



Online Customer Care and Service Centre

Project Id : A073 <SC./D>

Release Id :

Application Design



	Prepared By	Reviewed by	Approved By
Name	P. Kesava Sudheer	S. Sadhana	
Role	Learning Executive	Senior Learnig Executive	
Signature	Kesav	Sadhana	
Date	30 Jan 2014	31 Jan 2014	





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1.0 Introduction

1.1 Purpose of the Document

The purpose of the detail design document is to define the detailed design for all the components of Online Customer Care and Service Centre that are specified in the Business Requirement document. All the low-level components, interfaces and integrations are detailed out in this document.

1.2 Scope

1.2.1 In Scope

- User Register/Login/Create Complaint/View Complaint
- Analyst Register/Login/View Complaint
- Admin Login/View Complaint/Download
- Create/View RL
- Create/View Status Report

1.2.2 Out Scope

- Migration of current employee list into the application

1.3 Intended Audience

The intended audience for this document is

- Developers, testers, other associates in the project
- Client
- Delivery Assurance Group, Process Engineering group

1.4 Definitions & Acronyms

1.5 References





2.0 Conventions and Standards

Online Customer Care and Services system will follow Oracle's java coding standard

3.0 Assumptions, Dependencies and Risks

Assumptions

- The Customer Care Application will employ 3 types of users. a normal User, an Analyst, and an Admin.
- Once the User after registration login to the webapp, He/she can submit a complaint.
- Once submitted the admin can forward the complaint and assign it to any of the existing Analysts'.
- The Analyst can view the issue and do the necessary action and mark it as resolved.
- If the issue requires more attention, the analyst can forward it to the next level analyst.

Dependencies

- MySQL 8.0 Relational Database
- JDK 1.8 or above
- Spring Boot starter web
- Spring boot starter security
- Tomcat Server
- Bootstrap
- JQuery
- Junit and Mockito Testing
- Spring Core

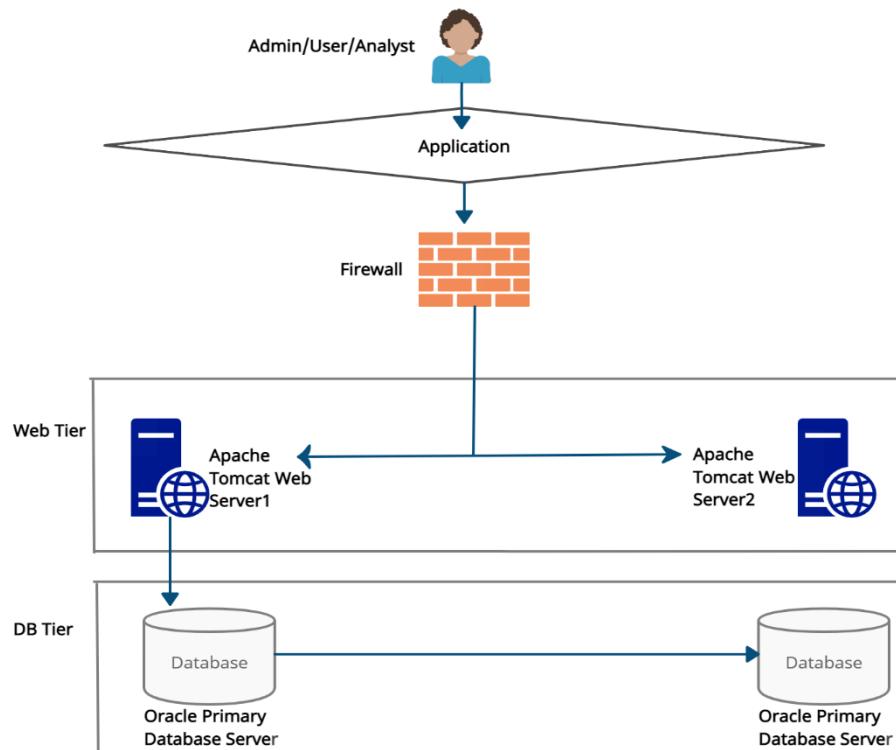
Risks

- 1.0 The current system design application can perform optimally with less than 1000 employees.





