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Secure Mailbox ([This project report has been submitted in partial fulfillment of the requirement for the degree of Bachelor of Science in Software Engineering.](#)) Submitted By: Md. Mazharul Islam ID: 171-35-1798 Department of Software Engineering Faculty of Science and Information Technology Daffodil International University Supervised By: Ms. Afsana Begum Assistant Professor Department of Software Engineering Faculty of Science and Information Technology Daffodil International University [Spring-2021] ©HASH(0x7fdf06defcf8) ©Daffodil International University DECLARATION It hereby declares HASH(0x7fdf06df05e0), HASH(0x7fdf06df3848) anywhere. Md. Mazharul Islam ID: 171-35-1798 Batch: 22th HASH(0x7fdf06df3bd8). Afsana Begum Assistant Professor HASH(0x7fdf06df3ae8)HASH(0x7fdf06df4208) BSc study successfully. We are really thankful for the abundant blessings the Almighty Allah has bequeathed upon us, not only during our study life but in life long. HASH(0x7fdf06df4478) my undergraduate project. Her guidance helped me throughout this project and also in writing the documentation. HASH(0x7fdf06df56a0) decisions and supporting me spiritually throughout my life. HASH(0x7fdf06df5a30) their inspiration, motivation which encourages me a lot to finish this project. iv ©Daffodil International UniversityHASH(0x7fdf06df58c8) Figures

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Overview Due to the corona pandemic we have been locked ourselves for too long in home. Therefore, we could not go to the office on time whenever any emergency that's related with official or private documents. Therefore, a question, how we can get/send our documents safely? To solve this problem, we need a virtual environment to get/send documents, where all are documents can encrypt/decrypt by user and they can send all documents with each other. 1.2 Project Purpose The main purpose of "Secure Mailbox" is to make an automation system which will be helpful for the current society. It will be a platform where user can encrypt and decrypt any file easily. User can make an email to send another. Receivers can easily receive a mail and also decrypt a file by this platform. Users can easily create communication with each other using by email and live-chat features. HASH(0x7fdf06e029b8) user can encrypt their files using file encryption and decryption features. They can communicate each other with live chat using live chat features. When user get an encrypted files which are encrypt by using this system then, user can decrypt the encrypted files using this platform. Finally user can send mail using this application. © [Daffodil International University](#) 1.4 Benefits and Beneficiaries From the application all users get benefits. User can encrypt/decrypt all type documents using this platform. User can send/get their sensitive data using this system between few minutes. So that, user can save their time and secure their documents privacy. User can easily communicate with each other and they get more benefits from other applications. 1.5 Stakeholders In this application there are three types of stakeholder (Project Owner, Admin, User). There are two type of user use this application (Secure Mailbox). User and admin are main user in our application. 1.5.1 Admin Admin play a very major role in the system. They do a large number of activities, after login the system. They can create system update notification in this system. Easily can update their profile information. They can support all user, if user need any technical support. 1.5.2 User User play another very major role in the system. They do a large number of activities, after login the system. They can easily find specific user based on user name. Easily can contact another users and they can send mail each other. Easily they can use this platform. 2 © [Daffodil International University](#) Chapter 2 Software Requirement Specification (SRS) In this chapter we specified about the business requirements of this platform, which SDLC we use, functional and non-functional requirements. 