

CUSTOMER CARE REGISTRY

Introduction:

Customer Care Registration makes registering a complaint fast and simple for your customers. When enabled for your site, it provides a customer's complaint registration flow, customer registration flow, customer account area for registered customers, a complaint status options page, and an agent login with which you may attend and solve customer complaints as soon as possible. The following project is made using Spring Framework. Using MVC model approach, the views are made using HTML and CSS while the back end is programmed using Java Programming Language and JDBC.

We created a home page which contains logins for 3 different users

1.2 Purpose

The main objective of customer care registry is to provide an online platform to help customers register complaints and let agents and admin know what complaints are to be resolved.

Customer care Registry project in spring and hibernate is a complete solution for all the manual problems that we face during any software or any business related works. The application will be operated by: 1) Admin 2) Agents and 3) Customer.

Literature Review:

S. No	Title	Author	Publication	Summary
1.	Review on complaints management	Merlin Stone	Macmillan Publishers Ltd	<p>This literature review provides some useful insights into consumers attitudes towards and behaviour during the complaints and recovery process. The Conclusions from the review 1) Complaints are a critical element of the voice of the consumer. 2) How well a complaint is managed is a key determinant of consumer satisfaction, which may be correlated with loyalty.</p>
2.	Methodology for customer relationship management	Ricardo Chalmeta	Elsevier Inc	<p>This paper describes a formal methodology for directing the process of developing and implementing a CRM System that considers and integrates various aspects, such as defining a customer strategy, re-engineering customer-oriented</p>

				business processes, human Resources management, the computer system, management of change and continuous improvement.
3.	CUSTOMER CARE SERVICE MANAGEMENT IS MOVING FORWARD TO ACHIEVE SUSTAINABLE CUSTOMER RETENTION IN EVERY INDUSTRY. DOES IT PLAY A ROLE TO INCREASE BRAND RETENTION?	Amitabh Bhattacharjee, Asghar Afshar Jahanshahi, Mohammad Rashed Hasan Polas, Mohammad Imtiaz Hossain, Abdul Saboor Asheq	International Journal of Management and Sustainability	The study findings show that individuals having experience of customer-care service have a positive relationship with the study variable (brand retention interest) at a significant level and also found significant correlation between using a product or service and the brand retention interest of consumers.

Hardware/Software designing

Hardware Requirements

Hardware Requirements Intel core i5 8th generation is used as the processor because it is a quite fast processor providing reliability and stability to run the pc without any hassle. By using this processor, we can keep on developing our project without any issues. 1 GB of RAM is the minimum requirement as it provides quick reading and writing of data which in turn leads to smooth processing of the application.

Software Requirements

Spring MVC

Thymeleaf

MySQL

Spring Security

JPA

Project architecture

The software product is created using Spring Boot framework in the Java programming language paired with Thymeleaf to render HTML templates from server. The main pattern of developing this project is MVC (Model, View, Controller). As a database we chose MySQL. Also I used a build automation tool – Maven which is primarily used for Java projects

There are 3 functions:

First-Customer: we made a login page using the registration module in java spring boot. After logging in, the complaint button will be visible and the customer can register the complaint

After that the customer has the option to check the status of the complaint.

