Testing Report

For NGO Management System (NMS)

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INTRODUCTION

Description:

This document sketches out the test plan for the NGO Management System (NMS). The plan used the black box approach and the white box approach to uncover the various bugs in the software. The bugs after detection were corrected.

Related Documents:

- NMS SRS
- NMS SA-SD
- NMS UML DIAGRAM

Hardware Requirements :

The software is tested on a machine with the following configuration:

RAM: Preferably over 1 GB

Processor: 64 bit

Software Requirements for testing :

Operating System: Any Linux distribution. SQL
Client: MySQL

TEST PLAN :

BLACK BOX TESTING

CHARACTERISTICS

- Black box testing is a method of software testing that examines the functionality of an application (e.g. what the software does) without peering into its internal structures or workings (see white-box testing).

- This method of test can be applied to virtually every level of software testing: unit, integration, system and acceptance.

- It typically comprises most if not all-higher level testing, but can also dominate unit testing as well.

- Typical black-box test design techniques include:

  a. Decision table testing
  b. All-pairs testing
  c. State transition tables
  d. Equivalence partitioning
  e. Boundary value analysis

- There are many types of Black Box Testing but following are the prominent ones:

  a. **Functional testing** – This black box testing type is related to functional requirements of a system; software testers do it.

  b. **Non-functional testing** – This type of black box testing is not related to testing of a specific functionality, but non-functional requirements such as performance, scalability, and usability.

c. **Regression testing** – Regression testing is done after code fixes, upgrades or any other system maintenance to check the new code has not affected the existing code.

Black box testing strategy:

a. **Equivalence Class Testing**: It is used to minimize the number of possible test cases to an optimum level while maintains reasonable test coverage.

b. **Boundary Value Testing**: Boundary value testing is focused on the values at boundaries. This technique determines whether a certain range of values is acceptable by the system or not. It is very useful in reducing the number of test cases. It is mostly suitable for the systems where input is within certain ranges.

c. **Decision Table Testing**: A decision table puts causes and their effects in a matrix. There is unique combination in each column.

Black box testing has its own life cycle called Software Test Life Cycle and it is relative to every stage of Software Development Life Cycle.

a. **Requirement** – This is the initial stage of SDLC and in this stage requirement is gathered. Software testers also take part in this stage.

b. **Test Planning & Analysis** – Testing Types applicable to the project are determined. A Test Plan is created which determines possible project risks and their mitigation.

c. **Design** – In this stage Test cases/scripts are created on the basis of software requirement documents.

d. **Test Execution** - **In this stage Test Cases prepared are executed. Bugs if any are fixed and re-tested.**

LOGIN TESTING :

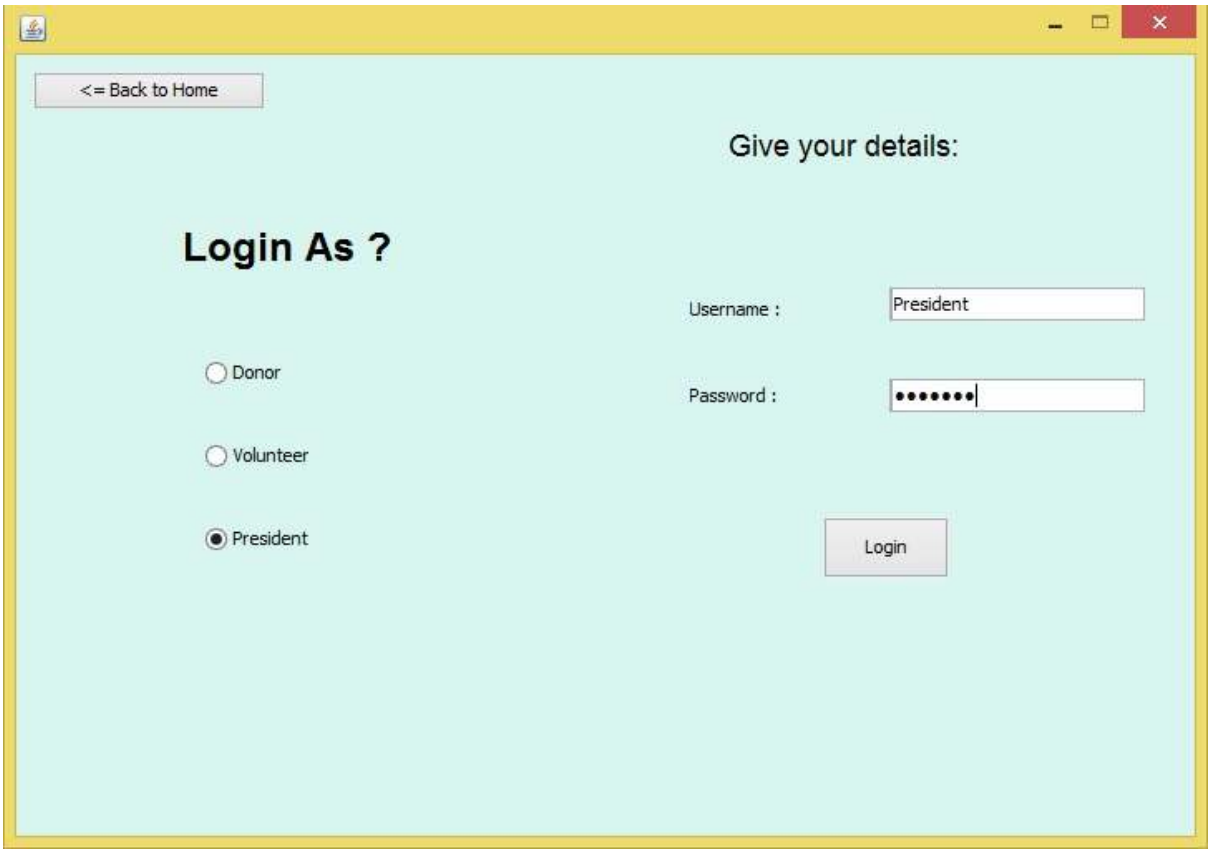
Inputs : Login ID (String) and password (String)

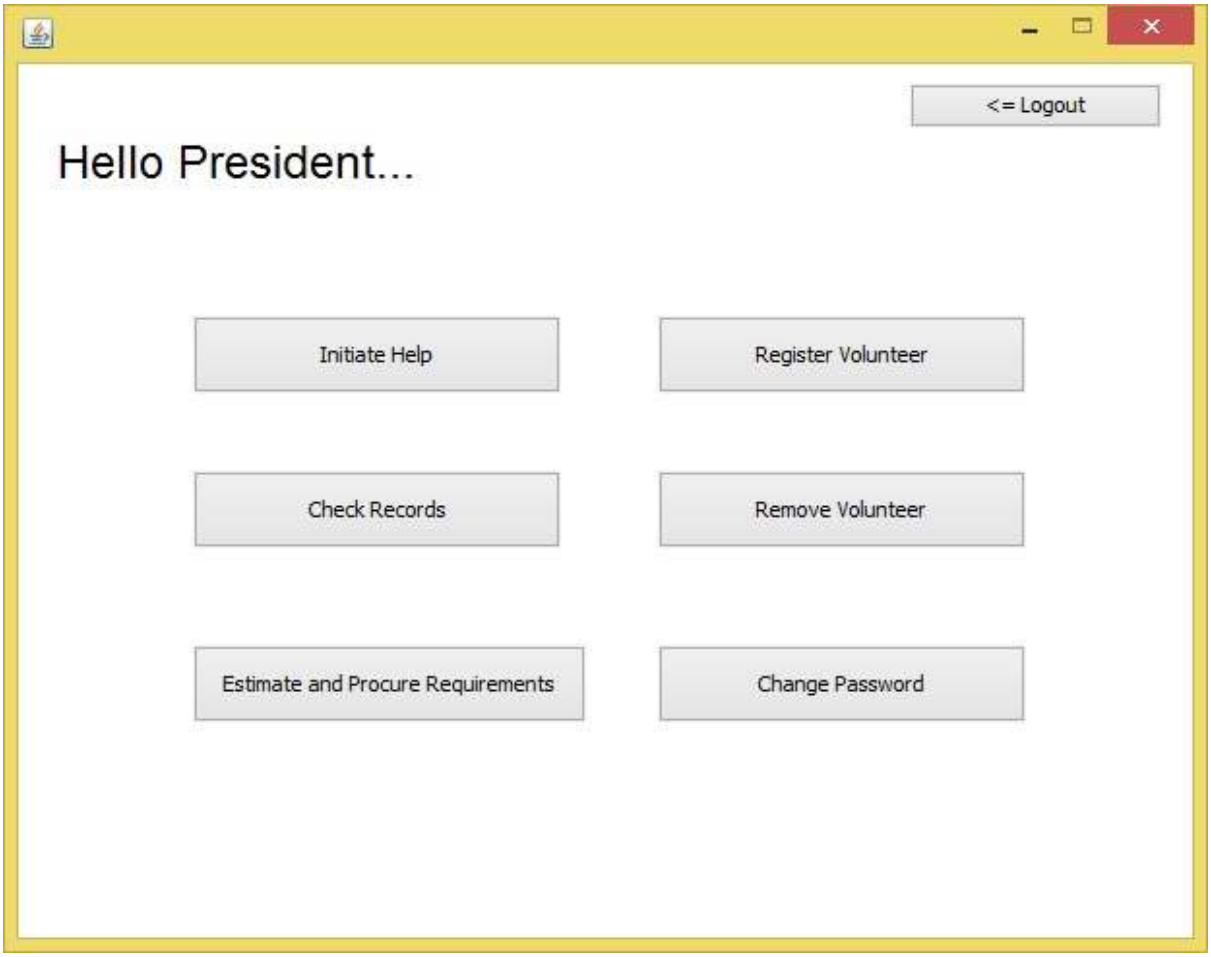
Equivalence classes :