2.1 Business requirements Feature Definition Requirement shopping Individual account For Admin and user they need to email to create an account. Compose Mail User can create a mail to send another user after their login. Encrypt/Decrypt File User can encrypt/decrypt their file and they can save their file after encrypt/decrypt. Live chat User can communicate using live chat features. Check Inbox/sending mail list User can check their sending list and inbox mail. Notify about system update/ technical support Admin can create a notification and admin can provide technical support to user. 3 © [Daffodil International University](#) 2.2 SDLC model In this project we used "Agile" model to complete the application development. We used agile model because, we needed to communicate with the client in every process. After completing each modules we made sure if the module is okay or not. Based on the client review we change/correct some of our functionality. In this project, we have not any specific requirements. So, we used agile model to complete the project. Figure 2. 1: SDLC model (Agile) 4 © [Daffodil International University](#) 2.3 HASH(0x7fdf06e02d58). They are mandatory contain the application. There is no system avoid the HASH(0x7fdf06e031d8). FR ID Description FR 01 Create an User account 5 © [Daffodil International University](#) FR 02 User Id verification FR 03 Show User List FR 04 Create Notification FR 05 Create Mail FR 06 Encrypt and Decrypt File FR 07 Live Chat between User to User FR 08 View Mail List(Send and Receive) FR 09 View Notification List 2.3.1 User account FR 01 Create an user account Description Unregistered users must complete their registration before accessing system functionality. Stakeholder Admin, User 6 © All Right Reserved [Daffodil International University](#) 2.3.2 User Id Verification FR 02 User Id verification Description System verify user account Stakeholder User 2.3.3 Show User List FR 03 Show User List Description Admin can check user list. Stakeholder Admin, User 2.3.4 Create Notification FR 04 Create Notification Description Admin can create notification to send system update or user support. Stakeholder Admin 7 © All Right Reserved [Daffodil International University](#) 2.3.5 Create Mail FR 05 Create Mail Description By using an online create mail method user can create a mail to send another user. Stakeholder User 2.3.6 Encrypt and Decrypt File FR 06 Encrypt and Decrypt file Description User can encrypt/decrypt any extensional file through the encryption/decryption feature. Stakeholder User 2.3.7 Live chat between user FR 07 Live Chat between user Description All user can use live chat feature to communicate with real-time medium. Stakeholder User 8 © All Right Reserved [Daffodil International University](#) 2.3.8 View Mail List(Send/Receive) FR 08 View mail List Description User can check mail list, Which mail they are receive and send by them. Stakeholder User 2.3.9 View Notification List FR 09 View Notification List Description In this feature user can receive notification from admin and they can check the notification list anytime. Stakeholder User 2.4 Non-Functional requirements NFR ID Description NFR 01 Performance NFR 02 User sensitive data will disappear from others NFR 03 The system must be available 24x7 NFR 04 Hardware NFR 05 Response time NFR 06 Fault Tolerance NFR 07 Maintenance 9 © All Right Reserved [Daffodil International University](#) 2.4.1 Performance NFR 01 Request and response will build within a second Description This is a Web Based Application and the responses are fetch from API. Stakeholder Admin, User 2.4.2 User sensitive data will disappear from others NFR 02 User sensitive data will dissolve from others Description System will be designed as per requirement. So that, It's not harm for user. Stakeholder Admin, User 2.4.3 HASH(0x7fdf06e03b08) Description The system will available 24 hours always. Expect the system update/upgrade. Stakeholder N/A 10 © All Right Reserved [Daffodil International University](#) 2.4.4 Hardware NFR 04 Hardware Description User can reach this application from Mobile and Pc. Stakeholder N/A 2.4.5 Response time NFR 05 Response time Description As much as fast the internet speed. Stakeholder N/A 2.4.6 Fault Tolerance NFR 06 Always updated the system Description If any problem occurs, then admin will create notification to send all user about system update Stakeholder Admin 11 © All Right Reserved [Daffodil International University](#) 2.4.7 Maintenance NFR 07 The system helps to update any Information in any time Description The admin can changes or updates any information in any situation from database. Stakeholder Admin 12 © All Right Reserved [Daffodil International University](#) Chapter 3 System Analysis In this chapter we showed the use case diagrams, use case description, activity diagrams, sequence diagrams of the Online Doctor Chamber. 