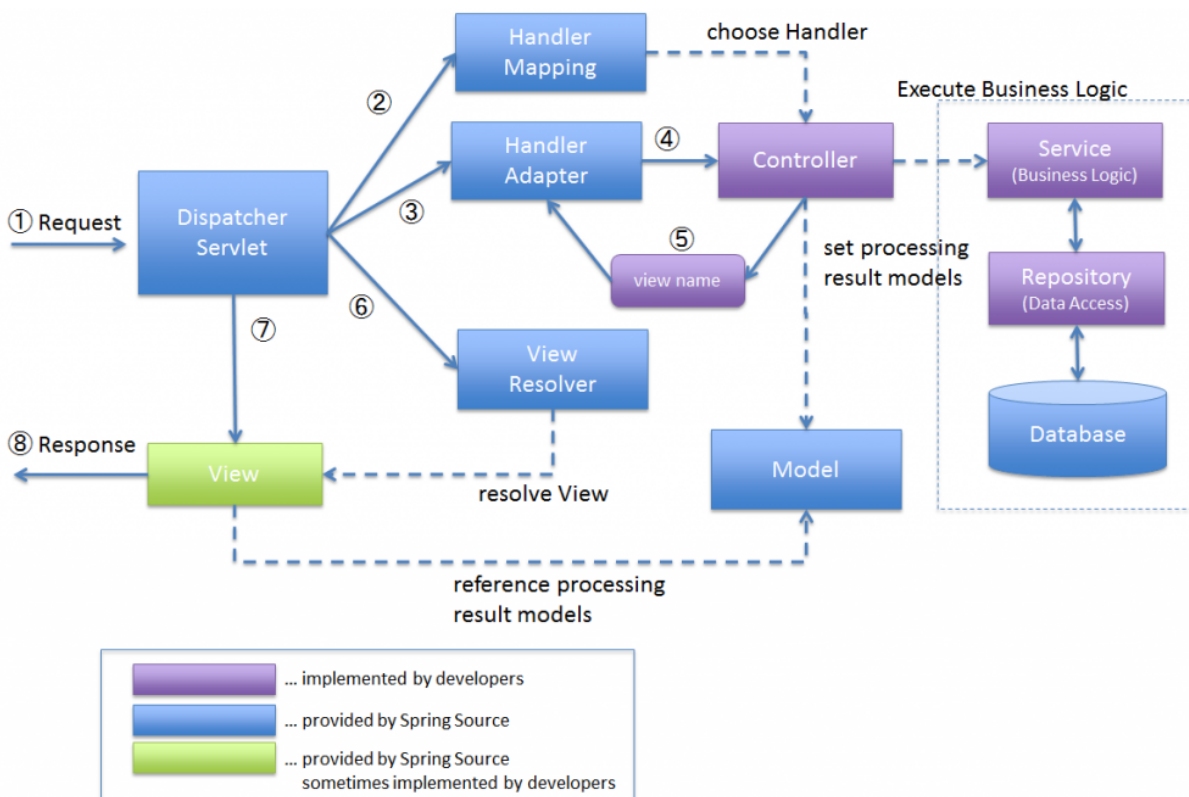
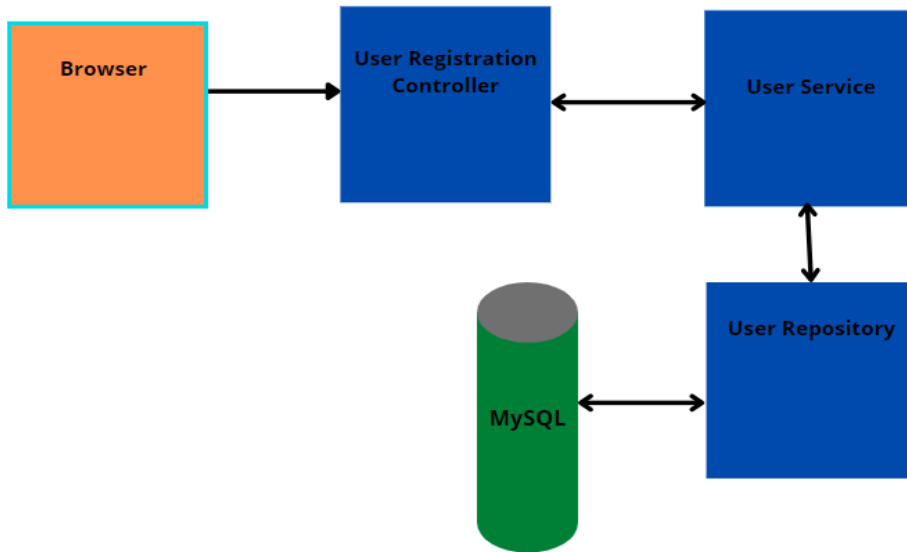
Second-Agent: same as functionality as the first additionally this function can give access to all the complaints and the ability to change the status of the complaint-working/completed.