4.0 System Architecture



We have user Spring security

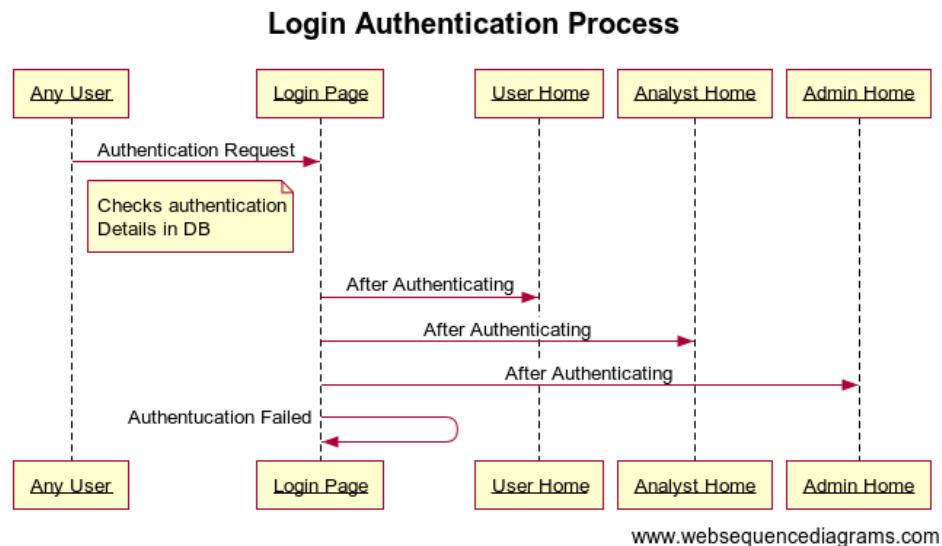




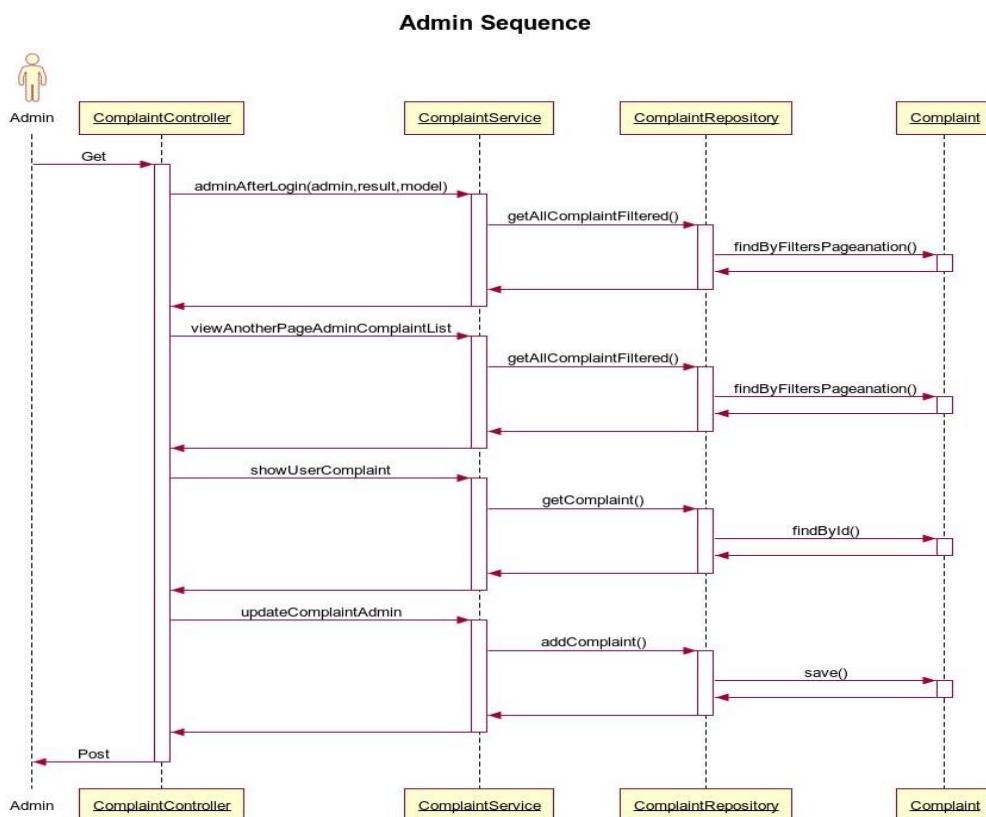
5.0 Use Case Realization

5.1 Flow of Events

5.1.1 Login Sequence

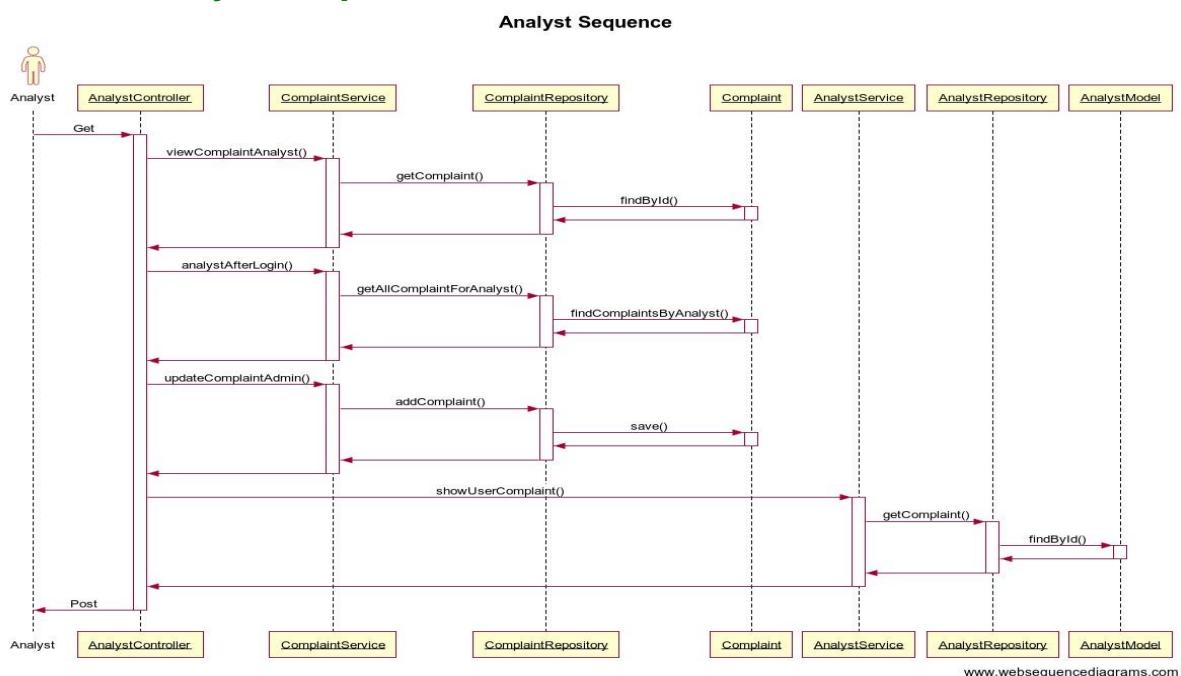


5.1.2 Admin Sequence

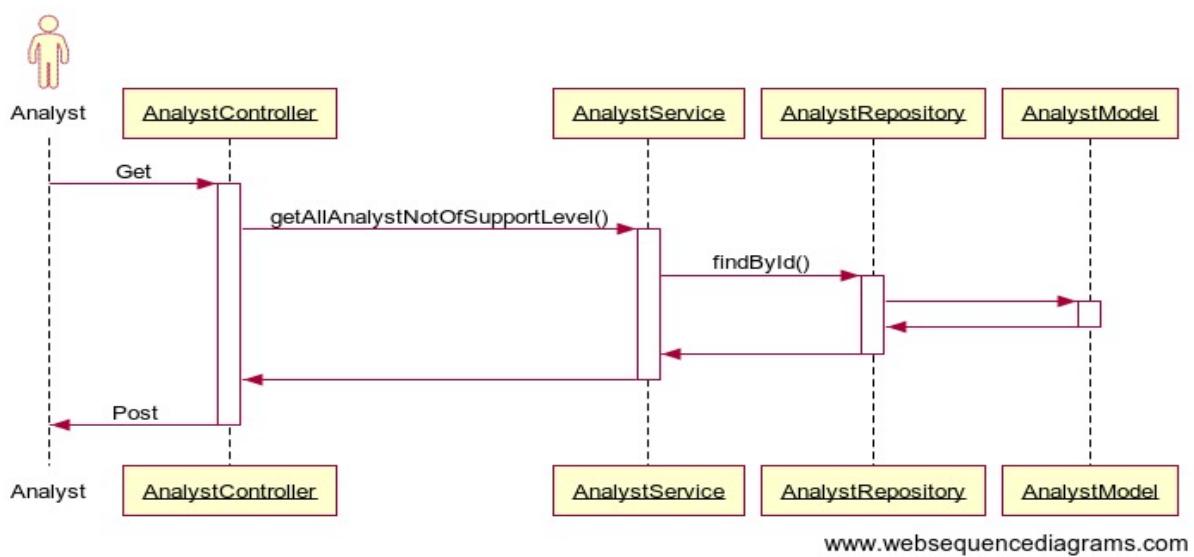




5.1.3 Analyst Sequence



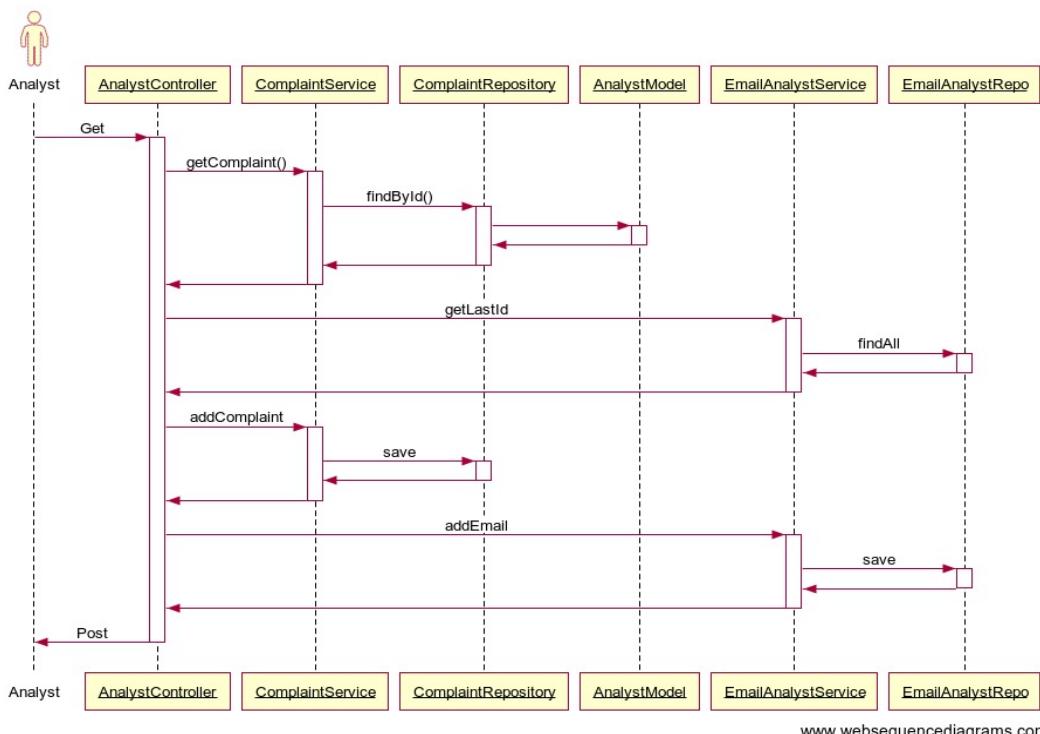
Analyst Sequence





5.1.4 Email Analyst Sequence

Email Analyst Sequence - Update Complaint



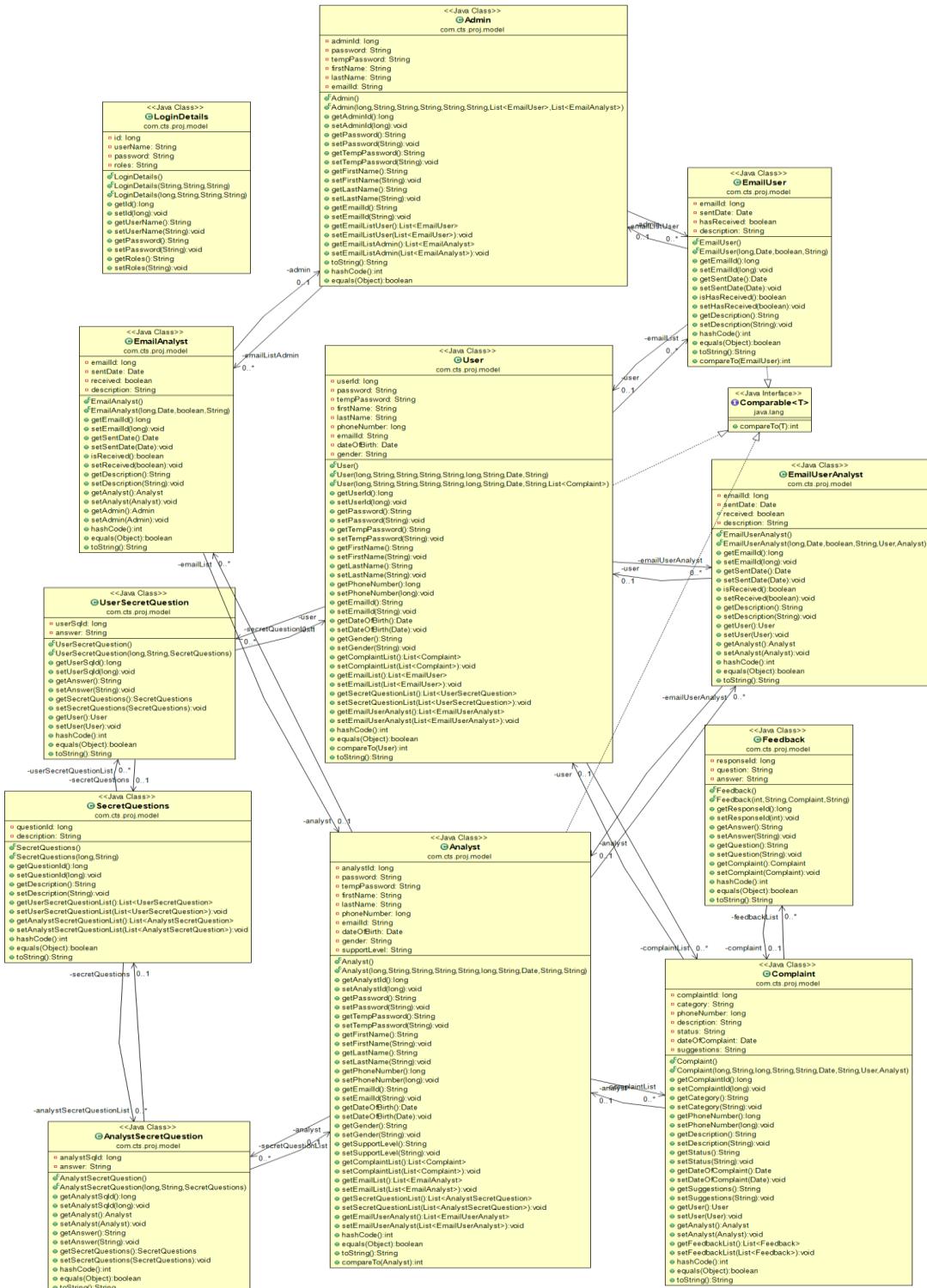
5.2 System Object Model

5.2.1 Model Classes

Model Classes required for storing the information as objects for easy writing and reading.

