM lifequest.account LIMIT 0, 1000

Message 2 row(s) returned

Duration / Fetch 0.000 sec / 0.000 sec

Tools used

For the completion of our project, we utilized some tools that helped us to manage and facilitate it efficiently.

- Google Drive- Google Documents:

To collaborate on drafting our documents and diagrams with real-time updates.

- Microsoft PowerPoint:

It helps us present the work we have done and display it.

- MySQL Workbench:

It helps us to build the database for the system.

- Apache NetBeans:

It helped us to establish a web application page using java classes.

- GitHub:

To enable us to track changes in our code across versions, as well as to provide online access to our code and version history.

- Trello:

It helps us schedule sprints and organize the work into categories like "To Do, Doing, Done"

- Microsoft Word:

To create and collaborate on documents with built-in intelligent features.

- Google meet:

To conduct online meetings and share, edit, and manage files in real time.

Lessons Learned

- Improving our time management skills.
- Learning how to deal and cooperate with team members who have different opinions.
- Building a website from scratch.
- Working in scrum methodology.
- Using MySQL workbench.
- Using JSP technology for developing webpages.
- The application of security guidelines and dependable programming guidelines.
- Developing a secure design and Applying security testing and assurance.

Obstacles

We encountered some difficulties due to our lack of experience in front-end development (HTML, CSS, and JavaScript), and the differences in experience (Logic, backgrounds, and programming skills) for each member.

Furthermore, it was a challenge coordinating long meetings, and also ensuring all our design decisions were correct. Also, the main challenge for us was related to short-term time for developing advanced projects for more than one course during the semester.

Future Work

- Provide the user with the ability to schedule an appointment with the hospital they wish to donate to.
- Give the user the option of posting a donation offer.
- Matching the blood type before sending the notification to the user of the presence of a donor.

Conclusion

In this report, we determine the problem that many people faced when they post their blood donation requests with their information on their social media, and many ignore those posts. One of the main targets of the LifeQuest website is to post these requests in a place where no one will ignore them. Also, LifeQuest is hastening the processes of posting their requests and searching for patients.

LifeQuest is unlike any other website; it must concern one non-functional requirement more than any other non-functional requirement, which is Security. This non-functional requirement will protect all users' sensitive information that might affect their life.

Finally, LifeQuest follows dependable programming guidelines to improve the Security and reliability of the website.

Tasks distribution

Student Name	Tasks
Elaf Yousef Aloufi	Problem statement, Proposed solution, Approach, Functional requirements, Non-functional requirements, Preliminary risk assessment, Security requirements, Misuse case, Design decisions, Sign Up feature, Update account, Database, Lessons learned, Obstacles, Future work.
Manar Mutlaq Altaiary	Introduction, Problem statement, Proposed solution, Functional requirements, Non-functional requirements, Preliminary risk assessment, Security requirements, Design decisions, Tools used, Login feature, home page, Update account.
Joud Musharraf Alghamdi	Functional requirements, Non-functional requirements, Preliminary risk assessment, Security requirements, Design risk assessment, Design decisions, Database Design ER model, High-level Prototype, Add Post page, View Post, and filter post page.
Shireen Yahya Enani	Abstract, Functional requirements, Non-functional requirements, Preliminary risk assessment, Security requirements, Use case diagram, Design decisions, Conclusion, About us page, Donation instructions page.

GitHub

iJoud / C3A_4 Public

Code Issues Pull requests 1 Actions Projects Wiki Security Insights

Pulse October 6, 2022 – November 6, 2022 Period: 1 month

Contributors Community Community Standards Traffic Commits Code frequency Dependency graph Network Forks

Overview

3 Active pull requests 0 Active issues

Merged pull requests	Open pull request	Closed issues	New issues
2	1	0	0

Excluding merges, 4 authors have pushed 19 commits to main and 19 commits to all branches. On main, 73 files have changed and there have been 6,449 additions and 1 deletions.

4 commits authored by Manaraltairy

2 Pull requests merged by 1 person

Period: 1 month

iJoud / C3A_4 Public

Code Issues Pull requests 1 Actions Projects Wiki Security Insights

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Overview

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2	1	0	0

Excluding merges, 4 authors have pushed 19 commits to main and 19 commits to all branches. On main, 73 files have changed and there have been 6,449 additions and 1 deletions.

6 commits authored by iJoud

2 Pull requests merged by 1 person

Period: 1 month

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October 6, 2022 – November 6, 2022

Overview

Period: 1 month ▾

3 Active pull requests 0 Active issues

Merged pull requests	Open pull request	Closed issues	New issues
2	1	0	0

8 commits authored by ElafYousefAloufi

Excluding merges, 4 authors have pushed 4 commits to main and 19 commits to all branches. On main, 73 files have changed and there have been 6,449 additions and 1 deletions.



2 Pull requests merged by 1 person

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[Dependency graph](#)

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October 6, 2022 – November 6, 2022

Overview

Period: 1 month ▾

3 Active pull requests 0 Active issues

Merged pull requests	Open pull request	Closed issues	New issues
2	1	0	0

1 commit authored by ShireenEnani

Excluding merges, 4 authors have pushed 4 commits to main and 19 commits to all branches. On main, 73 files have changed and there have been 6,449 additions and 1 deletions.



2 Pull requests merged by 1 person

References

- [1] I. Fortinet, "Brute Force Attack," Fortinet, 2012. [Online]. Available: <https://www.fortinet.com/resources/cyberglossary/brute-force-attack>. [Accessed 11 10 2022].
- [2] I. Xplore, "DoS Attack and Detection Programming," IEEE Xplore, 21 09 2009. [Online]. Available: <https://ieeexplore.ieee.org/abstract/document/5368799>. [Accessed 11 10 2022].
- [3] K. Spett, "SQL Injection," 2002. [Online]. Available: <http://36.92.42.3:8282/EBOOKS/DATA%20BASE/SQLInjectionWhitePaper.pdf>. [Accessed 15 10 2022].