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**«Национальный исследовательский университет ИТМО»**

**Дисциплина: WEB Programming**

**Explanatory note**

**«Chatex»**

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## **Introduction**

Chatex social application website based on clustering algorithm. The website calculates and pushes people who match with you based on the personal information, hobbies and other information filled in by the user during registration, helping users to meet new friends who have a good impression of each other.

## **1 Analytical rationale**

### **1.1 Domain Research**

As the pace of life accelerates, people spend less time socializing. The emergence of chatex website helps people to socialize more efficiently, and helps people find like-minded friends through quantitative methods.

### **1.2 Description of the project services**

chatex provides users with the following services.

- Find like-minded people based on your hobbies.
- Leave contact information for others to find you.
- Like or dislike the person found.

### **1.3 Goals and objectives**

The main goal of this project is to make an online social networking site chatex, to achieve this goal, the following tasks need to be solved:

- Learn how to create web applications.
- Analyze similar websites.
- Functional model (Use Case) development.
- Database model development.
- UI model development.
- Complete the code.
- Host a website on the Internet.

The objective of the project is to make the website run smoothly on the Internet.

## 2 Content

### 2.1 Analyze similar websites

Similar websites:

1.VK: A social networking site that provides functions such as chatting with friends, adding people you know as friends, sharing text, videos and pictures, understanding news, watching videos, etc.

2.Tinder: A social networking site, add strangers as friends, share photos, chat with friends, find friends of the opposite sex, etc.

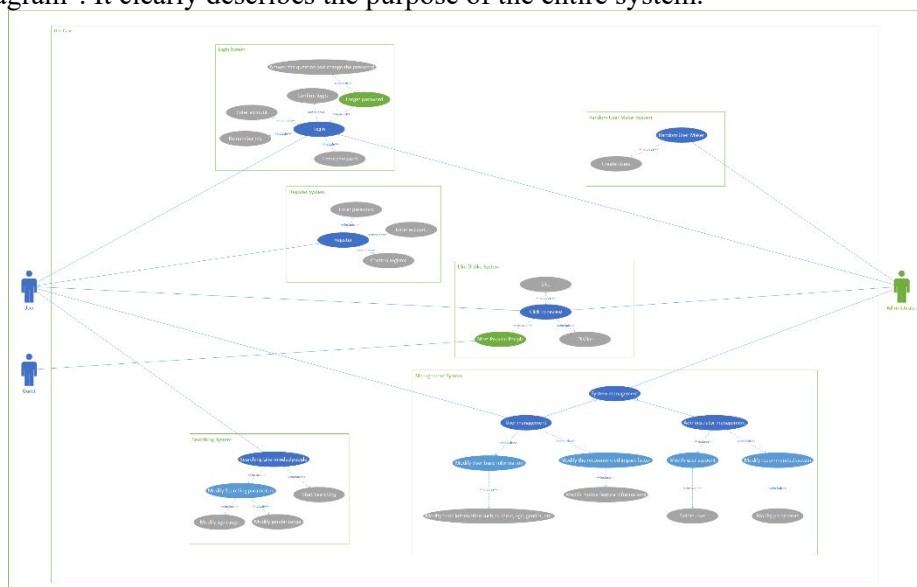
3.Badoo: A social networking site, looking for potential dates, chatting with friends, sharing photos and videos, etc.

Name	Social Application	Chat	Paid	Promote Strangers	Post	Share pictures and videos	Share files
VK	✓	✓			✓	✓	✓
Tinder	✓	✓	✓	✓	✓	✓	
Badoo	✓	✓	✓	✓		✓	

The website is a social application website, to meet people's needs for finding dates or new friends. To achieve this goal, our website needs to provide users with the function of finding new friends, and at the same time, it needs to enable users to upload their own photos, share posts, and obtain the contact information of friends. At the same time, we will try our best to realize the function of chatting with friends.