3.1 Use Case Diagram In these diagrams we showed the overall process of the doctor and patient including login, registration, appointment, scheduling, prescription, communication etc. We have showed both of the diagrams here and the use case description is down below. Figure 3. HASH(0x7fdf08912d10).1 Registration with token based authentication for User Use Case Registration with token based authentication. Goal User will be able to HASH(0x7fdf08913268) registration form. HASH(0x7fdf08913640) Has to fill up the registration for again with correct information. Primary actors: User Secondary actors: Admin Trigger The system is ready for login. Description Step Action 1 Fill up the registration form properly. 2 Users will be able to login into the system. Alternative Flows Step Branching Action 1 Registration form may not fill up properly. 2 System may take time to load. Quality Requirements Step Requirement 14 © All Right Reserved [Daffodil International University](#) 1 Has to fill up each and every detail. 3.2.2 Login for Registered User Use

Case Login for Registered User Goal User will get access to the system. Predictions The user can login with email HASH(0x7fdf089140b8) authorization again to have accessing credentials. Primary actors: User and Admin Secondary actors: Admin Trigger System is accessed by the user. Description Step Action 1 Input email and password. 2 System gives access. Alternative Flows Step Branching Action 1 Username or password can be forgotten. 2 Unauthorized person may try to login. 15 ©All Right Reserved [Daffodil International University](#). Quality Requirements Step Requirement 1 Two step authentication. 2 Account recovery. 3.2.3 Check User List Use Case Check User List Goal Admin will be able to check the user list. Predictions By checking the user list admin can send notify each user or admin can give support to user. Success end condition The user send notify to all users about system update. HASH(0x7fdf08914688) user. Description Step Action 1 Admin will check the user list. 2 Admin send notification to the user. 16 ©All Right Reserved [Daffodil International University](#). Alternative Flows Step Branching Action 1 User may not receive the notification. 2 Quality Requirements Step Requirement 1 Admin can support to user serially. 3.2.4 Create Notification Use Case Create Notification Goal Admin can create notification to notify all user. Predictions By checking the user list admin notify to all. Success end condition The admin send notification successfully and user get notify. Failed end condition The user may not receive notification. Primary actors: Admin Secondary actors: Super Admin Trigger Admin notify users. Description Step Action 17 ©All Right Reserved [Daffodil International University](#). 1 Admin will check user list. 2 Admin will notify users. Alternative Flows Step Branching Action 1 User may not receive the notification. 2 Quality Requirements Step Requirement 1 Admin has to maintain support by list 3.2.5 Create Mail Use Case Create mail Goal User Create a mail to send another user. Predictions The user may login to create an email. Success end condition The user send mail to destination through the mail address and another user get the mail. HASH(0x7fdf08909870) A mail send by the user to user. Description Step Action 1 Input the required information for create a mail. 2 Send it to the user. Alternative Flows Step Branching Action 1 System may crash because of the internet. 2 User may send before fulfill requirements. Quality Requirements Step Requirement 1 The mail has to contain the detailed information of the user. 3.2.6 Encrypt/Decrypt Mail Use Case Encrypt/Decrypt mail Goal User will be able to encrypt/decrypt any file Predictions The user need to attach any file. Success end condition User provide security key to encrypt/decrypt their file. Failed end condition If user does not enter security key 19 ©All Right Reserved [Daffodil International University](#). Primary actors: User Secondary actors: Admin Trigger A file encrypt/decrypt by user. Description Step Action 1 Input the required file and key. 2 Save the file in the device. Alternative Flows Step Branching Action 1 System may crash because of the internet. 