**CMPS 5153 Software Engineering**

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**Group: Cloud-MSU**

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1. **Purpose**

*This document outlines testing approaches and methodology for Cloud-MSU’s Nimbus I/O. it will define the scope of various strategies and techniques of testing, Show activities to be completed, explain the general resources required and the methods and processes to be used during the testing phase which should be completed for every increment of the software.*

1. **Overview:**

**Section 3 - Strategies**

**Section 4 – Validation Techniques  
Section 5 - Schedule**

**Section 6 - Test cases / Results**

1. **Strategy**

*Strategy is a framework, which describes process of testing a software product. There are various stages in testing software from each module to the whole system. The following Sections describe how and why we intend to fulfill them.*

**3.1. Unit testing**

*During Unit testing our programmers Vishnu and Taylor attempt to discover any incorrect insufficient or extraneous code. After each module is fully developed it is tested by the programmers for the presence of any bugs in the code and for its functionality. For our purposes, it is the initial stage of product testing. Our modules and their functions were implemented by the programmers as discussed during design phases and are roughly defined in our project description by our class diagram. Various other design diagrams created during analysis and design phases are also available.*

* 1. **Integration testing**

*Integration testing a strategy used to check whether there are any changes in original functionality when different modules are integrated. If any interface defects are found, components will be tested as a single group or organized in an iterative manner. After our programmers have performed integration testing on the modules, the resulting code is pushed to our Github repository and the testing team, Tejaswi and Mounika, can proceed with system testing.*

* 1. **System testing**

*Once the system is completed and our programmers perform the integration testing, the software is put in place in a working environment and our testers Tejaswi and Mounika**will perform a system test. This phase will be preformed as part of the validation phase, and it is when the system interacts with actual user input. Testing in this stage may or may not include some portion of structured testing based on requirements, use cases, or test cases, and may also include unstructured testing, such as testing for non functional requirements, ‘look and feel’ testing, as well as unexpected usage testing.*

* 1. **Regression testing**

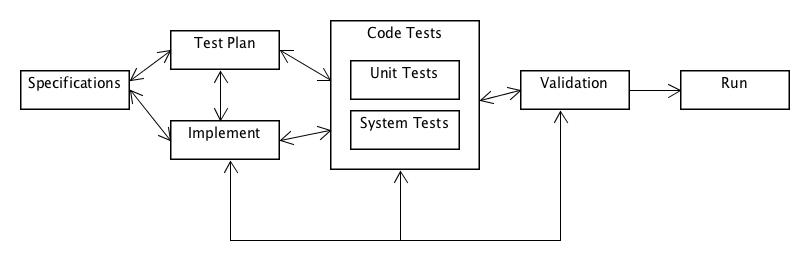
*The purpose of regression testing is to verify that any recent changes, due to problems found during testing have not affected existing features. Our regression testing will be a partial selection of already executed test cases, which will be re-executed by our programmers to ensure existing functionality before deployment.*

* 1. **Continuous integration:**

*Is a practice that requires the team keep a shared repository of code. This happens in conjunction with integration testing, where the whole of the system is tested and checked for problems before the code is pushed to the repo. We maintain the repository using GitHub and the Git API.*

* 1. **Testing process:**

*The following diagram (Figure 1) shows the testing process that Cloud-MSU implemented during the testing phase of software development for Nimbus I/O.*



***Fig 1: Testing Cycle***

**4.** **Validation techniques**

These are testing methods performed in testing strategies. This section describes the testing methods performed on the software for the purpose of validation.

* 1. **Use case testing:**

*Use case testing**is a technique that helps us identify test cases that exercise the whole system on a case-by-case basis from start to finish. A use case is a description of a particular use of the system by an actor. Each use case describes the interactions the actor has with the system in order to perform a task. Actors in our system are android users. Our use cases are defined in terms of one ‘complete’ task or interaction with a user and our system. Our use cases can be found included with our requirements documents.*

**4.2 Code Review:**

*Is a systematic examination of code. After unit and integration testing is complete, and before the build is deemed ready for deployment or prior to a secondary increment at least one formal code review will be performed by the whole team. We do this in the hopes of improving the overall system and to prepare notes for the next build. We have also implemented pair programming sessions, which serves the dual role of informal code review.*