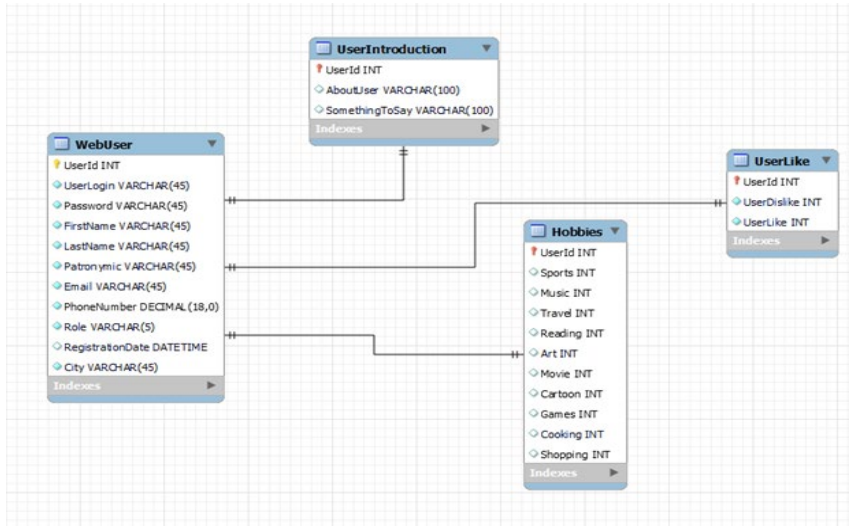
### 2.2 Functional model (Use Case) development

Before starting application development, developers and customers must have a good understanding of what they want to see at the end of development and what they want to get from their work. They want to see which functions inside the system and which functions can be implemented in development. To do this, you need to create a "use case diagram". It clearly describes the purpose of the entire system.



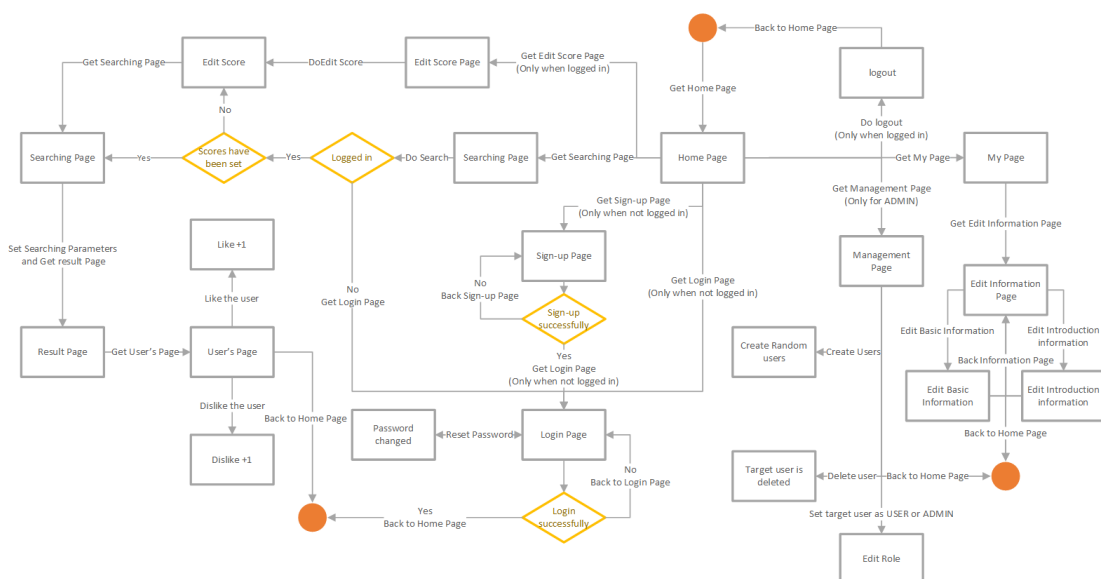
## 2.3 Database model development

A database model is needed to indicate objects and relationships, constraints, rules, and operations to indicate the data semantics of a specific subject area. Generally, the database model establishes relationships between certain objects.



## 2.4 UI model development

UI interface design:



UI appearance design: [link](#)

## **3 Practical part**

### **3.1 Software selection**

#### **3.1.1 IntelliJ IDEA**

IntelliJ IDEA is an integrated development environment (IDE) written in Java for developing computer software. It is developed by JetBrains (formerly known as IntelliJ), and is available as an Apache 2 Licensed community edition, and in a proprietary commercial edition. Both can be used for commercial development.

#### **3.1.2 Spring Framework**

The Spring Framework is an application framework and inversion of control container for the Java platform. The framework's core features can be used by any Java application, but there are extensions for building web applications on top of the Java EE (Enterprise Edition) platform. The Spring Framework is open source.