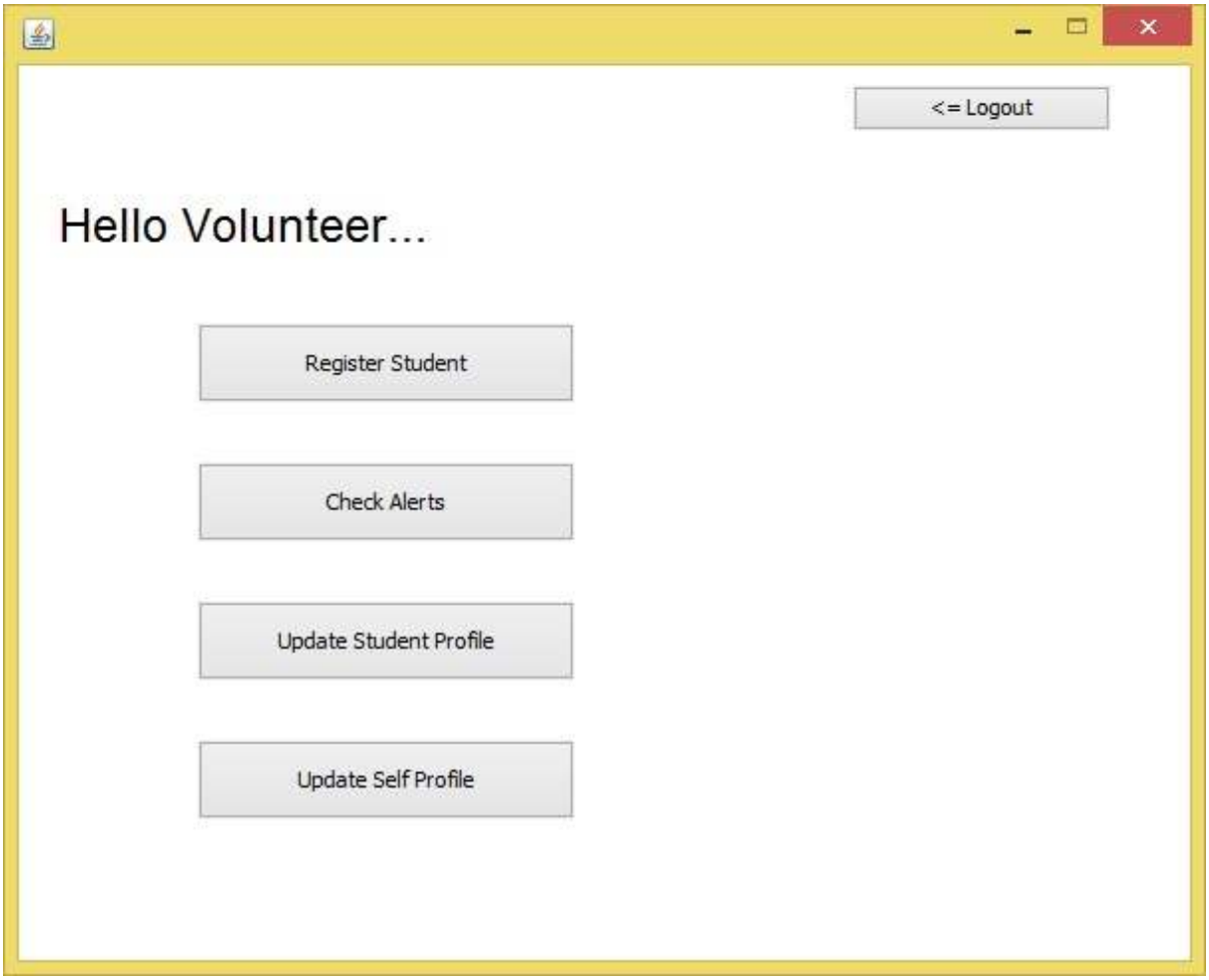
- President
- Volunteer
- Donor
- Invalid user

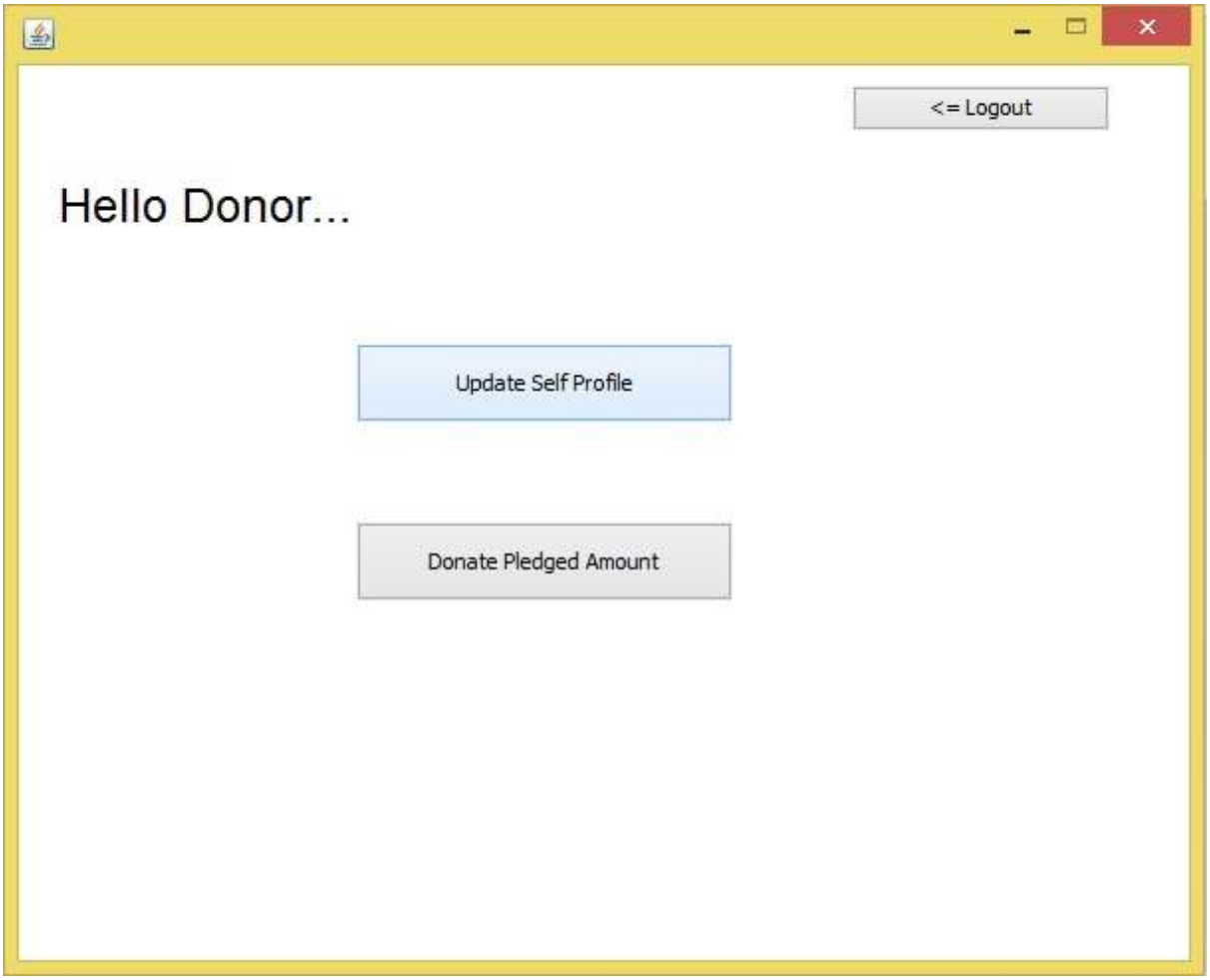
Class	Sample Input	Expected Output	Actual Output
President's Login Info	Login ID : President Password : user123	Redirected to President Page	Redirected to President Page
Volunteer's Login Info	Login ID : volunteer Password : password123	Redirected to Volunteer Page	Redirected to Volunteer Page
Donor's Login Info	Login ID : donor	Redirected to	Redirected to