2 User may mistake without attach file or security key. Quality Requirements Step Requirement 1 The file has to contain the detailed information of the user. 3.2.7 Log Out for Registered Admin Use Case Log Out for Registered Admin Goal Admin can log out of their account Predictions Admin is logged HASH(0x7fdf08909ee8) actors: Admin Secondary actors: Admin Trigger Admin click on the "Logout" button Description Step 1 2 Action Admin clicks on the "Logout" button Member gets log out of the system Alternative Flows Step 1 Branching Action Cannot access the system Quality Requirements Step 1 Requirement N/A 3.2.8 Registration with token based authentication for User Use Case Registration with token based authentication Goal HASH(0x7fdf0890a620). Predictions The user has to fill up the registration form. 21 ©All Right Reserved [Daffodil International University](#) HASH(0x7fdf0890a5d8) Has to fill up the registration for again with correct information. Primary actors: User Secondary actors: User Trigger The system is ready for login. Description Step 1 2 Action Fill up the registration form properly. User will be able to login into the system. Alternative Flows Step 1 2 Branching Action Registration form may not fill up properly. System may take time to load. Quality Requirements Step 1 Requirement Has to fill up each and every detail. 3.2.9 Login for Registered User Use Case Login for Registered User Goal User will get access to the system. 22 ©All Right Reserved [Daffodil International University](#). Predictions The user has to have the HASH(0x7fdf0890c3c8) authorization again to have accessing credentials. Primary actors: User Secondary actors: Admin Trigger System is accessed by the user. Description Step 1 2 Action Input email and password. System gives access. Alternative Flows Step 1 2 Branching Action Username or password can be forgotten. Unauthorized person may try to login. Quality Requirements Step 1 2 Requirement Two step authentication. Account recovery. 23 ©All Right Reserved [Daffodil International University](#). 3.2.10 Live Chat between user Use Case Live chat between user Goal User will be able to contact with them through the live chat. Predictions By searching the user mail they can contact with each- others HASH(0x7fdf0890c998) Secondary actors: Admin Trigger User send message to others. Description Step 1 2 Action User will check the user list. User send the message. Alternative Flows Step 1 Branching Action User may not view expected user information Quality Requirements Step 1 Requirement N/A 24 ©All Right Reserved [Daffodil International University](#). 3.2.11 View mail list Use Case View mail list Goal User will be able to view their mail list (Send/Receive mail list) Predictions User successfully view the mail list. Success end condition User check mail list successfully. Failed end condition If Internet connection will lost. Primary actors: User Secondary actors: Admin Trigger View mail list. Description Step Action 1 User will check inbox to check mail. 2 User will check send mail list. Alternative Flows Step Branching Action 1 Users may not find the mail list if they not receive or send mail. 2 Quality Requirements Step Requirement 25 ©All Right Reserved [Daffodil International University](#). 1 The user can view the mail list if user send any mail to another or receive. 3.2.12 View notification list Use Case View notification list Goal User will be able to check notification by the notification list which are through from Admin. Predictions The user get notification by the notification list from admin. Success end condition User get reach all notification. Failed end condition If the internet speed is too much slow or it's will disconnect. Primary actors: User Secondary actors: Admin Trigger The user can see the notification. Description Step Action 1 After see the notification list user know the update information. 2 Alternative Flows Step Branching Action 26 ©All Right Reserved [Daffodil International University](#). 1 System may crash because of the internet. Quality Requirements Step Requirement 1 The user may get notify from admin. 27 ©All Right Reserved [Daffodil International University](#). 3.2.13 Log Out for Registered User Use Case Log Out for Registered User Goal User can log out of their account Predictions User is logged HASH(0x7fdf0890e070) Cannot access system HASH(0x7fdf0890e3e8) gets HASH(0x7fdf089100b8) system 28 ©All Right Reserved [Daffodil International University](#). Quality Requirements Step Requirement 1 N/A 29 ©All Right Reserved [Daffodil International University](#). 