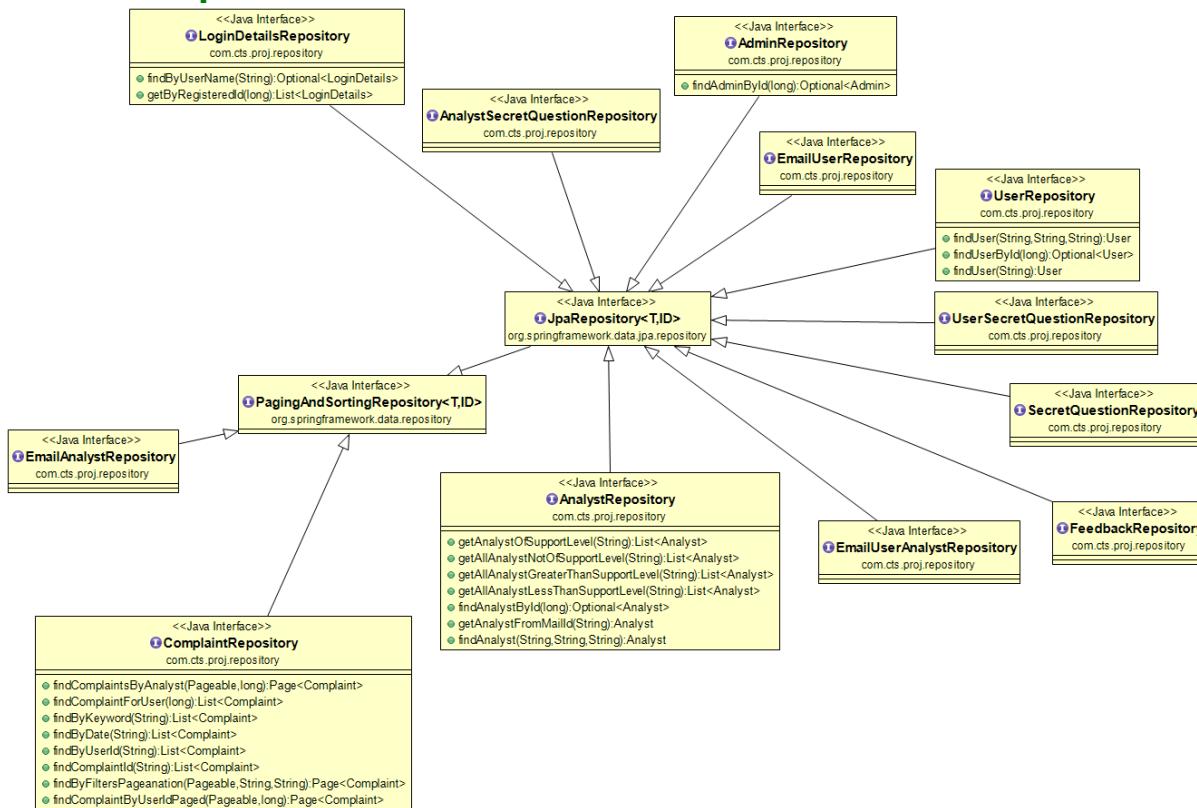
Overall 12 model classes are present.

1. **User**: to store the information about the user
2. **Analyst**: to store info about the analyst
3. **Admin**: to store the information about the admin
4. **Complaint**: to store the info about the Complaint
5. **Feedback**: to store the feedback provided by user
6. **EmailAnalyst**: To store email object from 1 analyst or admin to another analyst
7. **EmailUser**: To store email object from admin to user
8. **EmailUserAnalyst**: To store email object from user to analyst
9. **UserSecretQuestions**: To Store secret question submitted by user
10. **AnalystSecretQuestion**: To Store secret question submitted by Analyst
11. **SecretQuestions**: To Store secret questions description
12. **LoginDetails**: This database holds all the login details info which is to be extracted by Spring Security for verification.