Third – Admin: Here the admin can assign different agents to different complaints accordingly and also create a database for all the work.

The front end of Home page is made of HTML and CSS using MVC model approach and the back end part is done in Java.

the steps followed for making the Registration/login page:

- 1) Create project and configure dependencies
- 2) configure data source and create database
- 3) making code entity class and repository interface
- 4) MVC controller class
- 5) code custom user details and user details service classes



For backend we are using 3 layer architecture at controller layer we'll be using spring mvc controllers which handle http requests and at service layer we keep all the complaints related information In the repository layer we develop JPA repositories to interact with databases. We used spring data JPA to reduce boilerplate code.

We'll be using many to many relationships like the user list is connected to the roles list, so automatically a third list is created which will look over the other 2 lists. This is done by JPA annotations.

for the frontend we'll be using thymeleaf template to implement registration form.

For the next segment, to create complaint webpages

Implementation of a system for Customer care registry

- **ApplicationRunner class:** Annotation `SpringBootApplication` indicates a configuration class that declares one or more `@Bean` methods and also triggers auto-configuration and component scanning. And also, "`SpringApplication.run`" is a default method which tells Spring Boot to start collecting projects together.
- **User entity class:** This class describes the state and behavior of the user in the system. To do this, username, password are taken. There are also access methods for the get and set fields. They are used to adhere to the principle of encapsulation in OOP programming methodology. Implemented constructors for easy assembly of objects in other classes.
- **WebSecurity class:** This is the main class which provides security to the system. Spring Boot in pair with Spring Security gives an easy-editable tool to forbid different link access to users with different roles. The system consists of different end-points and controllers, and everything developers need to do to customize it in the way it's required. To work with different requests from users, managers and masters, the system uses different controllers, due to MVC architecture which receives requests from client side (browsers) and processes data and transmits it to services.
- **MainController class:** This class is an example of the simplest controller. All it does – is returns the user "index" endpoint, if urls like "/" or "/index" were used. The client will see the main page of the system. Using `@Controller` annotation tells Spring Boot that this class is Controller. This annotation maps HTTP requests to handler methods of the MVC controller.
- **RegistrationController class:** `RegistrationController` is more complex compared with `MainController`. Same as the `MainController` class it should be indicated as `@Controller` but there is much more functionality. Since it's necessary to log all complaints which were sent through this controller and if something went wrong to let the developer know about weaknesses in the system.

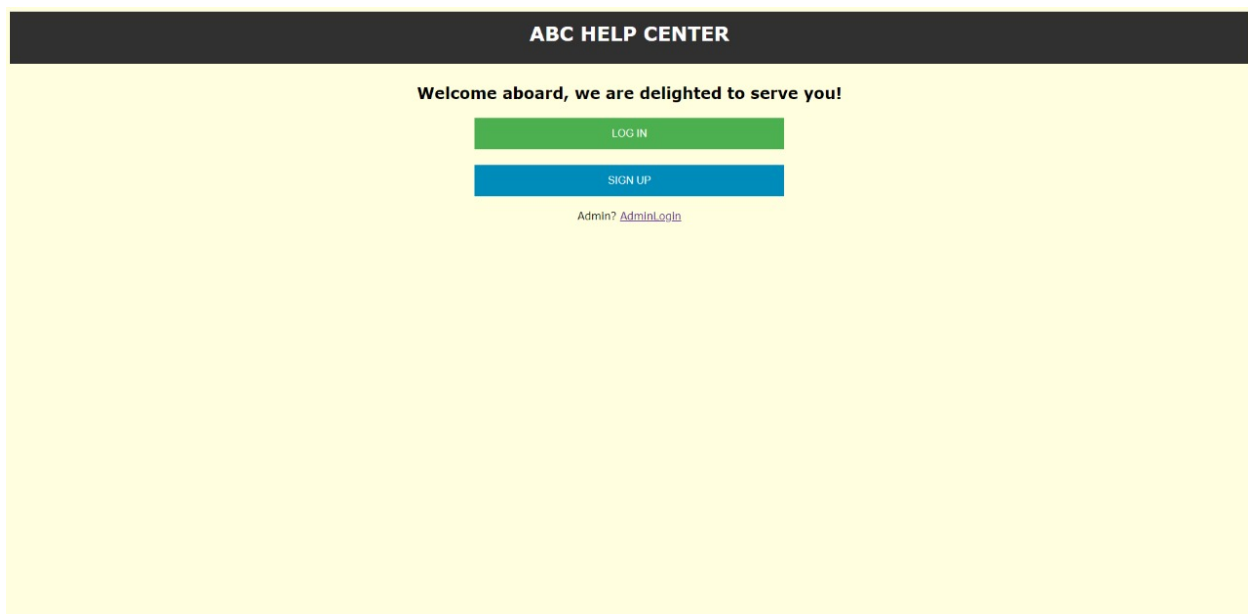
User gets the registration page by Get method, this controller uses `@GetMapping` and there is also the Post method, which will be called after the user inputted all information such as email and password and click the Log-in button. After clicking the button the user service tries to create a new user and write information about the person into the