3.3 Activity Diagram 3.3.1 User 3.3.1.1 Activity Diagram for User This figure represents the all feature of user of the Secure Mailbox. HASH(0x7fdf08910568). 2 Admin 3. HASH(0x7fdf08910a90) represents the all feature of admin part of the Secure Mailbox. HASH(0x7fdf08910d30) User 3.4.1.1 HASH(0x7fdf08911940). 4.1.3 Create Mail Figure 3.6: Create mail 34 ©All Right Reserved [Daffodil International University](#). 3.4.1.4 Live Chat between user Figure 3.7: Live Chat 35 ©All Right Reserved [Daffodil International University](#). 3.4.1.5 Sequence Diagram for user file encryption HASH(0x7fdf08912450). 6 HASH(0x7fdf089221f8): Decrypt file 37 ©All Right Reserved [Daffodil International University](#). 3.4.2 Admin HASH(0x7fdf089220a8) Login 38 ©All Right Reserved [Daffodil International University](#). 3.4.2.2 Create Notification Figure 3. 11: Create and send notification 39 ©All Right Reserved [Daffodil International University](#). 3.4.2.3 View user list Figure 3. 12: View User List 40 ©All Right Reserved [Daffodil International University](#). Chapter 4 System Design Specification (SDS) In this chapter we talked about the stack that we used for making Secure Mailbox, tools, class diagram, and entity-relationship diagram. 4.1 Development Tools and Technologies 4.1.1 API Development Technology 4.1.1.1 JavaScript (ES6+) HASH(0x7fdf08915ea8) applications. HASH(0x7fdf08915fb0) a major enhancement to the JavaScript language. 4.1.1.2 Node.js HASH(0x7fdf089163e8) Chrome is V8 JavaScript engine. 4.1.1.3 HASH(0x7fdf08916820) APIs. 4.1.1.4 HASH(0x7fdf089165e0). Swagger doc HASH(0x7fdf089167d8). 41 ©All Right Reserved [Daffodil International University](#). 4.1.1.5 Babel Babel is an HASH(0x7fdf08916b20). 4.1.1.6 HASH(0x7fdf089179a0) 4.1.1.7 HASH(0x7fdf08917c10). 4.1.1.8 No-demon No-demon HASH(0x7fdf08916208). 4.1.1.9 MongoDB MongoDB is the most popular database for modern applications. It HASH(0x7fdf08922d68). 42 ©All Right Reserved [Daffodil International University](#). 4.1.2 API Development Tools 4.1.2.1 HASH(0x7fdf089225a0) Windows. Many features include support for debugging, snippets, syntax highlighting, code refactoring, intelligent code completion, Git etc. 4.1.2.2 HASH(0x7fdf08919e20) make and test HASH(0x7fdf08917be0). 4.1.2.3 Compass Compass HASH(0x7fdf0891a2a0) developer can perform on the database. 4.1.2.4 Version Control (HASH(0x7fdf0891a810)HASH(0x7fdf0891a720)). 4.1.2.5 Github CI Github provides a Node.js workflow that will work for most Node.js projects. It is a workflow to build and test Node.js projects. If continuous integration (CI) tests pass then you may want to deploy your code. Developer can check their

code and generate a report. 4.1.2.6 HASH(0x7fdf08917958). We are deploying our API on this. [43](#) ©All Right Reserved [Daffodil International University](#). 4.2 Class Diagram HASH(0x7fdf0891aca8) [45](#) ©All Right Reserved [Daffodil International University](#). 5.1 Testing Features Priority Level HASH(0x7fdf0891c408) System Test 5.1.1 Admin Features Feature Priority Description Registration 3 System must validate new registration Log In 3 System must authentication login information Create Notification 3 Admin need to create Notification View User List 2 Admin need to view user list [46](#) ©All Right Reserved [Daffodil International University](#). 5.1.1 User Features Feature Priority Description Registration 3 System must validate new registration Log In 3 System must authentication login information Create Mail 3 User can create mail Encrypt/Decrypt File 3 User can encrypt/decrypt file Live Chat 3 User can communicate with real-time Live chat feature. View Mail List(Send) 2 User can view mail list. View mail List(Receive) 2 User can view mail list which are receive they are. View Notification List 2 User can view notification list. View User List 2 User can view user list to send message. [47](#) ©All Right Reserved [Daffodil International University](#). 5.2 Test Cases 5.2.1 Account Registration (Admin) HASH(0x7fdf0891cc00): Executed by: Execution Date: Description: Admin must register to gain access to the create notification. To register an account, must be provided an email and password. Pre-condition: ? Email address must be unique. ? Passwords must be between 3 to 30 characters. HASH(0x7fdf0891eab0) admin123 Registration successfully Pass 2 admin1@secu remail.com admin123 Registration successfully Pass 3 admin2@secu remail.com Enter Your Password Fail Post-condition: A new user account has been registered successfully [48](#) ©All Right Reserved [Daffodil International University](#) [49](#) ©All Right Reserved [Daffodil International University](#). 