#### **3.1.3 Mysql**

MySQL is an open-source relational database management system (RDBMS). A relational database organizes data into one or more data tables in which data types may be related to each other; these relations help structure the data. SQL is a language programmers use to create, modify, and extract data from the relational database, as well as control user access to the database. In addition to relational databases and SQL, an RDBMS like MySQL works with an operating system to implement a relational database in a computer's storage system, manages users, allows for network access, and facilitates testing database integrity and creation of backups.

### **3.2 Host applications on the internet**

#### **3.2.1 Buy a domain name**

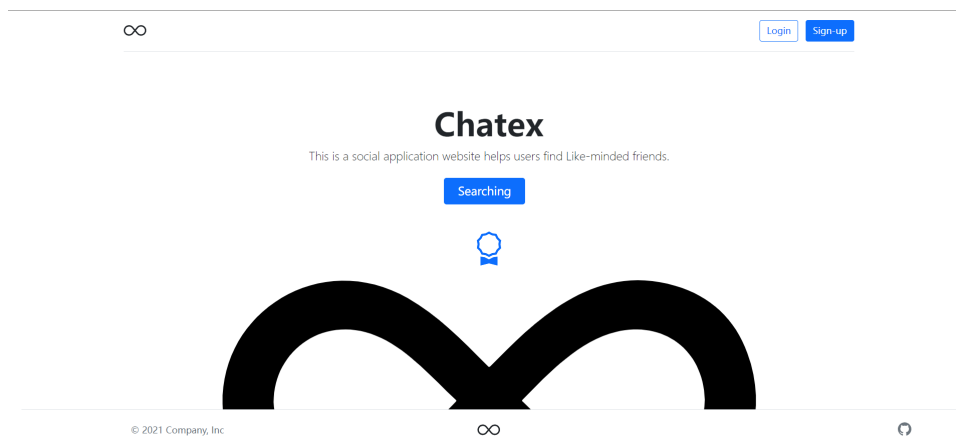
Before hosting a website on the Internet, you need to choose a domain name and purchase it. Domain name: The personal unique name of your website. In order to obtain your own domain name, you need to register with a licensed domain name registrar. The name of the website should be simple, memorable, and even better connect with everyday things.

#### **3.2.2 Build server**

Build a ubuntu virtual machine with suitable performance on the cloud service platform, open port 80 in the security group, install the corresponding versions of java and mysql in the virtual machine, and run the jar package

### 3.3 User manual

When the website "Chatex" is opened, the home page appears in front of the user.



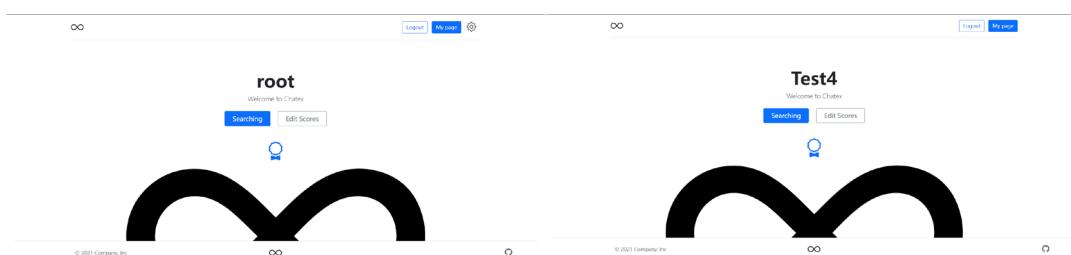
There are five buttons on the homepage that can be clicked without logging in, the login and registration in the upper right corner, the search and "medals" in the middle, and the "GitHub" icon in the lower right corner.

Login and registration in the upper right corner, you can jump to the login page and registration page respectively.

When not logged in, the search button will jump to the login page.

The medal icon will show you the most popular users.