**5. Test schedule**

*Testing is divided into phases and scheduled as below (Figure 2):*

*The unit testing is done during application integration as each module becomes ready. After all units become developed integration is performed. Once the system is ready, the team will move into the system-testing phase and will perform use case testing as well as a code review. Because issues will be found we have scheduled several days for each task. After correcting any defects, we will perform regression testing. The whole system-testing phase should take 5-10 days.*



***Fig 1: Test Schedule***

**Test cases for Login Page**

|  |  |  |  |
| --- | --- | --- | --- |
| Test case | Actual values | Expected Output | Actual Output |
| 1 | Enter Username as "user1", password as "password" and click on login button | Login successful and display the welcome page |  |
| 2 | Enter Username as "wichitafalls",password as "password" and click on login button | Login fails and error message will be displayed as enter valid credentials |  |
| 3 | Enter Username as "user1", password as "76308" and click on login button | Login fails and error message will be displayed as enter valid credentials |  |
| 4 | Enter Username as "user1", leave password as empty and click on login button | Login fails and error message will be displayed as all fields are mandatory |  |
| 5 | Leave Username as empty, password as "password" and click on login button | Login fails and error message will be displayed as all fields are mandatory |  |
| 6 | Leave both Username and Password as empty and click on login button | Login fails and error message will be displayed as all fields are mandatory |  |
| 8 | Click on the Sign Up button | Display the sign up page |  |
| 9 | Click on the forget password link | Display forget password page |  |

**Test cases for Forget password page**

|  |  |  |  |
| --- | --- | --- | --- |
| Test case | Actual values | Expected output | Actual Output |
| 1 | Enter Email ID as [“user001@gmail.com”](mailto:)  Mobile as “9400004041”  Password as “password01” and click on the button recover. | Checks whether the Email ID and mobile entered are valid or not  And resets the password |  |
| 2 | Enter Email ID as [“user@gmail.com”](mailto:)  Mobile as “9400004041”  Password as “password01” and click on the button recover. | Error Message:  Given Email Id was not recognized and  please enter the valid Email ID |  |
| 3 | Enter Email ID as [“user001@gmail.com”](mailto:)  Mobile as “9400004001”  Password as “password01” and click on the button recover | Error Message:  Given Mobile number was not recognized and  please enter the valid Mobile number |  |
| 4 | Enter Email ID as [“user001@gmail.com”](mailto:)  Mobile as “abcdefgh”  Password as “password01” and click on the button recover | Error Message:  Mobile number should consist of only digits and please enter the valid Mobile number |  |
| 5 | Enter Email ID as [“user001@gmail.com”](mailto:)  Mobile as “940000401”  Password as “password01” and click on the button recover | Error Message:  Mobile number should consist of 10 digits and please enter the valid Mobile number |  |
| 6 | Enter Email ID as [“user001@gmail.com”](mailto:)  Mobile as “hbjkkjbvfdv”  Password as “password01” and click on the button recover | Error Message:  Mobile number should consist of only digits and please enter the valid Mobile number |  |
| 7 | Enter Email ID as [“user001@gmail.com”](mailto:)  Mobile as “9400004041”  Password as “passwordgtfyhhnmvhjh” and click on the button recover | Error Message:  Password should consists of 16 digit length password.  please enter the valid password |  |
| 8 | Enter Email ID as [“user001@gmail.com”](mailto:)  Mobile as “9400004041”  Password as “099885454433” and click on the button recover | Error Message:  Password should consists of 16 digit length password with the combination of character and optional digit.please enter the valid password |  |