5.2.2 Account Registration (User) HASH(0x7fdf0891ee58): Executed by: Execution Date: Description: User must register to gain access to the create schedule. To register an account, must be provided a valid email and password. Pre-condition: ? Email address must be unique. ? Passwords must be between 3 to 30 characters. HASH(0x7fdf0891f4d0) mazharul123 Registration successfully Pass Figure 6.4 2 mehedi@secu remail.com mehedi123 Registration successfully Pass Figure 6.4 3 user2@secure mail.com Tanjina112 2 Enter correct mail / password Fail Post-condition: A new user account has been registered successfully [50](#) ©All Right Reserved [Daffodil International University](#). 5.2.3 Login (Admin) Test Case: 5.2.3 HASH(0x7fdf0891f680): Executed by: Execution Date: Description: Admin must login to gain access to the created notification. The system will check for authentication and authorization Pre-condition: ? Admin must be use valid email HASH(0x7fdf08930af8) 123 Login successfully Pass Figure 6.1 2 admin1@secu remail.com 1456d Incorrect credential Fail Post-condition: Admin will successfully log into the system 5.2.4 Login (User) Test Case: 5.2.4 HASH(0x7fdf08930e40): [51](#) ©All Right Reserved [Daffodil International University](#). Executed by: Execution Date: Description: User must login to gain access. The system will check for authentication and authorization Pre-condition: ? user must input valid email HASH(0x7fdf08931008) 123 Login successfully Pass Figure 6.5 2 user1@secure mail.com 675656cfdcf gg Incorrect credential Fail Post-condition: User will successfully log into the syste m 5.2.5 View User List Test Case: 5.2.5 HASH(0x7fdf089230d8): Executed by: Execution Date: Description: Registered admin can view the user list Pre-condition: ? Database has at least one user information to display HASH(0x7fdf089234f8) System will display User list Pass Post-condition: Display all old or new user 5.2.6 Create Notification Test Case: 5.2.6 Test Case Name: Create Notification System: Secure Mailbox Subsystem: Designed by: Mazharul Islam Design Date: Executed by: Execution Date: Description: Admin can create notification Pre-condition: ? Must be logged in HASH(0x7fdf08923a80) boxes and clicks on 'Send' button System Send the notification Pass 2 Does not fill up all the required boxes and clicks on 'Send' button All required boxes must be filled Fail Post-condition: Notification Created Successfully. [53](#) ©All Right Reserved [Daffodil International University](#). 5.2.7 Create Mail Test Case: 5.2.7 Test Case Name: Create Mail System: Secure Mailbox Subsystem: Designed by: Mazharul Islam Design Date: Executed by: Execution Date: Description: Registered user can create his/her mail Pre-condition: ? Must be logged in HASH(0x7fdf08923c30) boxes and clicks on 'Send' button Send Successfully Pass 2 Does not fill up all the required boxes and clicks on 'Send' button All required boxes must be filled Fail Post-condition: Your mail send Successfully! 5.2.8 Encrypt File Test Case: 5.2.8 Test Case Name: Encrypt File System: Secure Mailbox Subsystem: [54](#) ©All Right Reserved [Daffodil International University](#). Designed by: Mazharul Islam Design Date: Executed by: Execution Date: Description: Registered user can encrypt their file after login the system. Pre-condition: ? Must be logged in HASH(0x7fdf089258e8) boxes and clicks on 'encrypt' button Your File is encrypted Pass 2 Does not fill up all the required boxes and clicks on 'encrypt' button All required boxes must be filled Fail Post-condition: Successfully your file is encrypted! 5.2.9 Decrypt File Test Case: 5.2.9 Test Case Name: Decrypt File System: Secure Mailbox Subsystem: Designed by: Mazharul Islam Design Date: Executed by: Execution Date: Description: Registered user can encrypt their file. [55](#) ©All Right Reserved [Daffodil International University](#). Pre-condition: Database has at least one data to display HASH(0x7fdf08925d98) enter a secret key then click on "Decrypt" Decrypted Successfully Pass Post-condition: Your file is decrypted successfully! 