	Password : password123	Donor Page	Donor Page
Invalid Entry	Login ID : xyz Password : xyz	Prints an invalid login message	Prints an invalid login message




<= Logout
Hello President...
Initiate Help
Register Volunteer
Check Records
Remove Volunteer
Estimate and Procure Requirements
Change Password


<= Logout
Hello Volunteer...
Register Student
Check Alerts
Update Student Profile
Update Self Profile


<= Logout
Hello Donor...
Update Self Profile
Donate Pledged Amount

Login
Incorrect Login!
OK

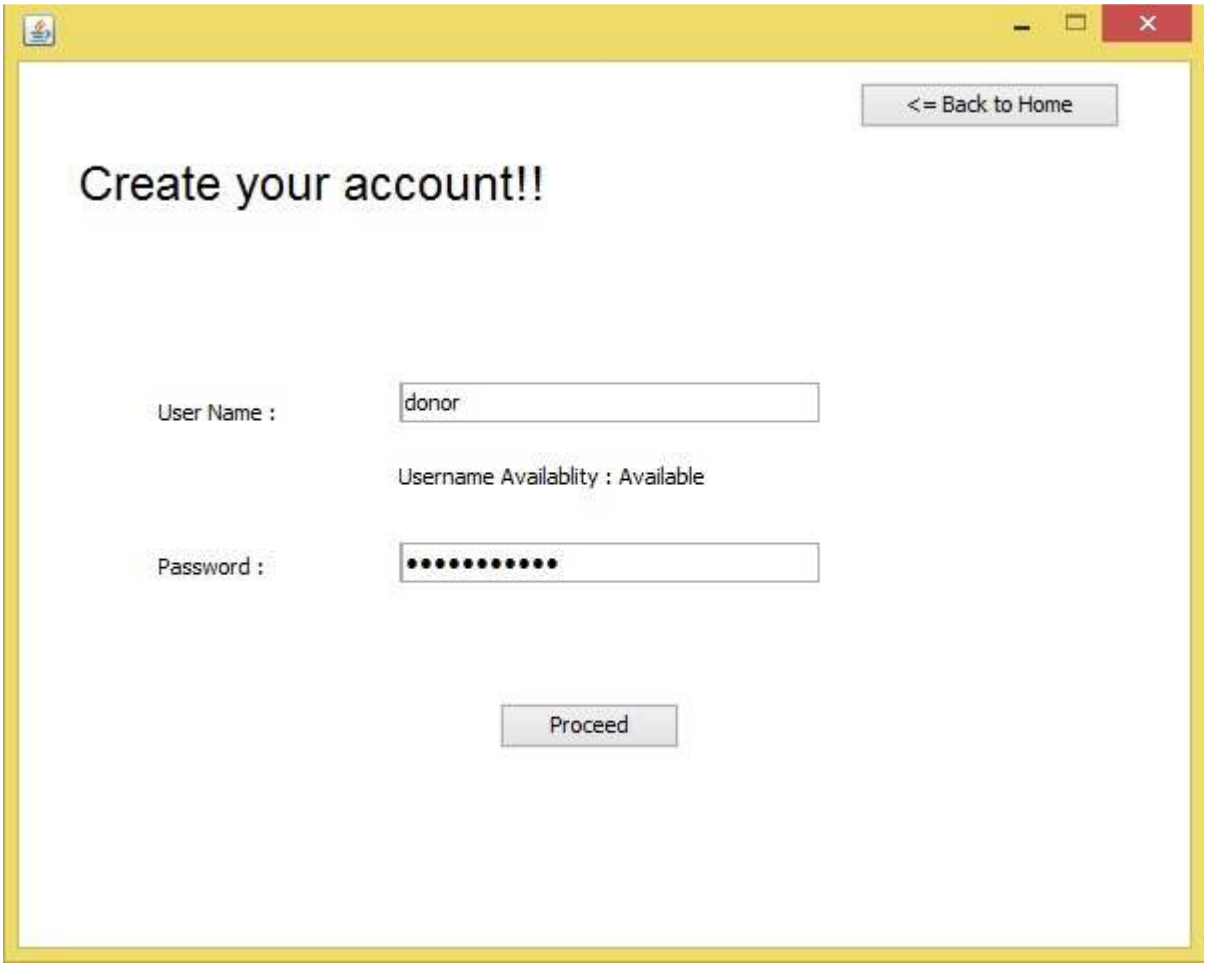
DONOR REGISTRATION TESTING :