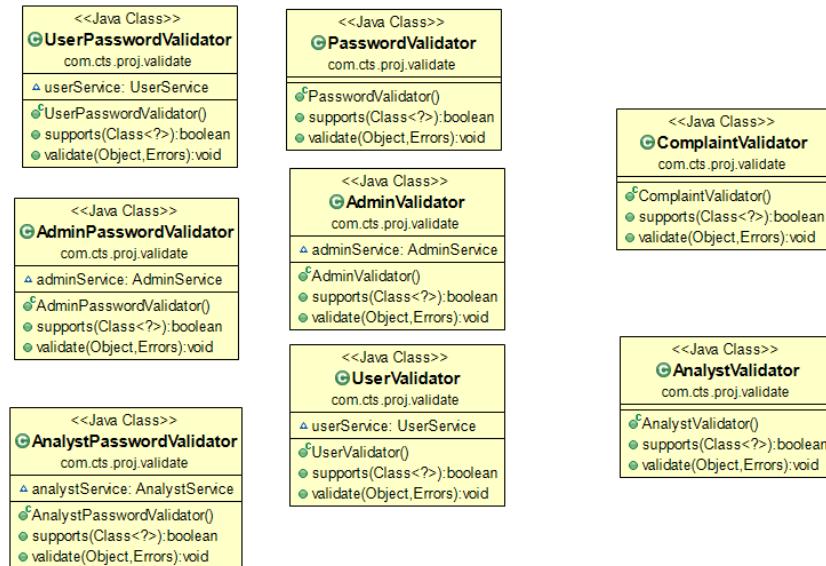




5.2.2 Repositories

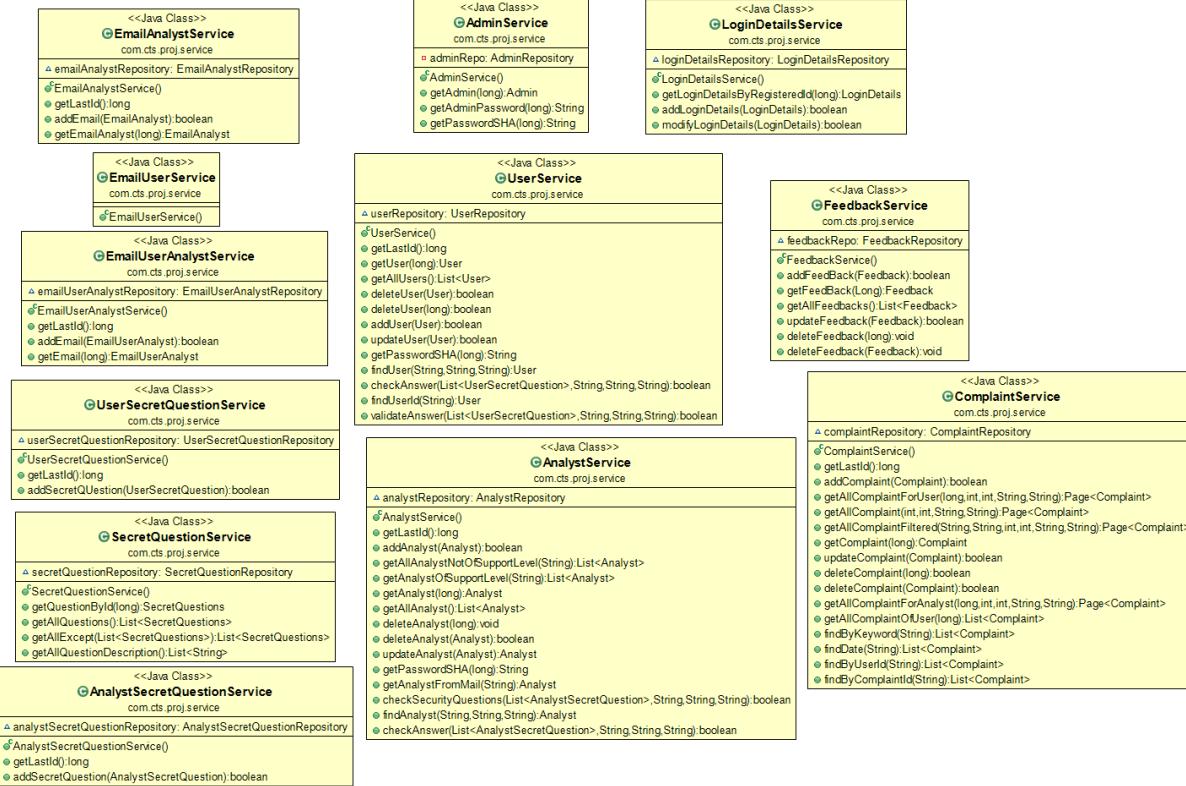


5.2.3 Validator Classes

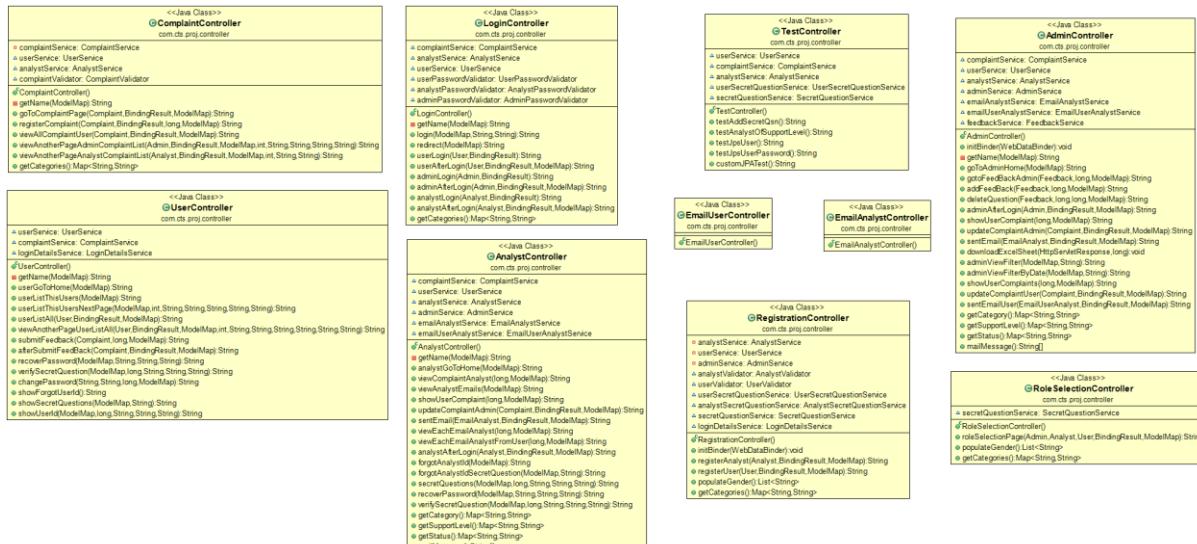




5.2.4 Service Classes

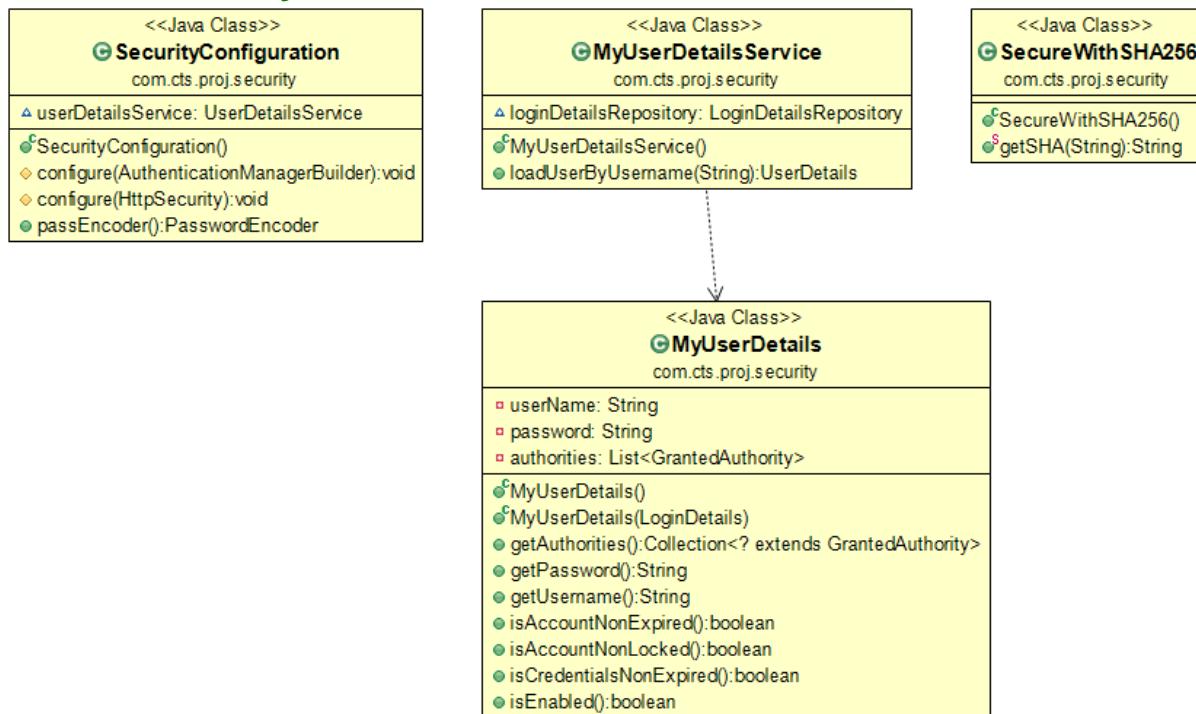


5.2.5 Controller Classes





5.2.6 Security



5.2.7 Exporter Classes



5.2.8 Application Classes





5.3 UI Controls

5.3.1 User Registration

Data Element	Control type	Default Values	Editable Field	Restrictions	Mandatory/ Non Mandatory	Data Type	Data Size
First Name	Textbox	No	Yes	Only Alphabets	Mandatory	Varchar	45
Last Name	Textbox	No	Yes	Only Alphabets	Mandatory	Varchar	45
Phone Number	Textbox	No	Yes	Should be 10 digits long	Mandatory	Varchar	15
Email	Textbox	No	Yes	Should be a Proper email ID Format	Mandatory	Varchar	45
DOB	Textbox	No	Yes	Valid Date	Mandatory	Date	-
Gender	Drop Down		Yes	-	Mandatory	Varchar	10
Password	Textbox	No	Yes		Mandatory	Varchar	256
Confirm Password	Textbox	No			Mandatory	Varchar	256
Security Question 1	Textbox	No	Yes	-	Mandatory	Varchar	45
Security Question 2	Textbox	No	Yes	-	Mandatory	Varchar	45
Security Question 3	Textbox	No	Yes	-	Mandatory	Varchar	45





5.3.2 Analyst Registration

Data Element	Control type	Default Values	Editable Field	Restrictions	Mandatory/ Non Mandatory	Data Type	Data Size
First Name	Textbox	No	Yes	Only Alphabets	Mandatory	Varchar	45
Last Name	Textbox	No	Yes	Only Alphabets	Mandatory	Varchar	45
Phone Number	Textbox	No		Should be 10 digits long	Mandatory	Varchar	15
Email	Textbox	No		Should be a Proper email ID Format	Mandatory	Varchar	45
DOB	Textbox	No	Yes	Valid Date	Mandatory	Date	-
Gender	Drop Down		Yes	-	Mandatory	Varchar	10
Support Level	Drop Down	No	Yes	-	Mandatory	Varchar	2
Password	Textbox	No	Yes		Mandatory	Varchar	256
Confirm Password	Textbox	No	Yes		Mandatory	Varchar	256
Security Question 1	Textbox	No	Yes	-	Mandatory	Varchar	45
Security Question 2	Textbox	No	Yes	-	Mandatory	Varchar	45
Security Question 3	Textbox	No	Yes	-	Mandatory	Varchar	45





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5.3.3 Login Admin

Data Element	Control type	Default Values	Editable Field	Restrictions	Mandatory/ Non Mandatory	Data Type	Data Size
Admin ID	Textbox	No	Yes		Mandatory	INT	
Password	Textbox	No	Yes		Mandatory	Varchar	256

5.3.4 Login User

Data Element	Control type	Default Values	Editable Field	Restrictions	Mandatory/ Non Mandatory	Data Type	Data Size
User ID	Textbox	No	Yes		Mandatory	INT	
Password	Textbox	No	Yes		Mandatory	Varchar	256

5.3.5 Login Analyst

Data Element	Control type	Default Values	Editable Field	Restrictions	Mandatory/ Non Mandatory	Data Type	Data Size
Analyst ID	Textbox	No	Yes		Mandatory	INT	
Password	Textbox	No	Yes		Mandatory	Varchar	256





5.3.6 Forgot User ID-User

Data Element	Control type	Default Values	Editable Field	Restrictions	Mandatory/ Non Mandatory	Data Type	Data Size
Email	Textbox	No	Yes	Should be a Proper email ID Format	Mandatory	Varchar	45
Security Question 1	Textbox	No	Yes	-	Mandatory	Varchar	45
Security Question 2	Textbox	No	Yes	-	Mandatory	Varchar	45
Security Question 3	Textbox	No	Yes	-	Mandatory	Varchar	45

5.3.7 Forgot Password-User

Data Element	Control type	Default Values	Editable Field	Restrictions	Mandatory/ Non Mandatory	Data Type	Data Size
User ID	Textbox	No	Yes		Mandatory	INT	
Phone Number	Textbox	No	Yes	Should be 10 digits long	Mandatory	Varchar	15
Email	Textbox	No	Yes	Should be a Proper email ID Format	Mandatory	Varchar	45
Security Question 1	Textbox	No	Yes	-	Mandatory	Varchar	45





Security Question 2	Textbox	No	Yes	-	Mandatory	Varchar	45
Security Question 3	Textbox	No	Yes	-	Mandatory	Varchar	45

5.3.8 Reset Password-User

Data Element	Control type	Default Values	Editable Field	Restrictions	Mandatory/ Non Mandatory	Data Type	Data Size
New Password	Textbox	No	Yes		Mandatory	Varchar	256
Confirm Password	Textbox	No	Yes		Mandatory	Varchar	256

5.3.9 Forgot Analyst ID-Analyst

Data Element	Control type	Default Values	Editable Field	Restrictions	Mandatory/ Non Mandatory	Data Type	Data Size
Email	Textbox	No	Yes	Should be a Proper email ID Format	Mandatory	Varchar	45
Security Question 1	Textbox	No	Yes	-	Mandatory	Varchar	45
Security Question 2	Textbox	No	Yes	-	Mandatory	Varchar	45
Security Question 3	Textbox	No	Yes	-	Mandatory	Varchar	45





5.3.10 Forgot Password-Analyst

Data Element	Control type	Default Values	Editable Field	Restrictions	Mandatory/ Non Mandatory	Data Type	Data Size
Analyst ID	Textbox	No	Yes		Mandatory	INT	
Phone Number	Textbox	No	Yes	Should be 10 digits long	Mandatory	Varchar	15
Email	Textbox	No	Yes	Should be a Proper email ID Format	Mandatory	Varchar	45
Security Question 1	Textbox	No	Yes	-	Mandatory	Varchar	45
Security Question 2	Textbox	No	Yes	-	Mandatory	Varchar	45
Security Question 3	Textbox	No	Yes	-	Mandatory	Varchar	45