5.2.10 View system notification List Test Case: 5.2.10 HASH(0x7fdf089262c0): Execution Date: Description: Registered user can check their notification list. Pre-condition: Database has at least one notification to display. HASH(0x7fdf08926f48) on System will Pass Notification List to display the view list info. notification list. [56](#) ©All Right Reserved [Daffodil International University](#). Post-condition: Display all notification 5.2.11 Live Chat Test Case: 5.2.11 HASH(0x7fdf089264a0): Executed by: Execution Date: Description: Registered user should send message HASH(0x7fdf08927728) ? User select another to send text HASH(0x7fdf08927968) boxes and clicks on 'Send' button Sent Successfully Pass 2 Does not fill up all the required boxes and clicks on 'Send' button All required boxes must be filled Fail Post-condition: Message sent successfully. [57](#) ©All Right Reserved [Daffodil International University](#). 5.2.12 Check message notification Test Case: 5.2.12 5.2.1 Test Case Name: Check message notification System: Secure Mailbox Subsystem: Designed by: Mazharul Islam Design Date: Executed by: Execution Date: Description: Registered user can check notification list after their login. Pre-condition: ? Must be logged in ? Must have at least a data HASH(0x7fdf08927b30)-condition: Show notification list. [58](#) ©All Right Reserved [Daffodil International University](#). Chapter 6 User Manual 6.1 Admin 6.1.1 Login (Admin) Figure 6.1: Login [59](#) ©All Right Reserved [Daffodil International University](#). 6.1.2 Check User List Figure 6.2: User List [60](#) ©All Right Reserved [Daffodil International University](#). 6.1.3 Create Notification Figure 6.3: Create Notification [61](#) ©All Right Reserved [Daffodil International University](#). 6.2 User 6.2.1 User Registration Figure 6.4: User Registration [62](#) ©All Right Reserved [Daffodil International University](#). 6.2.2 Login (User) Figure 6.5: Login [63](#) ©All Right Reserved [Daffodil International University](#). 6.2.3 User Check Mail List Figure 6.6 Mail List [64](#) ©All Right Reserved [Daffodil International University](#). 6.2.4 User Create Mail Figure 6.7 Create Mail [65](#) ©All Right Reserved [Daffodil International University](#). 6.2.5 Encrypt File Figure 6.8: Encrypt File [66](#) ©All Right Reserved [Daffodil International University](#). 6.2.6 Decrypt File Figure 6.9: Decrypt File [67](#) ©All Right Reserved [Daffodil International University](#). 6.2.7 Live Chat Figure 6.10: Live Chat [68](#) ©All Right Reserved [Daffodil International University](#). 6.2.8 Notification List Figure 6.11: Check Notification List [69](#) ©All Right Reserved [Daffodil International University](#). Chapter 7 7.1 Github Link HASH(0x7fdf088e8098) this project implementation in dot net core framework, it was very challenging to me. Then I think about another framework to implement this project, which framework can be easy to implement this project? Then I decided I will implement this project individually Frontend and Backend. That's why I was learned JavaScript (React.js and Node.js) this project development experience was really surprising to me. Now, I'm very confident to me to develop any kind of project using this project experience. Now, I know how to overcome the obstacles in development life. 7.3 Future Scope: In the future it can be include video call feature and some advance feature below given- ? Full system will be encrypted ? Add Encryption on Transport Layer ? Each mail can encrypt before send ? User may to have paying to use advance feature ©All Right Reserved Daffodil International University [70](#) References <http://ieeexplore.ieee.org/xpl/articleDetails.jsp?arnumber=7406040&queryText=image+aes&ne+search=true> <http://ieeexplore.ieee.org/xpl/articleDetails.jsp?arnumber=5734951&queryText=image+aes&ne+search=true> Abhinav Asthana, A. K. (2014). Postman. Retrieved from Postman The collaboration platform: <https://www.postman.com/> Microsoft Corporation, R. D. (2009, May 27). Node.js. Retrieved from node.js org: <https://nodejs.org/en/> MongoDB Inc., N. (2009, February 11). Mongo DB. Retrieved from Mongo DB the popular database: <https://www.mongodb.com/> Smart Bear Software, O.-s. s. (n.d.). Swagger. Retrieved from Swagger API documentation: <https://swagger.io/> Strong loop. (2010, November 16). Express.js. Retrieved from Express JS: <https://expressjs.com/>

Wikipedia: Advanced Encryption Standard process - Wikipedia Development Guideline: Cryptographic Standards and Guidelines | CSRC (nist.gov) 71 ©All Right Reserved Daffodil International University