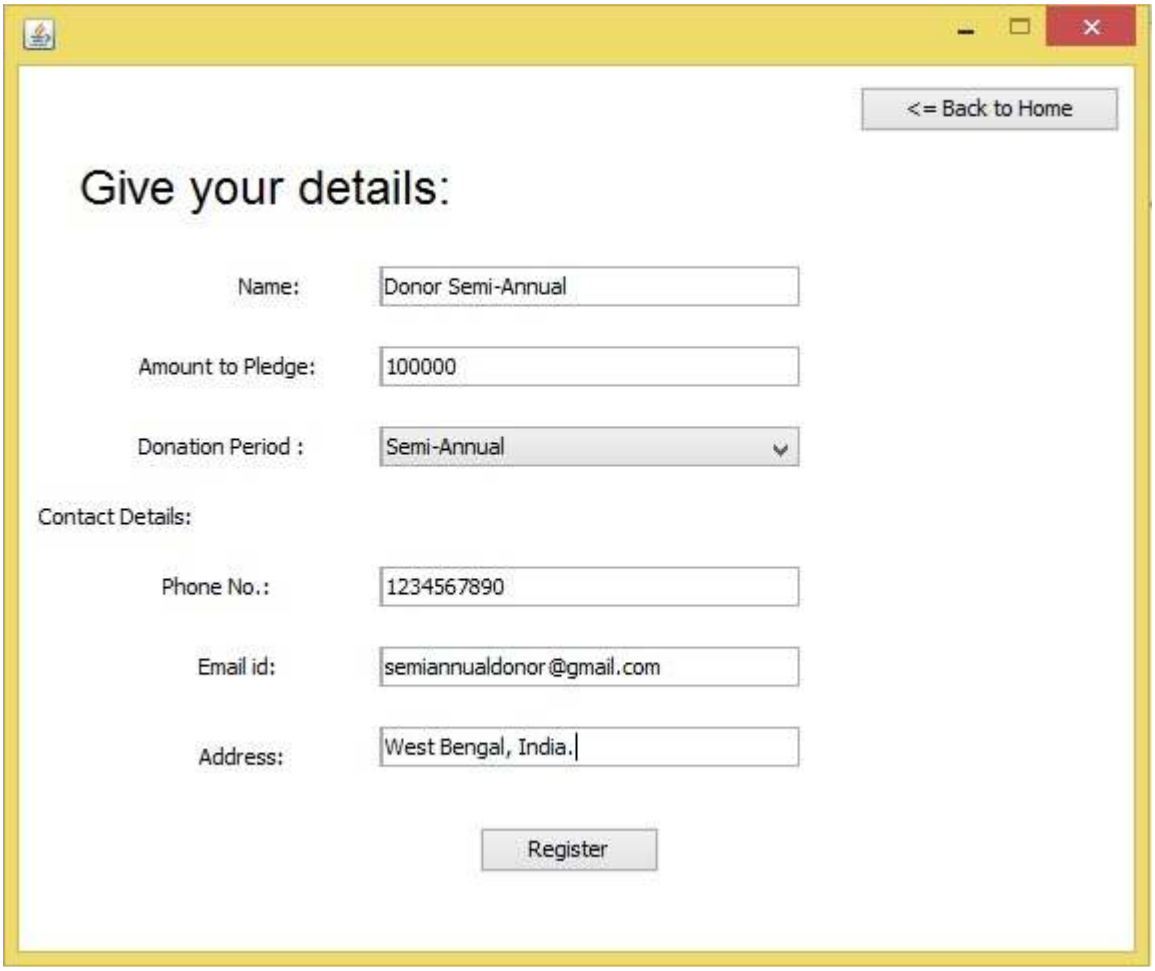
Inputs : Fill all the required fields : Username(String), Password(String), Name(String), Amount to Pledge(Double), Donation Period(Combo Box), Email ID(String), Address(String).

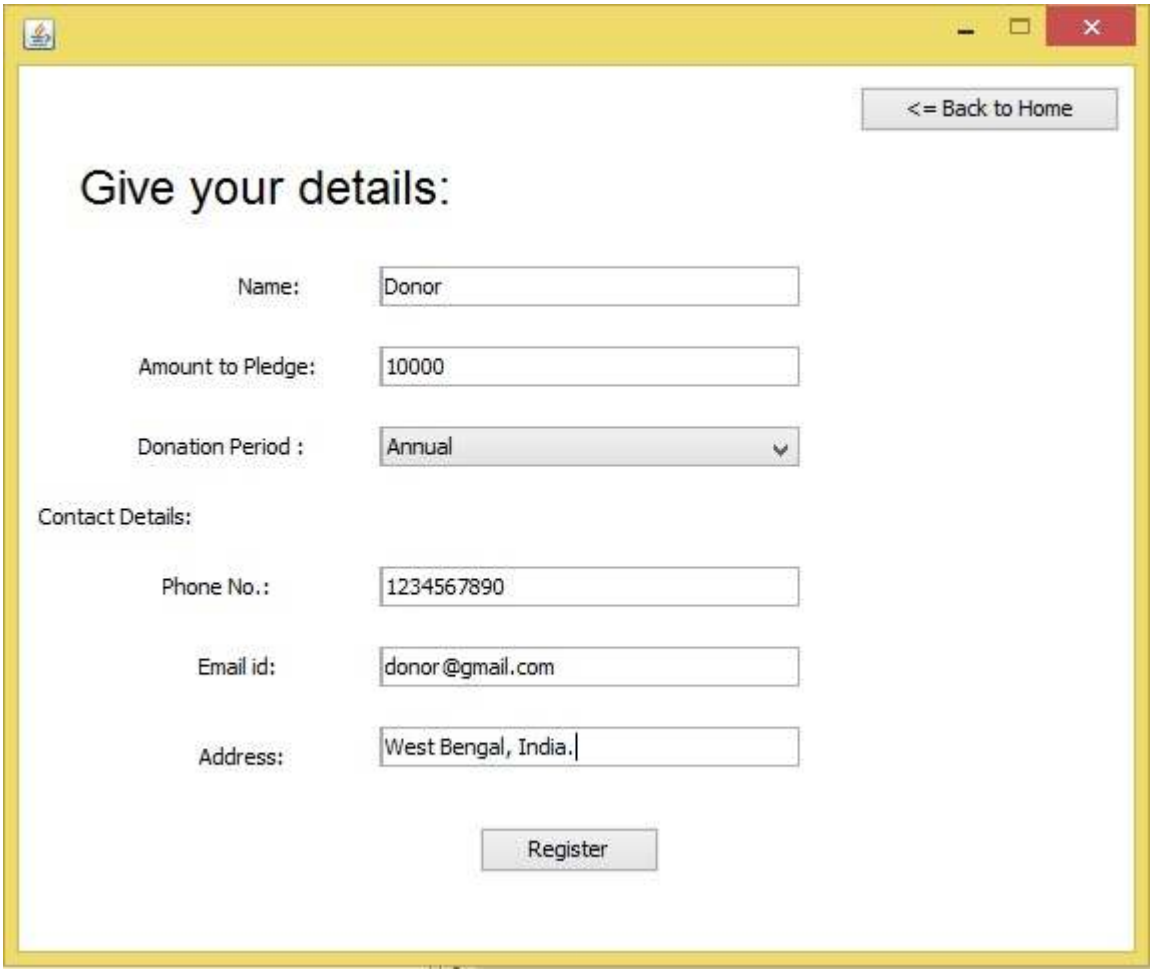
Equivalence classes :

- All the fields are correctly filled
- All the fields are filled but not correctly
- All the fields are not filled

Class	Sample Input	Expected Output	Actual Output
Fields complete and correctly filled	As shown in the image given below	Message of successful registration is displayed	Message of successful registration is displayed
Required Fields not filled or incorrectly filled.	As shown in the image given below	Displays fill all the required fields correctly message.	Displays fill all the required fields correctly message.




<= Back to Home
Give your details:
Name:
Donor Semi-Annual
Amount to Pledge:
100000
Donation Period :
Semi-Annual
Contact Details:
Phone No.:
1234567890
Email id:
semiannualdonor@gmail.com
Address:
West Bengal, India.
Register


<= Back to Home
Give your details:
Name:
Donor
Amount to Pledge:
10000
Donation Period :
Annual
Contact Details:
Phone No.:
1234567890
Email id:
donor@gmail.com
Address:
West Bengal, India.
Register