5.3.11 Reset Password-Analyst

Data Element	Control type	Default Values	Editable Field	Restrictions	Mandatory/ Non Mandatory	Data Type	Data Size
New Password	Textbox	No	Yes		Mandatory	Varchar	256
Confirm Password	Textbox	No	Yes		Mandatory	Varchar	256





5.3.12 Create Complaint-User

Data Element	Control type	Default Values	Editable Field	Restrictions	Mandatory/ Non Mandatory	Data Type	Data Size
Complaint ID	Textbox	Yes	No	Only Digits	Mandatory	INT	
User ID	Textbox	Yes	No	Only Digits	Mandatory	INT	
Phone Number	Textbox	Yes	Yes	Should be 10 digits long	Mandatory	Varchar	15
Category	Drop Down	No	Yes	-	Mandatory	Varchar	45
Complaint	Textbox	No	Yes	Minimum 10 words	Mandatory	Varchar	1024

5.3.13 Complaint View-User

Data Element	Control type	Default Values	Editable Field	Restrictions	Mandatory/ Non Mandatory	Data Type	Data Size
Complaint ID	Textbox	Yes	No	Only Digits	Mandatory	INT	
User ID	Textbox	Yes	No	Only Digits	Mandatory	INT	
Phone Number	Textbox	Yes	No	Should be 10 digits long	Mandatory	Varchar	15
Category	Drop Down	Yes	No	-	Mandatory	Varchar	45





Complaint	Textbox	Yes	No	Minimum 10 words	Mandatory	Varchar	1024
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5.3.14 Complaint View-Analyst

Data Element	Control type	Default Values	Editable Field	Restrictions	Mandatory/ Non Mandatory	Data Type	Data Size
Complaint ID	Textbox	Yes	No	Only Digits	Mandatory	INT	
User ID	Textbox	Yes	No	Only Digits	Mandatory	INT	
Phone Number	Textbox	Yes	No	Should be 10 digits long	Mandatory	Varchar	15
Email	Textbox	No	Yes	Should be a Proper email ID Format	Mandatory	Varchar	45
Category	Drop Down	Yes	No	-	Mandatory	Varchar	45
Status	Drop Down	Yes	Yes	-	Mandatory	Varchar	45
Assigned Analyst	Drop Down	Yes	Yes	-	Mandatory	Varchar	45
Complaint	Text Area	Yes	No	Minimum 10 words	Mandatory	Varchar	1024





5.3.15 Complaint View-Admin

Data Element	Control type	Default Values	Editable Field	Restrictions	Mandatory/ Non Mandatory	Data Type	Data Size
Complaint ID	Textbox	Yes	No	Only Digits	Mandatory	INT	
User ID	Textbox	Yes	No	Only Digits	Mandatory	INT	
Phone Number	Textbox	Yes	No	Should be 10 digits long	Mandatory	Varchar	15
Email	Textbox	No	Yes	Should be a Proper email ID Format	Mandatory	Varchar	45
Category	Drop Down	Yes	No	-	Mandatory	Varchar	45
Status	Drop Down	Yes	Yes	-	Mandatory	Varchar	45
Assigned Analyst	Drop Down	Yes	Yes	-	Mandatory	Varchar	45
Complaint	Textbox	Yes	No	Minimum 10 words	Mandatory	Varchar	1024

5.3.16 Add Feedback-Admin

Data Element	Control type	Default Values	Editable Field	Restrictions	Mandatory/ Non Mandatory	Data Type	Data Size
Question Description	Textbox	No	Yes	-	Mandatory	Varchar	1024





5.3.17 Email View-Analyst

Data Element	Control type	Default Values	Editable Field	Restrictions	Mandatory/ Non Mandatory	Data Type	Data Size
Sent By	Textbox	Yes	No	-	Mandatory	Varchar	45
Recipient	Textbox	Yes	No	-	Mandatory	Varchar	45
Date	Textbox	Yes	No	-	Mandatory	Date	-
Description	Text Area	Yes	No	-	Mandatory	Varchar	1024

5.3.18 Email-Admin

Data Element	Control type	Default Values	Editable Field	Restrictions	Mandatory/ Non Mandatory	Data Type	Data Size
Email ID	Textbox	Yes	No	-	Mandatory	INT	
Email To	Textbox	Yes	Yes	-	Mandatory	Varchar	45
Email To ID	Textbox	Yes	Yes	-	Mandatory	INT	
Date	Textbox	Yes	Yes	-	Mandatory	Date	
Complaint	Textbox	Yes	Yes	-	Mandatory	Varchar	1024
Mail Description	Text Area	No	Yes	-	Mandatory	Varchar	1024







5.4 UI Design

5.4.1 Admin Login

Customer Care

User Analyst Admin

Login

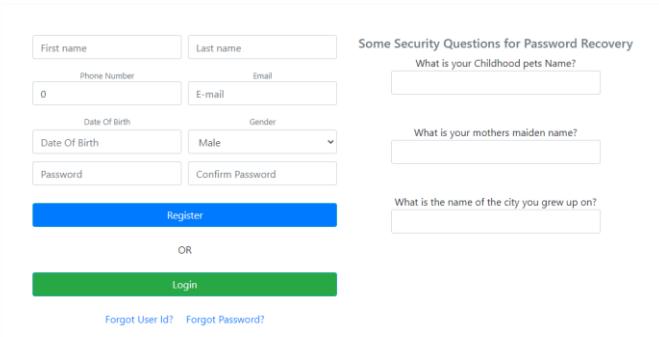


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5.4.2 Register User/Analyst

Customer Care

User Analyst Admin



First name Last name
Phone Number Email
Date Of Birth Gender
Date Of Birth Male
Password Confirm Password
Register **OR** **Login**

Some Security Questions for Password Recovery
What is your Childhood pets Name?
What is your mothers maiden name?
What is the name of the city you grew up on?

[Forgot User Id?](#) [Forgot Password?](#)

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5.4.3 Register Analyst

Customer Care

User **Analyst** Admin

First name Last name
Phone Number Email
0 E-mail
Date Of Birth Gender
Date Of Birth Male
Support Level
Level 1
Password Confirm Password
Register
OR
Login
Forgot User Id? | Forgot Password?

Some Security Questions for Password Recovery

What is your Childhood pets Name?
What is your mothers maiden name?
What is the name of the city you grew up on?

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localhost:9066/roleSelection?age#pills-analyst

5.4.4 Create Complaint User

Customer Care

Home
Logout

Complaint Submission

Complaint ID: User Id: Phone Number: Category:
4007 3001 9876543210 Software

Write Your Complaint

Write your Complaint here...

Submit

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5.4.5 View Complaint User

The screenshot shows a web application interface titled "Complaint Notifications". At the top, there are navigation links for "Home" and "Menu". Below the title, there are search filters: "Sort by", "Complaint Id", "Date", and "Category". It displays "Total Complaints : 3" and "Page 1 of 1". There are four search buttons: "Search by Category", "YYYY-MM-DD", "3001", and "Enter complaintId". Below these are two complaint entries:

- Complaint Id : 4001**
Description: Put description Here
View button
- Complaint Id : 4002**
Description: Put description Here

5.4.6 All Complaints

The screenshot shows a web application interface titled "Complaint Notifications". At the top, there is a "Menu" link. Below the title, there are search filters: "Sort by", "Complaint Id", "Date", and "Category". It displays "Total Complaints : 3" and "Page 1 of 1". There are four search buttons: "Search by Category", "YYYY-MM-DD", "Search by User Id", and "Enter complaintId". Below these are two complaint entries:

- Complaint Id : 4001**
Description: Put description Here
View button
- Complaint Id : 4002**
Description: Please Fill The Description

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5.4.7 User to Analyst Mail

Customer Care

Email Number : 12007

Email To :

Email To Id :

Date :

Complaint

Put description Here

Dear, Unasigned

Please do the needfull to rectify the complaint the user Linjo is facing
Hope this issue is rectified soon,
Regards,
Linjo

Description

Sent Email

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5.4.8 5.4.6 Analyst/Admin Home

Customer Care

Welcome

View All Complaints

Any Complaints which you may have previously submitted can be viewed here.

View All Complaints

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5.4.9 Admin Home

Welcome

Create FeedBack Survey
Create A new Feedback Survey for a User

Create FeedBack

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5.4.10 View All Complaints Analyst/Admin

Complaint Notifications

Sort by : Complaint Id Analyst Id Date Category

Total Complaints : 7 Page 1 of 2

1 2

Complaint Id	Description	Action
4001	Put description Here	View
4002	Please Fill The Description	View
4003	DSAV f ceger vgew v sg c gd dsfc w fcvs eg ve gv w vs e svh sbv b sh caedatc e gt srt cv w srvv e th sr dhv wr	View

© 2020 Copyright:





5.4.11 View Complaint Analyst/Admin

Customer Care Menu ▾

Complaint View

Complaint Id :	4001
User Id :	3001
Phone Number :	1212121212
Email Id :	linjo@cts.com
Category :	Software
Status :	reopen
Assigned Analyst	L1 : 2006

Description
Put description Here

Assign Download Excel File

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Customer Care Home Menu ▾

Complaint Notifications

Sort by :	Complaint Id	Date	Category
Total Complaints : 7			
1 2			
<input style="width: 150px;" type="text"/> Search <input style="width: 150px;" type="text"/> YYYY-MM-DD Search Search			
<div style="border: 1px solid #ccc; padding: 5px; margin-bottom: 10px;"><p>Complaint Id : 4001</p><p>Description Complaint Created By : 3001 Assigned Analyst Id 2001 reopen</p><p>Put description Here</p><p style="text-align: right;">View Create Feedback</p></div> <div style="border: 1px solid #ccc; padding: 5px; margin-bottom: 10px;"><p>Complaint Id : 4002</p><p>Description Complaint Created By : 3001 Assigned Analyst Id 2001 Active</p><p>Please Fill The Description</p><p style="text-align: right;">View Create Feedback</p></div> <div style="border: 1px solid #ccc; padding: 5px; margin-bottom: 10px;"><p>Complaint Id : 4003</p><p>Description Complaint Created By : 3001 Assigned Analyst Id 2001 reopen</p><p>DSAV f ceger vgew v sg c gd dsfc w fcvs eg ve gv w vs e svh sbv b sh caedatc e gt srt cv w srvv e th sr dhv wr</p></div>			

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5.4.12 Create Feedback Admin

Customer Care

Menu ▾

Complaint Feedback Questionnaire

[Finish Survey](#)

#	Question Description	Remove
1	How would you rate the CustomerCare	Delete
2	Would You suggest this to your friends	Delete
3	Will you come to us in the future	Delete

Question Description

Write your Question here...