**Test cases for Sign Up Page**

|  |  |  |  |
| --- | --- | --- | --- |
| Test case | Actual values | Expected Output | Actual Output |
| 1 | Enter company name as “Microsoft”, First Name as “Christian”, Last Name as ”Adley”, Email ID as [“user001@gmail.com”](mailto:)  Mobile as “9400004041” Password as “password01”,re-enter password same as password and click on sign Up button | Successfully the given information is saved and display the login page |  |
| 2 | Enter company name as “12345678”, First Name as “Christian”, Last Name as ”Adley”, Email ID as [“user001@gmail.com”](mailto:)  Mobile as “9400004041” Password as “password01”,re-enter password same as password and click on sign Up button | Error Message:  Company name should consists of characters and optional digits.  Please enter the valid Company name |  |
| 3 | Enter company name as “Microsoft”, First Name as “Christian007”, Last Name as ”Adley”, Email ID as [“user001@gmail.com”](mailto:)  Mobile as “9400004041” Password as “password01”,re-enter password same as password and click on sign Up button | Error Message:  Full name should consists of onlycharacters and  Please enter the valid Full name |  |
| 4 | Enter company name as “Microsoft”, First Name as “Christian”, Last Name as ”Adley007”, Email ID as [“user001@gmail.com”](mailto:)  Mobile as “9400004041” Password as “password01”,re-enter password same as password and click on sign Up button | Error Message:  Last name should consists of only characters and  Please enter the valid Last name |  |
| 5 | Enter company name as “Microsoft”, First Name as “Christian”, Last Name as ”Adley”, Email ID as [“user001@gmail.com”](mailto:)  Mobile as “940000401” Password as “password01”,re-enter password same as password and click on sign Up button | Error Message:  Mobile number should consist of 10 digits and please enter the valid Mobile number |  |
| 6 | Enter company name as “Microsoft”, First Name as “Christian”, Last Name as ”Adley”, Email ID as [“user001@gmail.com”](mailto:)  Mobile as “kmreogoe” Password as “password01”,re-enter password same as password and click on sign Up button | Error Message:  Mobile number should consist of only digits and please enter the valid Mobile number |  |
| 7 | Enter company name as “Microsoft”, First Name as “Christian”, Last Name as ”Adley”, Email ID as [“user&001@gmail.com”](mailto:)  Mobile as “9400004041” Password as “password01”,re-enter password same as password and click on sign Up button | Error Message:  Email ID should consist of characters and optional digits. It will not accept special characters.  please enter the valid Email ID |  |
| 8 | Enter company name as “Microsoft”, First Name as “Christian”, Last Name as ”Adley”, Email ID as [“user&001@gmail.com”](mailto:)  Mobile as “9400004041” Password as “passwordouteandur”,re-enter password same as password click on sign Up button  . | Error Message:  Password should consists of 16 digit length password.  please enter the valid password |  |
| 9 | Enter company name as “Microsoft”, First Name as “Christian”, Last Name as ”Adley”, Email ID as [“user&001@gmail.com”](mailto:)  Mobile as “9400004041” Password as “0854234678”,re-enter password same as password and click on sign Up button | Error Message:  Password should consists of 16 digit length password with the combination of character and optional digit.please enter the valid password |  |
| 10 | Enter company name as “Microsoft”, First Name as “Christian”, Last Name as ”Adley”, Email ID as [“user001@gmail.com”](mailto:)  Mobile as “9400004041” Password as “password01”,re-enter password as”123456”andclick on sign Up button  . | Error message:  Re-enter password should match the password field |  |