NMS
Your account has been created!
OK

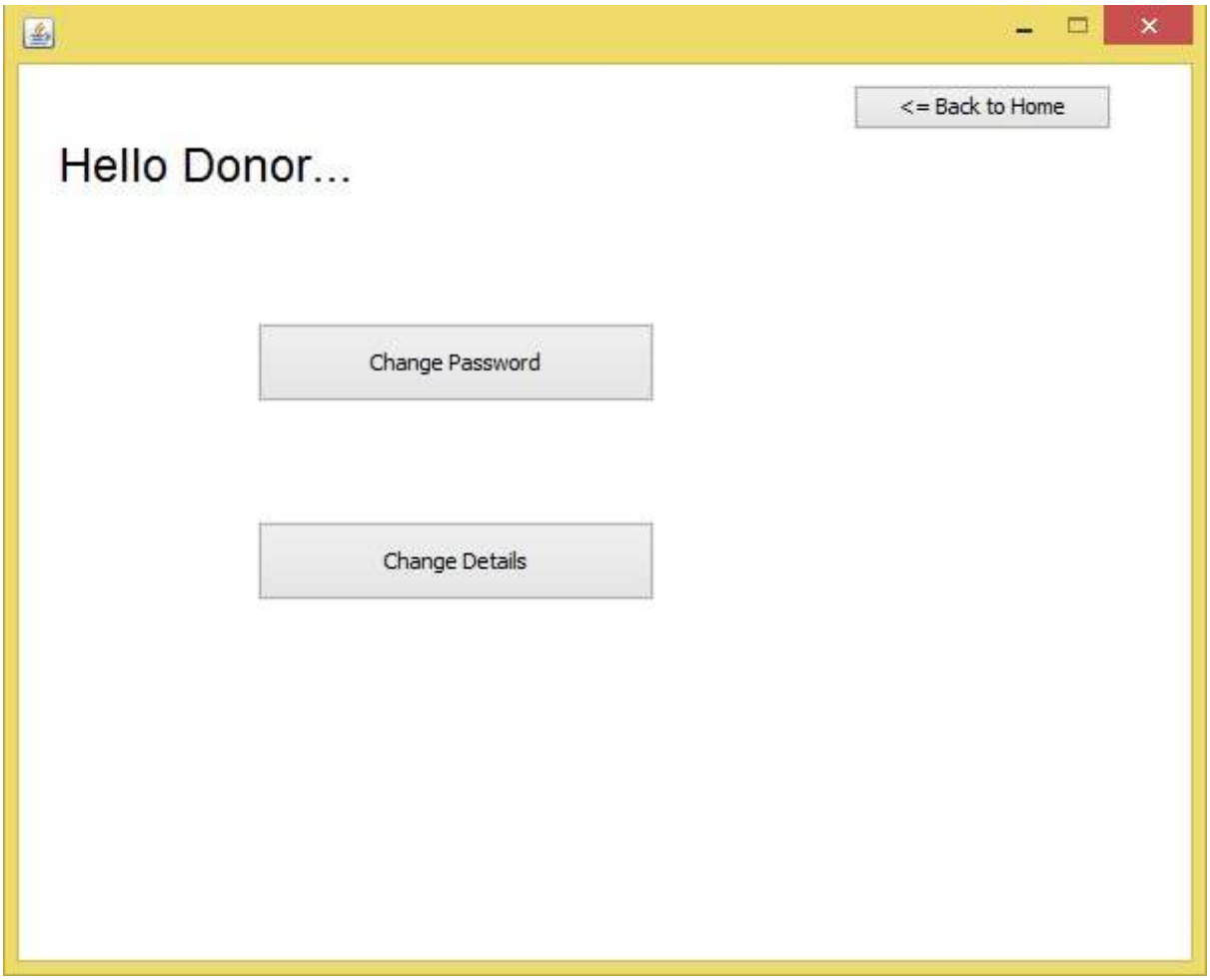
Account Details
Please fill all the fields!
OK

DONOR PAGE TESTING :

DONATE PLEDGED AMOUNT TESTING :

Inputs : No inputs.

CHANGE DONOR PROFILE TESTING :



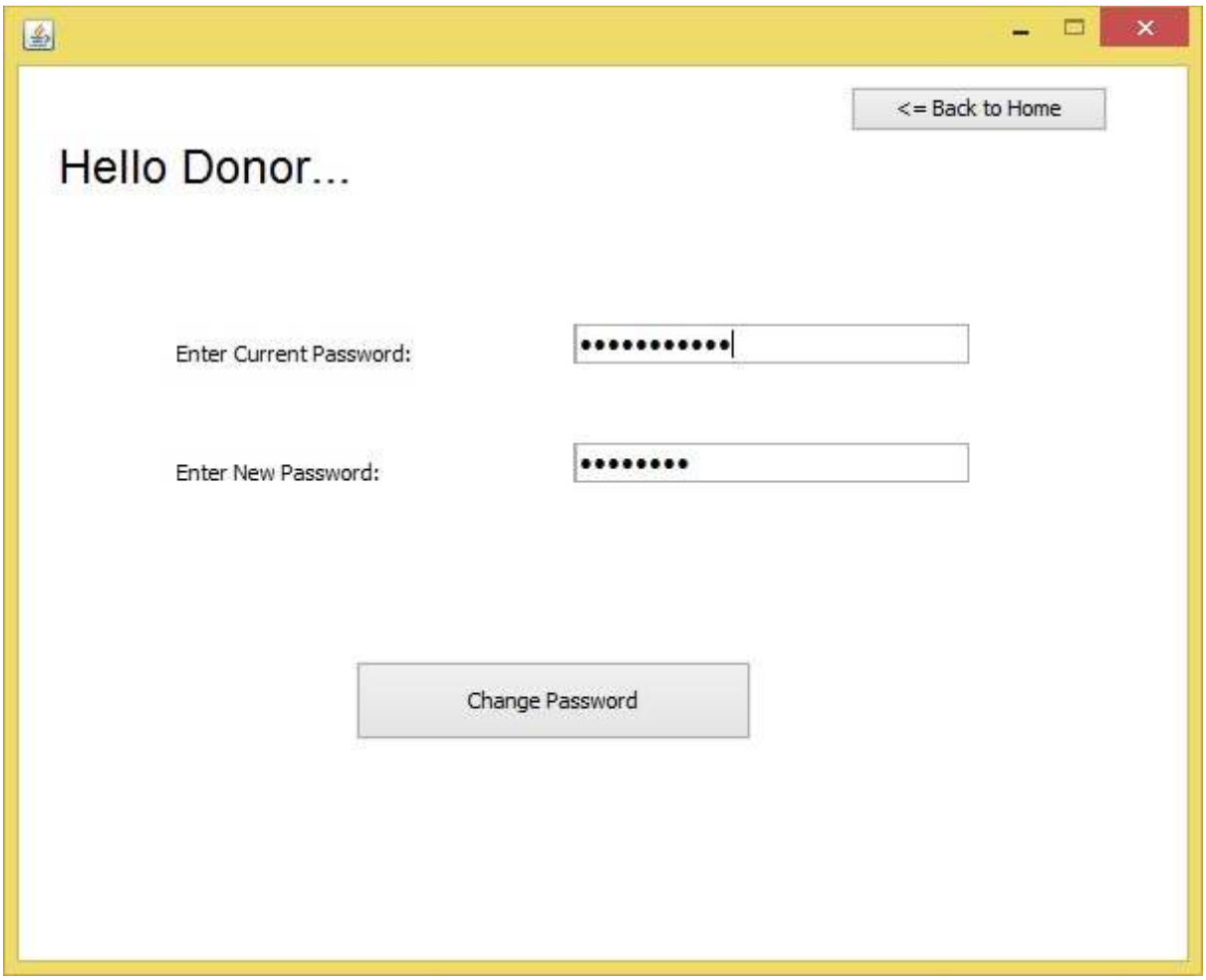
CHANGE DONOR PASSWORD TESTING :

Inputs : Fill all the required fields : Current Password(String), New Password(String)

Equivalence classes :

- Current Password match
- Current password does not match

Class	Sample Input	Expected Output	Actual Output
Correct current password.	Current password : password123	Message of successful password change displayed.	Message of successful password change displayed.
Incorrect Current Password.	Current password : password	Displays incorrect current password message.	Displays incorrect current password message.