Add New

5.4.13 Analyst Emails

Customer Care

Menu ▾

Email Number	Date	Description	
10001	2020-12-16 21:52:34.0	Dear, Unsigned Please do the needfull to rectify the complaint the user Linj.....	View
10002	2020-12-16 22:11:17.0	Dear, Unsigned Please do the needfull to rectify the complaint the user LINJ.....	View
12005	2020-12-16 12:17:53.0	Dear, Unsigned Please do the needfull to rectify the complaint the user Linjo	View
12006	2020-12-16 12:19:51.0	Dear, Unsigned Please do the needfull to rectify the complaint the user Linj.....	View
12007	2020-12-16 17:54:41.0	Dear, Unsigned Please do the needfull to rectify the complaint the user Linj.....	View
12008	2020-12-17 08:58:57.0	Dear, Unsigned Please do the needfull to rectify the complaint the user Linj.....	View

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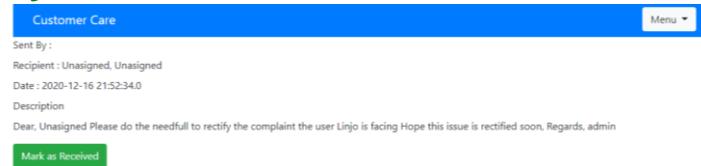
5.4.14 Analyst Email View

Customer Care

Menu ▾

Sent By :
Recipient : Unsigned, Unsigned
Date : 2020-12-16 21:52:34.0
Description
Dear, Unsigned Please do the needfull to rectify the complaint the user Linjo is facing Hope this issue is rectified soon. Regards, admin

[Mark as Received](#)





5.5 Component Description

Class	Method	Program Logic
AdminController	initBinder Parameters WebDataBinder binder Return Type void	<ul style="list-style-type: none">Convert date into " yyyy-MM-dd" format.
	getName Parameters ModelMap model Return Type String	<ul style="list-style-type: none">Return the name of user logged in.
	goToAdminHome Parameters ModelMap model Return Type String	<ul style="list-style-type: none">Returns the admin-home.jsp page.
	gotoFeedBackAdmin Parameters @ModelAttribute Feedback feedback, @RequestParam long complaintId, ModelMap model Return Type String	<ul style="list-style-type: none">Returns the feedback-creation-admin.jsp page.
	addFeedBack Parameters	<ul style="list-style-type: none">Accept Feedback object as parameter and add to database. Then redirect to





	<p>@ModelAttribute Feedback feedback, @RequestParam long complaintId, ModelMap model</p> <p>Return Type</p> <p>String</p>	feedback-creation-admin.jsp page.
	<p>deleteQuestion</p> <p>Parameters</p> <p>@ModelAttribute Feedback feedback, @RequestParam long responseId, @RequestParam long complaintId, ModelMap model</p> <p>Return Type</p> <p>String</p>	<ul style="list-style-type: none">Accept response Id as parameter and delete the corresponding feedback. Then redirect to feedback-creation-admin.jsp page.
	<p>adminAfterLogin</p> <p>Parameters</p> <p>@Validated @ModelAttribute Admin admin, BindingResult result, ModelMap model.</p> <p>Return Type</p> <p>String</p>	<ul style="list-style-type: none">Return complaint-notification-admin.jsp page
	<p>showUserComplaint</p> <p>Parameters</p> <p>@RequestParam long complaintId, ModelMap model</p> <p>Return Type</p> <p>String</p>	<ul style="list-style-type: none">Return complaint-admin-view.jsp page.
	<p>updateComplaintAdmin</p> <p>Parameters</p> <p>@Validated @ModelAttribute Complaint complaint, BindingResult result, ModelMap model)</p> <p>Return Type</p> <p>String</p>	<ul style="list-style-type: none">Accept Complaint object as parameter and assign support analyst.Then add mail content and return admin-to-analyst-mail.jsp page.





	sentEmail Parameters @ModelAttribute EmailAnalyst emailAnalyst, BindingResult results, ModelMap model Return Type String	<ul style="list-style-type: none">• Sent mail to analyst and return admin-home.jsp page.
	downloadExcelSheet Parameters HttpServletResponse response, @RequestParam long complaintId Return Type void	<ul style="list-style-type: none">• Accept complaint Id and provide option to download excel file.
	adminViewFilter Parameters ModelMap model, String keyword Return Type String	<ul style="list-style-type: none">• Filter based on keyword and return complaint-notification-admin.jsp page.
	adminViewFilterByDate Parameters ModelMap model, String date Return Type String	<ul style="list-style-type: none">• Filter based on date and return complaint-notification-admin.jsp page.
	showUserComplaints Parameters @RequestParam long complaintId, ModelMap model Return Type String	<ul style="list-style-type: none">• Return complaint-view-user.jsp page.





	updateComplaintUser Parameters @Validated @ModelAttribute Complaint complaint, BindingResult result, ModelMap model Return Type String	<ul style="list-style-type: none">• Set mail content and return user-to-analyst-mail.jsp page.
	sentEmailUser Parameters @ModelAttribute EmailUserAnalyst email, BindingResult results, ModelMap model Return Type String	<ul style="list-style-type: none">• Sent mail to analyst and return user-home.jsp page.
	getCategory() Parameters None Return Type Map<String, String>	<ul style="list-style-type: none">• Return category list.
	getSupportLevel Parameters None Return Type Map<String, String>	<ul style="list-style-type: none">• Return supportLevel list.
	getStatus() Parameters Return Type Map<String, String>	<ul style="list-style-type: none">• Return sstatus list.
	mailMessage() Parameters	<ul style="list-style-type: none">• Return mail body,





	None Return Type String[]	
AnalystController	getName Parameters ModelMap model Return Type String	<ul style="list-style-type: none">• Return the name of user logged in.
	analystGoToHome Parameters ModelMap model Return Type String	<ul style="list-style-type: none">• Return analyst-home.jsp page.
	viewComplaintAnalyst Parameters @RequestParam long complaintId, ModelMap model Return Type String	<ul style="list-style-type: none">• Return complaint-analyst-view.jsp page.
	viewAnalystEmails Parameters ModelMap model Return Type String	<ul style="list-style-type: none">• Return emails-analyst.jsp page.
	showUserComplaint Parameters	<ul style="list-style-type: none">• Accept complaint Id as parameter and add complaint details and return complaint-analyst-view.jsp page.





	<p>@RequestParam long complaintId, ModelMap model</p> <p>Return Type</p> <p>String</p>	
	<p>updateComplaintAdmin</p> <p>Parameters</p> <p>@Validated @ModelAttribute Complaint complaint, BindingResult result, ModelMap model</p> <p>Return Type</p> <p>String</p>	<ul style="list-style-type: none">Set mail content and return analyst -to-analyst-mail jsp page.
	<p>sentEmail</p> <p>Parameters</p> <p>@ModelAttribute EmailAnalyst emailAnalyst, BindingResult results, ModelMap model</p> <p>Return Type</p> <p>String</p>	<ul style="list-style-type: none">Sent mail to analyst and return analyst -home jsp page.
	<p>viewEachEmailAnalyst</p> <p>Parameters</p> <p>@RequestParam long emailId, ModelMap model</p> <p>Return Type</p> <p>String</p>	<ul style="list-style-type: none">Return each-email-analyst jsp page.
	<p>viewEachEmailAnalystFromUser</p> <p>Parameters</p> <p>@RequestParam long emailId, ModelMap model</p> <p>Return Type</p> <p>String</p>	<ul style="list-style-type: none">Return each-email-analyst-from-user jsp page.
	<p>analystAfterLogin</p>	<ul style="list-style-type: none">Return complaint-notification-analyst jsp page.