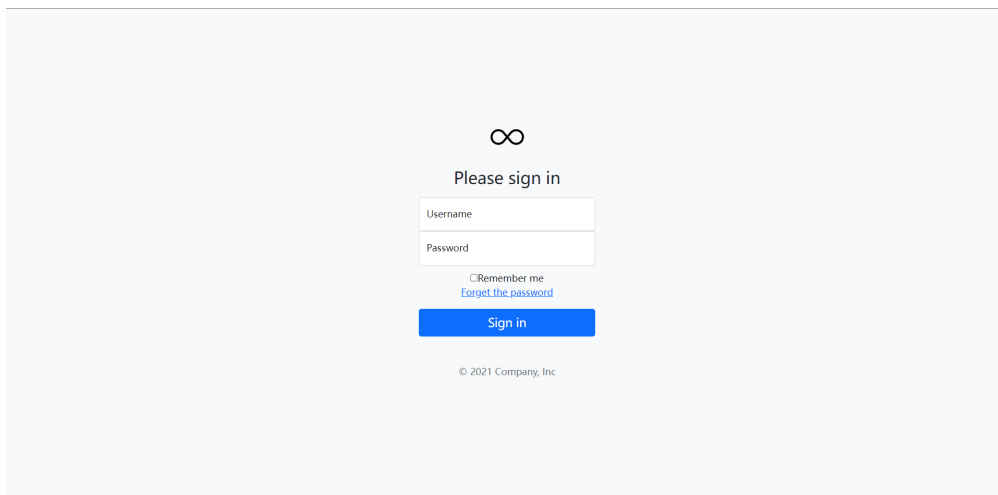
The GitHub icon redirects you to the GitHub repository page.



After logging in, the login and registration in the upper right corner will become logout and my page, which will realize logout and jump to my page respectively.

If you are an administrator, you will have an additional button with a gear icon to jump to the user management interface.

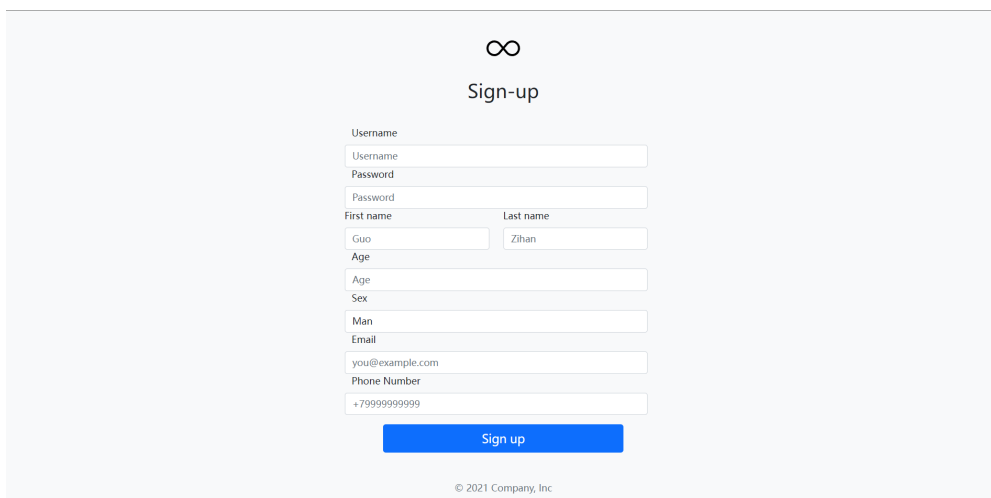
Next displayed is the login and registration page.



The login page features a light gray background. At the top center is an infinity symbol (∞). Below it, the text "Please sign in" is centered. The form consists of two stacked input fields: "Username" and "Password". Below these fields are two links: "Remember me" (with an unchecked checkbox) and "Forgot the password" (in blue). A blue "Sign in" button is positioned below the links. At the bottom center, the copyright notice "© 2021 Company, Inc" is displayed.

You can log in to the website by entering your username and password, and optionally tick remember me.

You can click the infinity icon to return to the homepage, and click forgot password to jump to the password modification page.



The sign-up page has a light gray background. At the top center is an infinity symbol (∞). Below it, the text "Sign-up" is centered. The form includes several input fields: "Username", "Password", and "First name" (with "Guo" pre-filled). The "Last name" field has "Zihan" pre-filled. Below these are fields for "Age", "Sex" (with "Man" pre-filled), "Email" (with "you@example.com" pre-filled), and "Phone Number" (with "+7999999999" pre-filled). A blue "Sign up" button is located at the bottom of the form. The copyright notice "© 2021 Company, Inc" is at the bottom center.

You can register a website account by entering your username, password, and basic information.

Similarly, click the infinity icon to return to the homepage.



∞

Forget The Password

Username

Username

First name

Your FirstName

Last name

Your LastName

Email

Your Email

Phone Number

Your phone number

New Password

Your new Password

Reset the Password

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By entering the account name, basic information, and new password, you can change the password on the password change page.

And you can click the infinity icon to return to the login page.