database and return the result and after some checks should be done like null reference check. If user service returned “null” it means that such a user already exists and an exception should be thrown and redirection to the registration page must be done. But if everything was good. The user will be redirected to the login page.

- **StatusService class:** This is an example of the simplest service which was realized in the system. @Service annotation tells Spring Boot how to communicate with this class, and also this class implements “StatusService” interface. In this class dependency injection principle is present. A Status Repository is injected, with the help of which the “Status” method accesses the database and returns the status of necessary complaint request.
- **UserService class:** This service is also marked with @Service annotation. This service exists to provide easy access to databases by using JPA. There are two simple methods just to return necessary users by some parameters.

Customer Care Registry Appearance

- **View of Main page**



- **View of registration page**

Sign Up

Firstname

ex: Rahul Suraj

Lastname

ex: Sharma, Gupta...

Email ID

ex: abc@example.com

Password

password

Phone

ex: 98765XXXX

Sign Up

- **View of Login page**

Login

Email

ex: abc@example.com

Password

password

Login

- **View of Customer complaint page**

Tell us about your Complaint

Need help with:

- Order not received.
- Order received is damaged.
- Return/Refund related queries.
- Account related queries.

Complaint Type:

Ex: Order, Product, Delivery, Parcel, Return, Replace

Complaint Details:

Provide Details

Email:

Use Unique Email Only

Status

Submit

Our agents will respond as soon as possible!

Need more help?

CONTACT US

Already registered complaint?

[Track Status](#)

● View of Complaint registration page

How Can We Help You?

We are delighted to have you aboard. We have been serving our customers since 2016 and the initiative is already been taken to extend our services across the world.

REGISTER YOUR COMPLAINT

Our agents will respond as soon as possible!

- View of Complaint register form

ABC Help Center

Logout

Tell us about your Complaint

Need help with:

- Order not received.
- Order received is damaged.
- Return/Refund related queries.
- Account related queries.

ComplaintType:

Ex: Order, Product, Delivery, Parcel, Return, Replace

Complaint Details:

Provide Details

Email:

Use Unique Email Only

Status

Submit

Our agents will respond as soon as possible!

Need more help?

CONTACT US

Already registered complaint?

Track Status

- View of a successful complaint submission

ABC Help Center

Complaints List

Complaint Type	Complaint Detail	Customer Email
Order	Where is my order?	anythingz@gmail.com

Complaint Submitted Successfully. Our agent will get back to you soon!

Regards Team ABC!