	<p>Parameters</p> <pre>@Validated @ModelAttribute Analyst analyst, BindingResult result, ModelMap model</pre> <p>Return Type</p> <p>String</p>	
	<p>forgotAnalystId</p> <p>Parameters</p> <pre>ModelMap model</pre> <p>Return Type</p> <p>String</p>	<ul style="list-style-type: none">• Return forgot-analyst-id jsp page.
	<p>forgotAnalystIdSecretQuestion</p> <p>Parameters</p> <pre>ModelMap model, String mail</pre> <p>Return Type</p> <p>String</p>	<ul style="list-style-type: none">• Accept Email Id as parameter and find corresponding analyst.• If a valid analyst is obtained, then return forgot-analyst-id-sq-question jsp page else return forgot-analyst-id jsp page.
	<p>secretQuestions</p> <p>Parameters</p> <pre>ModelMap model, @PathVariable long analystId, String ans1, String ans2, String ans3</pre> <p>Return Type</p> <p>String</p>	<ul style="list-style-type: none">• Accept answers of security questions as parameter and find corresponding analyst.• If a valid analyst is obtained, then return display-analyst-id jsp page else return forgot-analyst-id jsp page.
	<p>recoverPassword</p> <p>Parameters</p> <pre>ModelMap model, String analystId, String mob, String email</pre> <p>Return Type</p> <p>String</p>	<ul style="list-style-type: none">• Accept user Id, email Id and mobile number as parameter and find corresponding analyst.• If a valid analyst is obtained, then password-recovery-analyst jsp page else return forgot-password-analyst jsp page.





	verifySecretQuestion Parameters ModelMap model, @PathVariable long analystId, String ans1, String ans2, String ans3 Return Type String	<ul style="list-style-type: none">Accept answers of security questions as parameter and verify analyst.If a valid analyst is obtained, then return set-new-pwd-analyst.jsp page else return password-recovery-analyst.jsp page.
	changePassword Parameters String newPassword, String confirmPassword, long analystId, ModelMap model Return Type String	<ul style="list-style-type: none">Accept password as parameter.If password is valid, then set as new password and return analyst-home.jsp page. Else return set-new-pwd-analyst.jsp page.
	getCategory Parameters None Return Type Map<String, String>	<ul style="list-style-type: none">Return category list.
	getSupportLevel Parameters None Return Type Map<String, String>	<ul style="list-style-type: none">Return support level list.
	getStatus Parameters None Return Type Map<String, String>	<ul style="list-style-type: none">Return sstatus list.
	mailMessage Parameters None	<ul style="list-style-type: none">Return mail body.





	Return Type String[]	
UserController	getName Parameters ModelMap model Return Type String	<ul style="list-style-type: none">• Returns the name of user logged in.
	userGoToHome Parameters ModelMap model Return Type String	<ul style="list-style-type: none">• Return user-home.jsp page.
	userListThisUsers Parameters ModelMap model Return Type String	<ul style="list-style-type: none">• Accept the parameters and add complaint details of user to page and return complaint-notification-user-personnel.jsp page.
	userListThisUsersNextPage Parameters ModelMap model, @PathVariable int pageNumber, @Param String sortBy, @Param String sortDir, String keyword, String date, String complaintId Return Type String	<ul style="list-style-type: none">• Accept the parameters and add complaint details of user to page and return complaint-notification-user-personnel.jsp page.
	userListAll Parameters @Validated @ModelAttribute User user, BindingResult result, ModelMap model	<ul style="list-style-type: none">• Add complaint details of all users to page and return complaint-notification-user.jsp page.





	Return Type String	
	viewAnotherPageUserListAll Parameters <pre>@Validated @ModelAttribute User user, BindingResult result,ModelMap model, @PathVariable int pageNumber, @Param String sortBy, @Param String sortDir, String keyword, String date, String userId, String complaintId</pre> Return Type String	<ul style="list-style-type: none">Filter the complaints based on category, date, user Id and complaint Id and return complaint-notification-user jsp page.
	submitFeedback Parameters <pre>@ModelAttribute Complaint complaint, @RequestParam long complaintId, ModelMap model</pre> Return Type String	<ul style="list-style-type: none">Accept complaint Id as parameter and get complaint and feedback details and return user-feedback-submission jsp page.
	afterSubmitFeedBack Parameters <pre>@ModelAttribute Complaint complaint, BindingResult result, ModelMap model</pre> Return Type String	<ul style="list-style-type: none">Set answer for feedback questions and add it to the complaint.Then return to user-home jsp page.
	recoverPassword Parameters <pre>ModelMap model, String userId, String mob, String email</pre> Return Type String	<ul style="list-style-type: none">Accept user Id, email Id and mobile number as parameter and find corresponding user.If a valid user is obtained, then password-recovery-user jsp page else return forgot-password- user jsp page.





	verifySecretQuestion Parameters ModelMap model,@PathVariable long userId,String ans1,String ans2,String ans3 Return Type String	<ul style="list-style-type: none">Accept answers of secret questions as parameter and verify user.If a valid user is obtained, then return set-new-pwd-user.jsp page else return password-recovery-user.jsp page.
	changePassword Parameters String newPwd, String confirmPwd, long userId, ModelMap model Return Type String	<ul style="list-style-type: none">Accept password as parameter.If password is valid, then set as new password and return user-home.jsp page. Else return set-new-pwd-user.jsp page.
	showForgotUserId Parameters Return Type String	<ul style="list-style-type: none">Return forgot-user-id.jsp page.
	showSecretQuestions Parameters ModelMap model, String email Return Type String	<ul style="list-style-type: none">Accept email Id as parameter and find corresponding user.If a valid user is obtained, then forgot-user-id-sq-question.jsp page else return forgot-user-id.jsp page.
	showUserId Parameters ModelMap model,@PathVariable long userId, String ans1, String ans2, String ans3 Return Type String	<ul style="list-style-type: none">Accept answers of secret questions as parameter and verify user.If a valid user is obtained, then return show-user-id.jsp page else return forgot-user-id-sq-question.jsp page.
ComplaintController	getName	<ul style="list-style-type: none">Return the name of user logged in.





	<p>Parameters</p> <p>ModelMap model</p> <p>Return Type</p> <p>String</p>	
	<p>goToComplaintPage</p> <p>Parameters</p> <p>@ModelAttribute Complaint complaint, BindingResult result, ModelMap model</p> <p>Return Type</p> <p>String</p>	<ul style="list-style-type: none">• Add the complaint template and return complaint-creation jsp page.
	<p>registerComplaint</p> <p>Parameters</p> <p>@Validated @ModelAttribute Complaint complaint, BindingResult result, @RequestParam long complaintId, ModelMap model</p> <p>Return Type</p> <p>String</p>	<ul style="list-style-type: none">• Accept complaint as parameter. If a valid is received then set the complaint details and return complaint-submission-user jsp page.• Else return complaint-creation jsp page.
	<p>viewAllComplaintUser</p> <p>Parameters</p> <p>@ModelAttribute Complaint complaint, BindingResult result, ModelMap model</p> <p>Return Type</p> <p>String</p>	<ul style="list-style-type: none">• Add all complaints and return complaint-notification-user jsp page.
	<p>viewAnotherPageAdminComplaintList</p> <p>Parameters</p> <p>@Validated @ModelAttribute Admin admin, BindingResult result, ModelMap model, @PathVariable int pageNumber, @Param String sortBy, @Param String sortDir, String keyword, String date</p>	<ul style="list-style-type: none">• Sort complaints based on id, date, category and return complaint-notification-admin jsp page.





	Return Type String viewAnotherPageAnalystComplaintList Parameters @Validated @ModelAttribute Analyst analyst, BindingResult result, ModelMap model, @PathVariable int pageNumber, @Param String sortBy, @Param String sortDir Return Type String	<ul style="list-style-type: none">Sort complaints based on id, date, category and return complaint-notification-analyst.jsp page.
	getCategories() Parameters None Return Type Map<String, String>	<ul style="list-style-type: none">Return complaint category list.
LoginController	getName Parameters ModelMap model Return Type String	<ul style="list-style-type: none">Return the name of user logged in.
	userLogin Parameters ModelMap model, String error, String logout Return Type String	<ul style="list-style-type: none">Return login.jsp page.
	Redirect Parameters ModelMap model Return Type	<ul style="list-style-type: none">If id between 1000 and 2000 is received then redirect to admin-home.jsp page.If id between 2000 and 3000 is received then redirect to analyst-home.jsp page.





	<p>String</p> <p>getCategory</p> <p>Parameters</p> <p>None</p> <p>Return Type</p> <p>Map<String, String></p>	<ul style="list-style-type: none">• If id between 3000 and 4000 is received then redirect to user-home jsp page.• Else return admin-home jsp page. <p>• Return category list.</p>
RegistrationController	<p>initBinder</p> <p>Parameters</p> <p>WebDataBinder binder</p> <p>Return Type</p> <p>void</p>	<ul style="list-style-type: none">• Convert date into “ yyyy-MM-dd” format.
	<p>registerAnalyst</p> <p>Parameters</p> <p>@Validated @ModelAttribute Analyst analyst, BindingResult result, ModelMap model</p> <p>Return Type</p> <p>String</p>	<ul style="list-style-type: none">• If a valid analyst is received as parameter, then set the password and secret questions and save analyst to database and return analyst-reg-status jsp page.• Else return role-selection jsp page.
	<p>registerUser</p> <p>Parameters</p> <p>@Validated @ModelAttribute User user, BindingResult result, ModelMap model</p> <p>Return Type</p> <p>String</p>	<ul style="list-style-type: none">• If a valid user is received as parameter, then set the password and secret questions and save user to database and return user-reg-status jsp page.• Else return role-selection jsp page.
	<p>populateGender</p> <p>Parameters</p> <p>Return Type</p>	<ul style="list-style-type: none">• Return list.





	<p>List<String></p> <p>getCategories</p> <p>Parameters</p> <p>Return Type</p> <p>Map<String, String></p>	<ul style="list-style-type: none"> • Return category list.
RoleSelectionController	<p>roleSelectionPage</p> <p>Parameters</p> <p><code>@ModelAttribute Admin admin, @ModelAttribute Analyst analyst, @ModelAttribute User user, BindingResult result, ModelMap model</code></p> <p>Return Type</p> <p>String</p>	<ul style="list-style-type: none"> • Return role-selection jsp for Admin, Analyst and user.
	<p>populateGender</p> <p>Parameters</p> <p>Return Type</p> <p>List<String></p>	<ul style="list-style-type: none"> • Return list.
	<p>getCategories</p> <p>Parameters</p> <p>Return Type</p> <p>Map<String, String></p>	<ul style="list-style-type: none"> • Return category list.