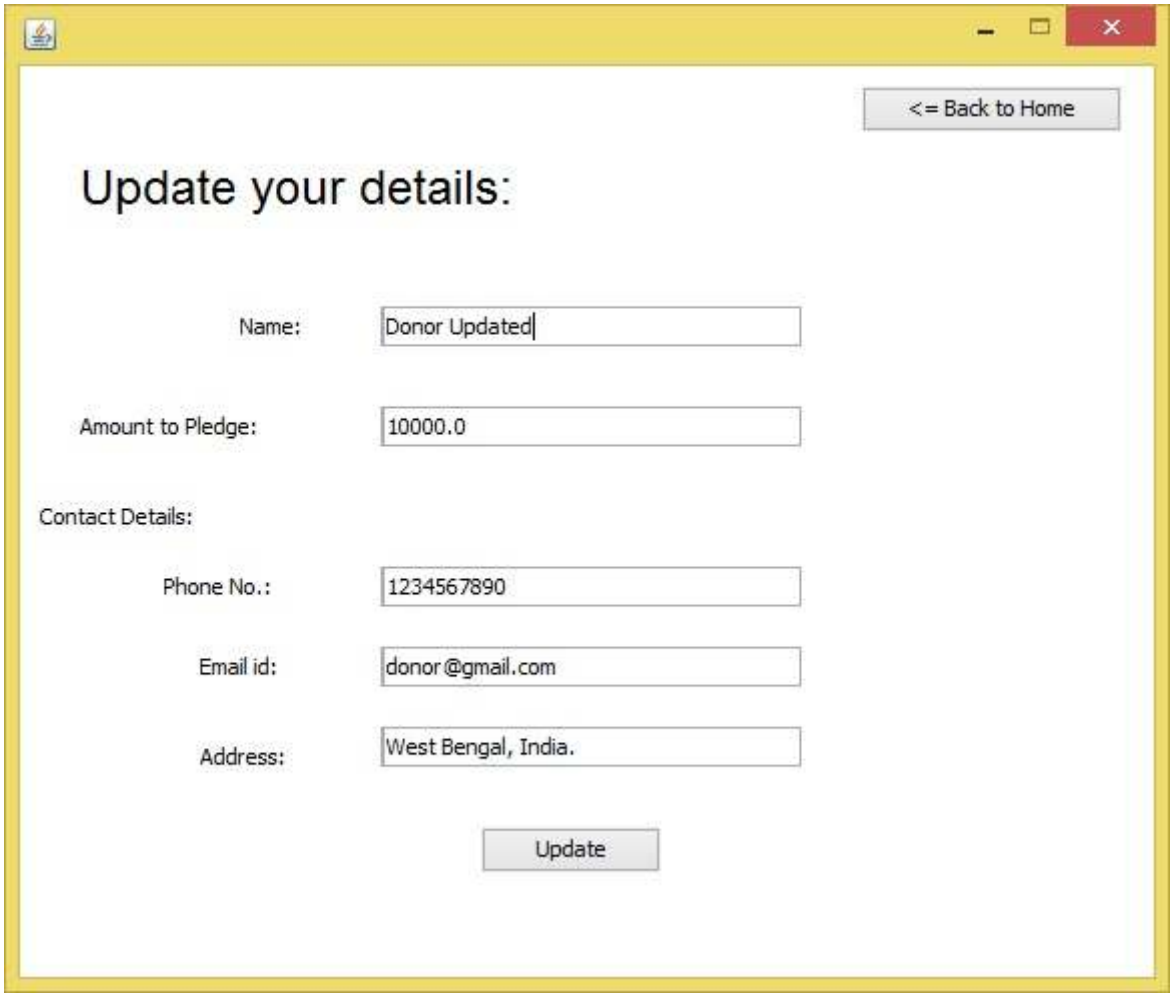
CHANGE DONOR PROFILE TESTING :

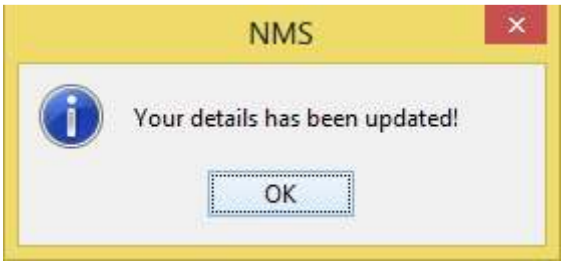
Inputs : Fill all the required fields : Username(String), Password(String), Name(String), Amount to Pledge(Double), Donation Period(Combo Box), Email ID(String), Address(String).

Equivalence classes :

- Required fields are correctly filled
- Required fields are not filled or incorrectly filled

Class	Sample Input	Expected Output	Actual Output
Fields complete and correctly filled	As shown in the image given below	Message of successful update is displayed	Message of successful update is displayed
Required Fields not filled or incorrectly filled.	As shown in the image given below	Displays fill all the required fields correctly message.	Displays fill all the required fields correctly message.


<= Back to Home
Update your details:
Name:
Donor Updated
Amount to Pledge:
10000.0
Contact Details:
Phone No.:
1234567890
Email id:
donor@gmail.com
Address:
West Bengal, India.
Update


NMS
Your details has been updated!
OK

Account Details
Please fill all the fields!
OK

VOLUNTEER PAGE TESTING :

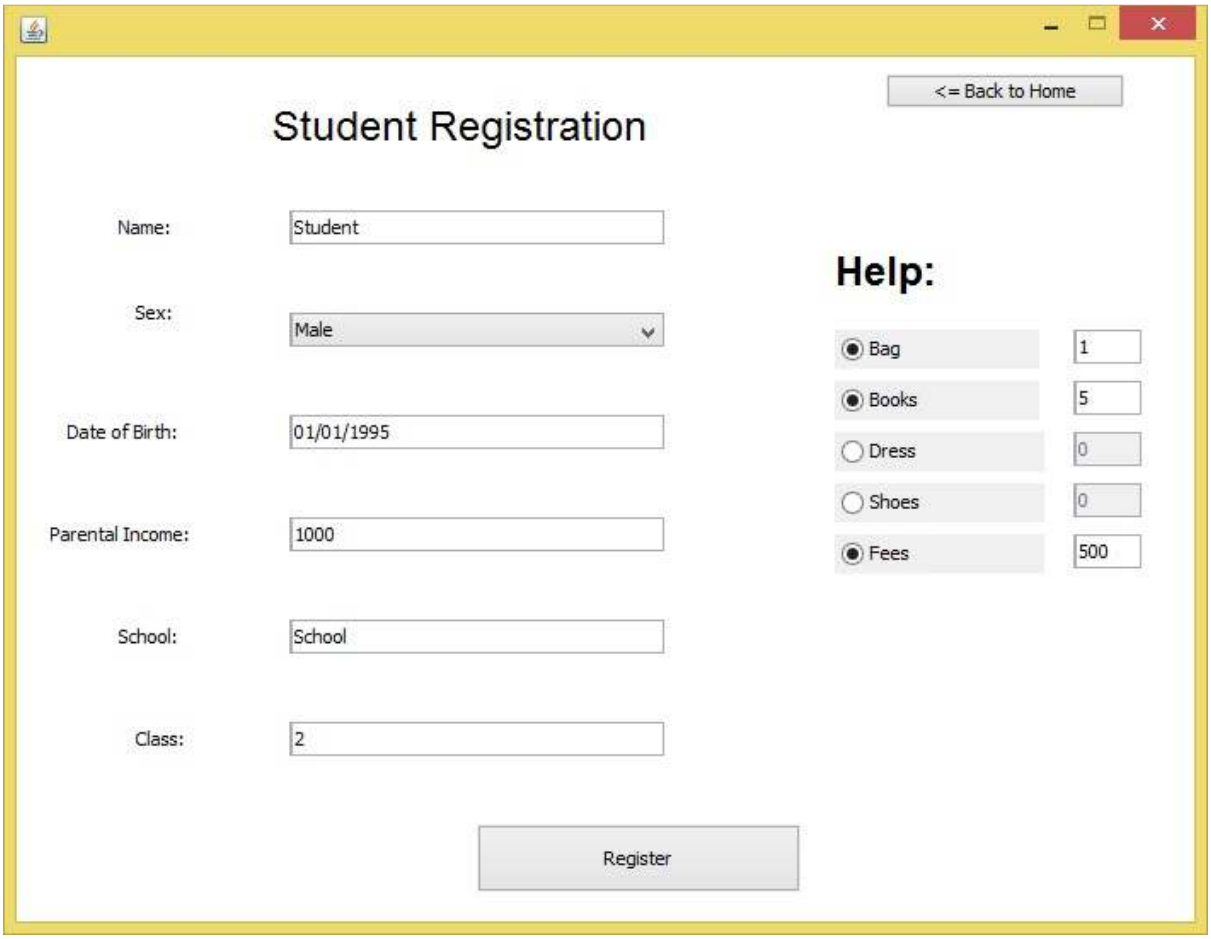
REGISTER STUDENT TESTING :