Let's go back to the home page and assume that you are already logged in.

When you click the search button on the homepage, if you have never set a score, you will be redirected to the score setting page, if you have set a score, you will be redirected to the search parameters page.

∞

Logout

Back

∞

Search Parameters

Minimum age

Minimum Age

Maximum age

Maximum Age

Sex

All

Submit

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∞

∞

Logout

Back

Set Score Page

Modify your score parameters.

Scores

Sports

10

Music

10

Travel

10

Reading

10

Art

10

Movie

10

Cartoon

10

Games

10

Cooking

10

Shopping

10

Edit

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∞

When you set the parameters and search, you will get the search results.

∞

LogoutBack

### The result of the Like-minded people

6 people most similar to you.

You can go to their personal page to view their Self-introduction and message.

#### Table of Users

Username	Gender	Age	Name	Email	Phone Number	User Page
Test869	Man	65	test test	test	test	Go
Test316	Woman	11	test test	test	test	Go
Test585	Man	25	test test	test	test	Go
Test736	Man	58	test test	test	test	Go
Test154	Woman	43	test test	test	test	Go
Test341	Man	77	test test	test	test	Go

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Click go, you will be able to see the personal information of the user.

∞

LogoutBack

### Test1's Page

Welcome to my page!

Username

Age

Sex

Name

Email

Phone Number

About me

Something to say

Test1

33

Woman

test test

test

test

test

test

Like 10

Total 7

Dislike 3

Like

Dislike

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Here, you can like or dislike the user.

Back to homepage. When you click on my page, you will be redirected to my page, which looks like this.

∞

LogoutBack

### root's Page

Welcome to my page!

Username

Age

Sex

Name

Email

Phone Number

About me

Something to say

root

root

Man

root root

root@root

root

This is Administrator~~

Nice to meet you!

Like 0

Total 0

Dislike 0

Edit

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You can click edit to enter the edit information page.

Logout

Back

Home Page

Modify your personal information.

Basic Information

Username

root

Age

root

First Name

root

Last Name

root

Sex

Man

Email

root@root

Phone Number

root

Edit

Introduction information

About Me:

This is Administration ---

Something to Say:

Hi, to meet you!

Post

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For the most popular users, you can see their likes and dislikes.

Logout

Back

Most popular user Top 10 ranking

Rank	Username	Like	Dislike	Total
1	Test363	19	0	19
2	Test874	19	0	19
3	Test232	18	0	18
4	Test298	19	1	18
5	Test443	19	1	18
6	Test509	19	1	18
7	Test578	19	1	18
8	Test695	19	1	18
9	Test805	19	1	18
10	Test868	18	0	18

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For the administrator, you can modify the role of the specified user and delete the specified user on the management page.

Logout

Back

User management for Administrator

You can view and delete users.

Set User Role by Username

Username

USER

Post

Table of Users

#	Username	Password	Gender	Age	Name	Email	Phone Number	Role	Delete
1	root	root	Man	root	root root	root@root	root	ADMIN	<div>Del</div>
2	Test1	123	Women	33	test test	test	test	USER	<div>Del</div>
3	Test2	123	Women	50	test test	test	test	USER	<div>Del</div>
4	Test3	123	Women	89	test test	test	test	USER	<div>Del</div>
5	Test4	123	Women	62	test test	test	test	USER	<div>Del</div>
1000	Test999	123	Man	11	test test	test	test	USER	<div>Del</div>
1001	Test1000	123	Women	41	test test	test	test	USER	<div>Del</div>

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If you want to test the website, click the shield icon with an exclamation mark in the lower right corner, you can generate random users to test the website.



## **Conclusion**

Nowadays, the number of web applications is increasing every day. People browse the web, for work, for leisure, obtaining information through the website has gradually become a way of life.

By building the "Chatex" website, the following tasks have been completed:

- Critical and necessary models have been created during the design phase of the application.
- Selected software tools for developing web applications.
- On the basis of the construction model, developed the "Chatex" website.

## **List of sources**

Chatex Website: <http://chatex.bar/>

Wikipedia MySQL: <https://en.wikipedia.org/wiki/MySQL>

Wikipedia Java: <https://en.wikipedia.org/wiki/java>

Wikipedia Spring Framework: [https://en.wikipedia.org/wiki/Spring\\_Framework](https://en.wikipedia.org/wiki/Spring_Framework)