**Test cases for payment page:**

|  |  |  |  |
| --- | --- | --- | --- |
| Test case | Actual values | Expected output | Actual Output |
| 1 | Enter name as “Vishnu Chaitanya”, card number as “5412 5379 6537 8996”, Expiry date as”09/21”,CVV as “001”,Address line1 as”5213 Elmwood avenue”, City as “ Wichita Falls”, State as “Texas”, Zip code as “76308” and enter submit button | Display the payment confirmation page. |  |
| 2 | Enter name as “Vishnu Chaitan”, card number as “5412 5379 6537 8996”, Expiry date as”09/21”,CVV as “001”,Address line1 as”5213 Elmwood avenue”, City as “ Wichita Falls”, State as “Texas”, Zip code as “76308” and enter submit button | Error Message:  "Please enter the valid name."  Given name was incorrect. |  |
| 3 | Enter name as “Vishnu Chaitanya”, card number as “5412 5379 6537 8590”, Expiry date as”09/21”,CVV as “001”,Address line1 as”5213 Elmwood avenue”, City as “ Wichita Falls”, State as “Texas”, Zip code as “76308” and enter the submit button | Error Message:  "Please enter the valid card number."  Given number was incorrect. |  |
| 4 | Enter name as “Vishnu Chaitanya”, card number as “5412 5379 6537 8996”, Expiry date as”09/17”,CVV as “001”,Address line1 as”5213 Elmwood avenue”, City as “ Wichita Falls”, State as “Texas”, Zip code as “76308” and enter the submit button | Error Message:  "Please enter thevalid expiry date."  Expiry date was not matching with the card details. |  |
| 5 | Enter name as “Vishnu Chaitanya”, card number as “5412 5379 6537 8996”, Expiry date as”09/21”,CVV as “010”,Address line1 as”5213 Elmwood avenue”, City as “ Wichita Falls”, State as “Texas”, Zip code as “76308” and enter the submit button | Error Message:  "Please enter the valid CVV number."  CVV number was not matching with the card details. |  |
| 6 | Enter name as “Vishnu Chaitanya”, card number as “5412 5379 6537 8996”, Expiry date as”09/21”,CVV as “001”,Address line1 as”798753 Elmwood avenue”, City as “ Wichita Falls”, State as “Texas”, Zip code as “76308” and enter the submit button | Error Message:  "Please enter thevalidaddress."  Address was not matching with the card details. |  |
| 7 | Enter name as “Vishnu Chaitanya”, card number as “5412 5379 6537 8996”, Expiry date as”09/21”,CVV as “001”,Address line1 as”5213 Elmwood avenue”, City as “ Brentwood”, State as “Texas”, Zip code as “76308” and enter the submit button | Error Message:  "Please enter thevalidCity."  City name was not matching with the card details. |  |
| 8 | Enter name as “Vishnu Chaitanya”, card number as “5412 5379 6537 8996”, Expiry date as”09/21”,CVV as “001”,Address line1 as”5213 Elmwood avenue”, City as “ Wichita falls”, State as “Ohio”, Zip code as “76308” and enter the submit button | Error Message:  "Please enter thevalid state."  State name was not matching with the card details. |  |
| 9 | Enter name as “Vishnu Chaitanya”, card number as “5412 5379 6537 8996”, Expiry date as”09/21”,CVV as “001”,Address line1 as”5213 Elmwood avenue”, City as “ Wichita falls”, State as “Ohio”, Zip code as “76399” and enter the submit button | Error Message:  "Please enter theZipcode."  Zipcodewas not matching with the card details. |  |
| 10 | Enter name as “Vishnu Chaitanya”, card number as “5412 5379 6537 8996”, Expiry date as”09/21”,CVV as “001”,Address line1 as”5213 Elmwood avenue”, City as “ Wichita falls”, State as “Ohio”, Zip code as “763089” and enter the submit button | Error Message:  "Please enter thevalid Zipcode."  Zipcode should consists of only 5 digits |  |
| 11 | Enter name as “Vishnu Chaitanya”, card number as “5412 5379 6537 899611”, Expiry date as”09/21”,CVV as “001”,Address line1 as”5213 Elmwood avenue”, City as “ Wichita falls”, State as “Ohio”, Zip code as “763089” and enter the submit button | Error Message:  "Please enter thevalid card number."  Card number should consists of only 16digits |  |

**Test cases for change password**

|  |  |  |  |
| --- | --- | --- | --- |
| Test case | Actual values | Expected output | Actual Output |
| 1 | Enter email id as [“user001@gmail.com”](mailto:), old password as “password ”, new password as “new password”, confirm new password as “new password” and press submit button | Password is changed successfully. |  |
| 2 | Enter email id as [“user001@gmail.com”](mailto:), old password as “password ”, new password as “new password”, confirm new password as “new passwor” and press submit button | Error Message:  Both new password and confirm new password fields should match. Enter valid password. |  |
| 3 | Enter email id as [“user0010@gmail.com”](mailto:), old password as “password ”, new password as “new password”, confirm new password as “new password” and press submit button | Error Message:  Incorrect Email id. Please enter valid Email ID. |  |
| 4 | Enter email id as [“user001@gmail.com”](mailto:), old password as “password ”, new password as “new passwordcode”, confirm new password as “new passwordcode” and press submit button | Error Message:  Password should be 16 digit length characters and digits(optional). |  |
| 5 | Enter email id as [“user001@gmail.com”](mailto:), old password as “password00 ”, new password as “new password”, confirm new password as “new password” and press submit button | Error Message:  Please enter the valid old password. |  |
| 6 | Enter email id as [“user001@gmail.com”](mailto:), old password as “password ”, new password as “12345678”, confirm new password as “12345678” and press submit button | Error Message:  Password should consists of characters and digits(optional)  Please enter the valid newpassword. |  |
| 7 | Enter email id as [“user001@gmail.com”](mailto:), old password as “password ”, new password as “new password”, leave confirm new password as blankand press submit button | Error Message:  Please re-enter the password again |  |