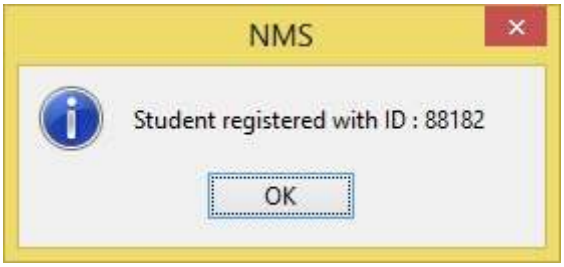
Inputs : Fill all the required fields : Name(String), Sex(Combo Box), Date of Birth(String), Parental Income(Double), School(String), Class(Integer), Help(Radio Buttons and Integer)

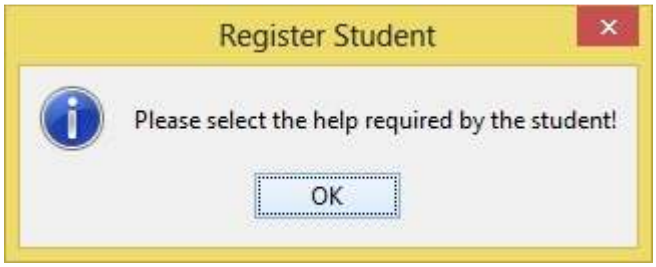
Equivalence classes :

- Required fields are correctly filled
- Required fields are not filled or incorrectly filled
- Help is not selected

Class	Sample Input	Expected Output	Actual Output
Fields complete and correctly filled	As shown in the image given below	Message of successful registration is displayed	Message of successful registration is displayed
Required Fields not filled or incorrectly filled.	As shown in the image given below	Displays fill all the required fields correctly message.	Displays fill all the required fields correctly message.
Help is not selected	None of the radio buttons selected	Displays select help message.	Displays select help message.







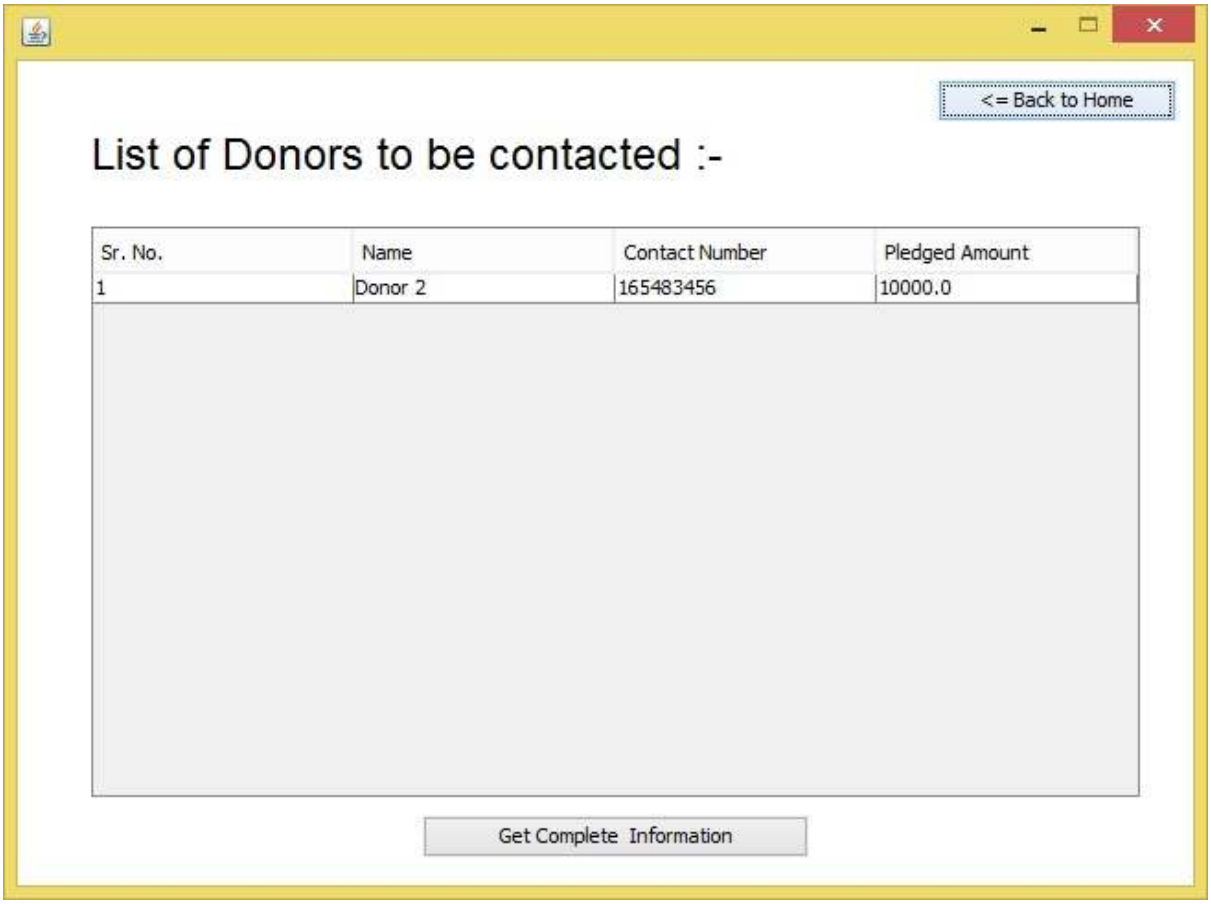
CHECK ALERTS TESTING :

Inputs : No Inputs.

Equivalence classes :

- Volunteers are alerted by the President to contact the donors
- Volunteers are not alerted by the President to contact the donors

Class	Sample Input	Expected Output	Actual Output
Volunteers are alerted to contact donors	No input.	List of donors to be contacted is displayed.	List of donors to be contacted is displayed.
No Alerts	No input.	Displays No Alert message.	Displays No Alert message.


<= Back to Home
List of Donors to be contacted :-
Sr. No.
Name
Contact Number
Pledged Amount
1
Donor 2
165483456
10000.0
Get Complete Information

Donor
Donor Name : Donor 2
Donor Contact No. : 165483456
Donor Contact Address : West Bengal, India.
Donor Email id : donor2@gmail.com
Amount Pledged : 10000.0
OK