6.0 Database Design

6.1 Table Structure



db_schema_v5.pdf

6.1.1 User Table

Table Name	Column Name	Column Description	Data Type	Data Size	Primary Key	Other Constraint
USER	USER_ID	Column is used for storing User Id	INT		YES	NOT NULL AUTO_INCREMENT





	FIRST_NAME	Column for storing First Name	VARCHAR	45		NOT NULL
	LAST_NAME	Column for storing Last Name of User	VARCHAR	45		NOT NULL
	PHONE_NUMBER	Column for storing Phone Number of User	VARCHAR	15		
	EMAIL_ID	Column for storing Email ID of User	VARCHAR	45		NOT NULL
	DATE_OF_BIRTH	Column for storing Date of birth of User	DATETIME			NOT NULL
	GENDER	Column for storing gender of User	VARCHAR	10		NOT NULL
	PASSWORD	Column for storing password of User	VARCHAR	256		NOT NULL
	TEMP_PASSWORD	Column for storing temporary password	VARCHAR	256		NOT NULL
ADMIN	ADMIN_ID	Column is used for storing Admin Id	INT		YES	NOT NULL AUTO_INCREMENT
	FIRST_NAME	Column for storing first name of admin	VARCHAR	45		NOT NULL
	LAST_NAME	Column for storing last name of admin	VARCHAR	45		NOT NULL
	EMAIL_ID	Column for storing Email ID of Admin	VARCHAR	45		NOT NULL
	PASSWORD	Column for storing password of Admin	VARCHAR	256		NOT NULL
	TEMP_PASSWORD	Column for storing temporary password	VARCHAR	256		NOT NULL
ANALYST	ANALYST_ID	Column is used for storing Analyst id.	INT		YES	NOT NULL AUTO_INCREMENT





	FIRST_NAME	Column for storing the first name of Analyst.	VARCHAR	45		NOT NULL
	LAST_NAME	Column is used for storing last name of analyst	VARCHAR	45		NOT NULL
	PHONE_NUMBER	Column is used for Phone Number of Analyst	VARCHAR	15		NOT NULL
	EMAIL	Column is used for storing Email ID	VARCHAR	45		NOT NULL
	DATE_OF_BIRTH	Column is used for storing date of birth of Analyst	DATETIME			NOT NULL
	GENDER	Column is used for storing gender of Analyst	VARCHAR	45		NOT NULL
	SUPPORT_LEVEL	Column is used for storing support level of Analyst	VARCHAR	45		NOT NULL
	PASSWORD	Column is used for storing password of Analyst	VARCHAR	256		NOT NULL
	TEMP_PASSWORD	Column is used for storing temporary password of Analyst	VARCHAR	256		NOT NULL
COMPLAINT	COMPLAINT_ID	Column is used for storing Complaint id.	INT		YES	NOT NULL AUTO_INCREMENT
	USER_ID	Column is used for storing User id	INT			FOREIGN KEY (USER.USER_ID), NOT NULL
	ASSIGNED_ANALYST_ID	Column is used for storing Analyst id	INT			FOREIGN KEY (ANALYST.ANALYST_ID), NOT NULL
	CATEGORY	Column is used for storing Category of Complaint	VARCHAR	45		NOT NULL
	PHONE_NUMBER	Column is used for storing Phone Number	VARCHAR	15		NOT NULL





	STATUS	Column is used for storing Status of Complaint	VARCHAR	45		NOT NULL
	DATE_OF_COMPLAINT	Column is used for storing date of Complaint	DATETIME			NOT NULL
	DESCRIPTION	Column is used for storing description of Complaint	VARCHAR	1024		NOT NULL
	SUGGESTIONS	Column is used for storing Suggestions	VARCHAR	1024		
SECRET_QUESTIONS	QUESTION_ID	Column is used for storing Question Id	INT		YES	AUTO_INCREMENT NOT NULL
	QUESTION_DESCRIPTION	Column is used for storing Question description	VARCHAR	45		NOT NULL
U_SQ_QUESTIONS	U_SQ_ID	Column is used for storing User secret Question id	INT		YES	NOT NULL
	USER_ID	Column is used for storing User id	INT			NOT NULL FOREIGN KEY (USER.USER_ID)
	QUESTION_ID	Column is used for storing Question id	INT			NOT NULL FOREIGN KEY (SECRET_QUESTION.QUESTION_ID)
	ANSWER	Column is used for storing Answer	VARCHAR	1024		
EMAIL_ANALYST	EMAIL_ID	Column is used for storing Email id	INT		YES	NOT NULL AUTO_INCREMENT
	ADMIN_ID	Column is used for storing Admin id	INT			NOT NULL FOREIGN KEY (ADMIN.ADMIN_ID)
	ANALYST_ID	Column is used for storing Analyst id	INT			NOT NULL FOREIGN KEY (ANALYST.ANALYST_ID)
	SENT_DATE	Column is used for storing Sent date	DATETIME			NOT NULL
	RECIEVED	Column is used for storing Received	TINYINT			NOT NULL





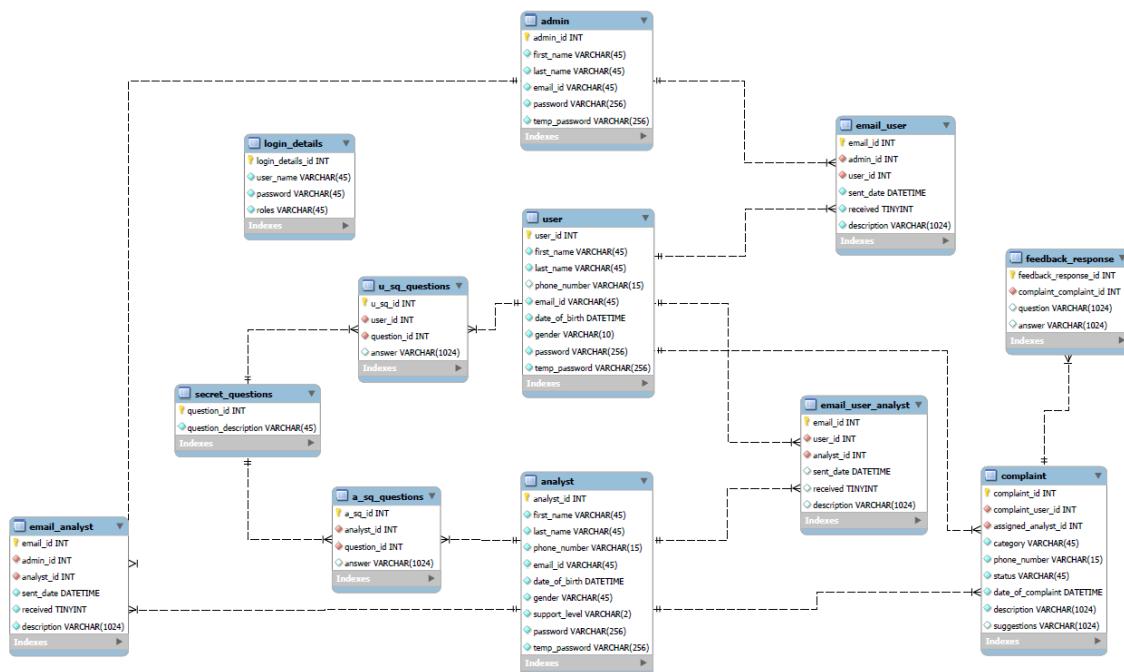
	DESCRIPTION	Column is used for storing Description of complaint	VARCHAR	1024		NOT NULL
EMAIL_USER	EMAIL_ID	Column is used for storing Email id	INT		YES	NOT NULL AUTO_INCREMENT
	ADMIN_ID	Column is used for storing Admin id	INT			NOT NULL FOREIGN KEY (ADMIN.ADMIN_ID)
	USER_ID	Column is used for storing User id	INT			NOT NULL FOREIGN KEY (USER.USER_ID)
	SENT_DATE	Column is used for storing Sent date	DATETIME			NOT NULL
	RECIEVED	Column is used for storing Received	TINYINT			NOT NULL
	DESCRIPTION	Column is used for storing Description of complaint	VARCHAR	1024		NOT NULL
FEEDBACK_RESPONSE	FEEDBACK_RESPONSE_ID	Column is used for storing Feedback response id	INT		YES	NOT NULL AUTO_INCREMENT
	COMPLAINT_COMPLAINT_ID	Column is used for storing Complaint id	INT			NOT NULL FOREIGN KEY (COMPLAINT.COMPLAINT_COMPLAINT_ID)
	QUESTION	Column is used for storing Questions	VARCHAR	1024		
	ANSWER	Column is used for storing Answers	VARCHAR	1024		
LOGIN_DETAILS	LOGIN_DETAILS_ID	Column is used for storing Login details id	INT		YES	NOT NULL AUTO_INCREMENT
	USER_NAME	Column is used for storing User name	VARCHAR	45		NOT NULL
	PASSWORD	Column is used for storing Password	VARCHAR	45		NOT NULL
	ROLES	Column is used for storing Roles	VARCHAR	45		NOT NULL





A_SQ_QUESTIONS	A_SQ_ID	Column is used for storing Analyst secret question id	INT		YES	NOT NULL AUTO_INCREMENT
	ANALYST_ID	Column is used for storing Analyst id	INT			NOT NULL FOREIGN KEY (ANALYST.ANALYST_ID)
	QUESTION_ID	Column is used for storing Question id	INT			NOT NULL FOREIGN KEY (SECRET_QUESTION.QUESTION_ID)
	ANSWER	Column is used for storing Analyst secret question Answer	VARCHAR	1024		

6.2 E-R Diagram (Relationship between Tables)





6.3 Standards and Guidelines Followed

6.3.1 JAVA

- 1) Ensure that the class names, method names and variable names are followed exactly as specified in the class diagram
- 2) Naming standards to be followed:
 - a) Variable
 - i) loweCamelCase
 - ii) Short variable
 - b) Class
 - i) Is a noun
 - c) Methods
 - i) Is a Verb