- View of the status button of complaint

ABC Help Center

Enter registered complaint Email Id:

anythingz@gmail.com

Submit

Have a complaint? But not yet registered? [Register Now!](#)

ABC Help Center

Display Status

- View of the updation of the complaint

ABC Help Center

Update Complaint

Order

Where is my order?

anythingz@gmail.com

Update Complaint

[Back to Complaints List](#)

- **View of Admin Log-in**

ABC Help Center

Admin Login

Email

ex: abc@example.com

Password

password

Login

- **View of all the complaints to be assigned/rejected/updation by admin**

ABC Help Center

Complaints List

Complaint ID	Complaint Type	Complaint Detail	Customer Email	Status	Actions
13	Order	Where is my order?	anything@gmail.com	Rejected!	Update Delete
14	Order	Where is my order?	anything@gmail.com	Assigned!	Update Delete
15	Order	Where is my order?	anything@gmail.com	Solved!	Update Delete
77	Order	Where is my order?	gautamanimeshee3@gmail.com	Solved!	Update Delete
78	Order	Where is my order?	koolbuddyanimessfh65@gmail.com	Assigned!	Update Delete
79	Order	Where is my order?	anythingz@gmail.com		Update Delete

- **View of Status list of complaints**

	complaint_id	complaint_detail	complaint_type	email	status
▶	13	Where is my order?	Order	anything@gmail.com	Rejected!
	14	Where is my order?	Order	anything@gmail.com	Assigned!
	15	Where is my order?	Order	anything@gmail.com	Solved!
	47	Where is my order?	Order	anything100@gmail.com	HULL
	48	Where is my order?	Order	anything32@gmail.com	HULL

- **For further Information,call the helpline or email.**

ABC Help Center

WRITE TO US

abccustomerservice@mail.com

HELPLINE

555276

Advantages and disadvantages:

Developing a good relationship with the customer is very important to sustain any business system.

Advantages:

- One of the key benefits of good customer service is that customers will stick around. A good experience retains customers for the long term. A poor experience will see customers heading straight for the door.
- When customers receive a positive brand experience they're more likely to remain with that company, as well as purchase more products and services.
- The third is the opportunity to grow your business. Once you get the product or service right, the customer service spot on and your internal processes running smoothly and Through excellent customer service, we can understand what customers want and how to give it to them.
- Having a reputation for outstanding customer service will enhance the brand and help the company to stand out among a sea of telecoms companies with less than favourable customer service.

Disadvantages:

Although providing good customer service has benefits, it often increases a business' costs. These additional costs could include:

- higher staff wages from hiring employees who are experts in customer service
- paying for staff training
- the extra services offered, such as refreshments
- higher wage costs from the extra time staff take to provide post-sales service. It can be particularly difficult for small businesses to cope with these costs.

Conclusion

An analysis of the subject area of the customer care registry was conducted. The reasons for the emergence of software automation systems for customer care agencies are analyzed, as well as the advantages of data automation. Next, the functional and non-functional requirements for the software were clearly defined. The very concept of requirement is given and defined. All technologies necessary to create a repair agency automation system were investigated and described. The structured software uses Spring Boot technology, which helps to build a repair agency system safe and reliable.

Bibliography

1) Stone, Merlin. (2011). **Literature review on complaints management.** The Journal of Database Marketing & Customer Strategy Management. 18. 108-122. 10.1057/dbm.2011.16.

- 2) Suryotrisongko, Hatma, Dedy Puji Jayanto, and Aris Tjahyanto. "Design and development of backend applications for public complaint systems using microservice spring boot." *Procedia Computer Science* 124 (2017): 736-743.
- 3) Rajesh, R. V. (2016). *Spring Microservices*. Packt Publishing Ltd.
- 4) Webb, P., Syer, D., Long, J., Nicoll, S., Winch, R., Wilkinson, A., ... & Deleuze, S. (2013). Spring boot reference guide. *Part IV. Spring Boot features*, 24.
- 5) Reddy, K. S. P. (2017). Web Applications with Spring Boot. In *Beginning Spring Boot 2* (pp. 107-132). Apress, Berkeley, CA.