Alert
No Alerts!
OK

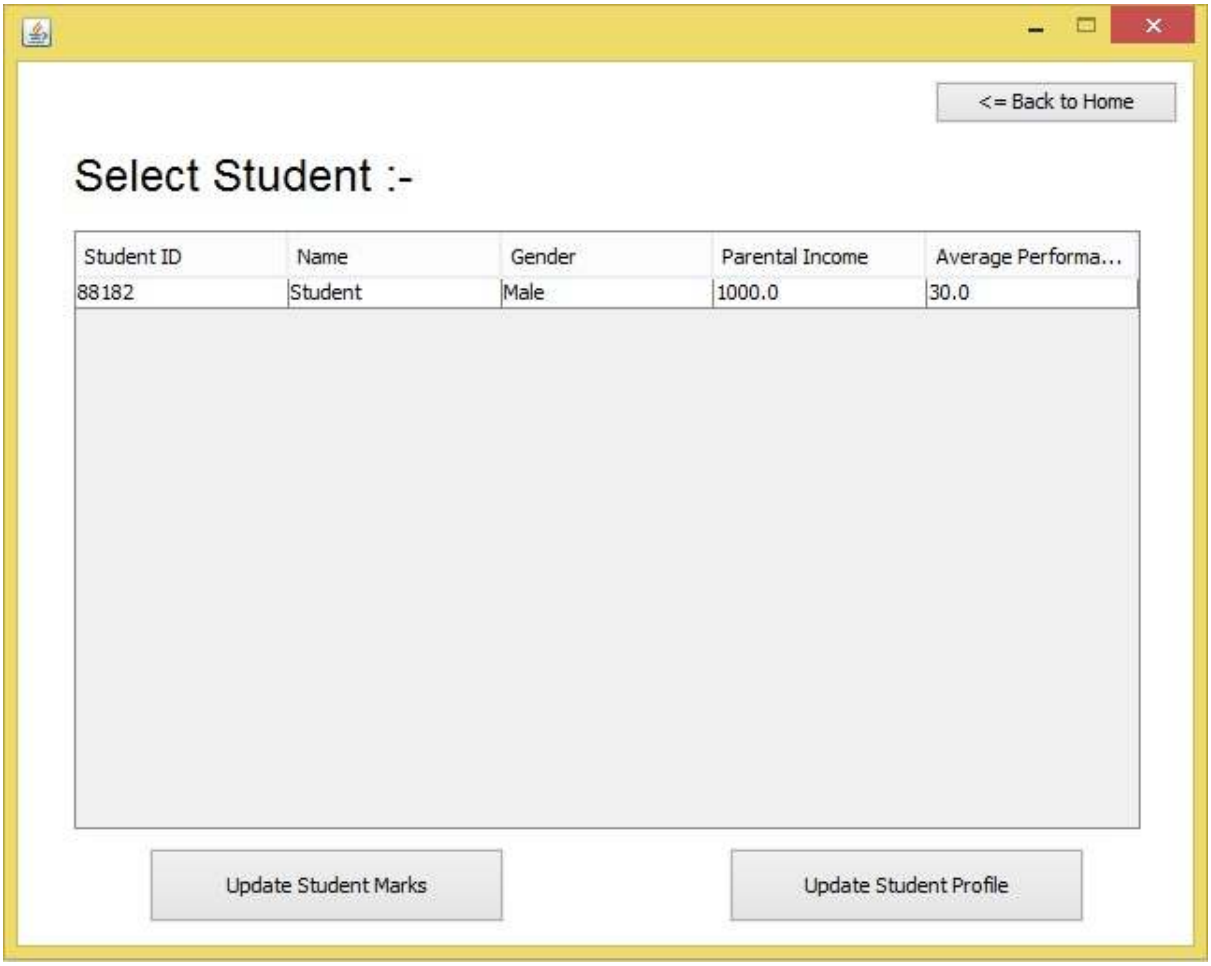
UPDATE STUDENT PROFILE TESTING :

Inputs : Select Student from the list of student displayed.

Equivalence classes :

- Student selected
- Student not selected

Class	Sample Input	Expected Output	Actual Output
Student selected	Student selection from table	Proceed to the next window as selected	Proceeds to the next window as selected
Student not selected	No student selected.	Displays Select student message.	Displays Select student message.



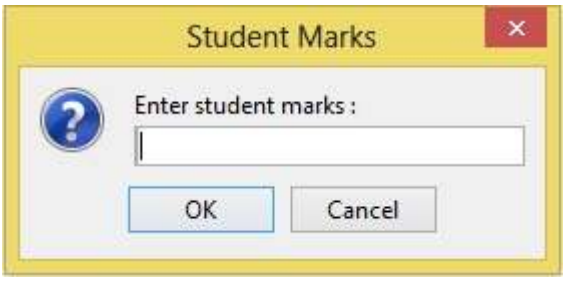
UPDATE STUDENT RECORD TESTING :

Inputs : Marks(Integer)

Equivalence classes :

- Marks is entered.

Class	Sample Input	Expected Output	Actual Output
Marks entered	Student selection from table	Displays Student record Updated message.	Displays Student record Updated message.



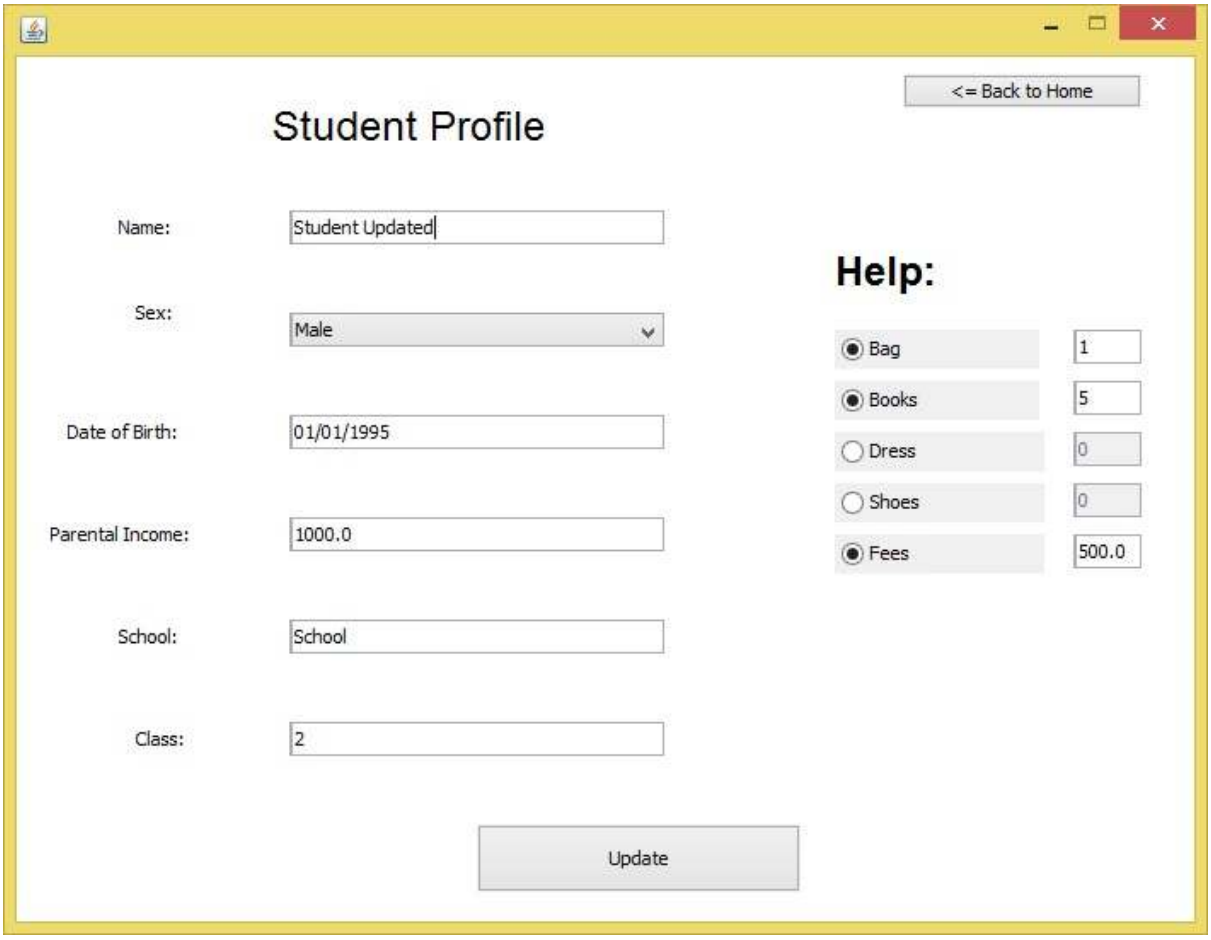
UPDATE STUDENT PROFILE TESTING :

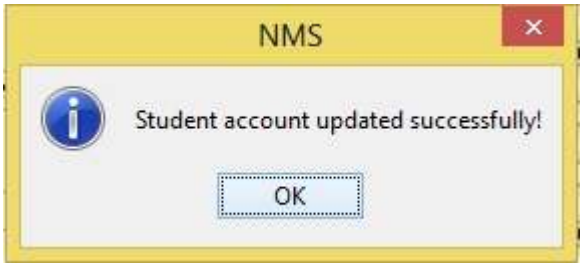
Inputs : Fill all the required fields : Name(String), Sex(Combo Box), Date of Birth(String), Parental Income(Double), School(String), Class(Integer), Help(Radio Buttons and Integer)

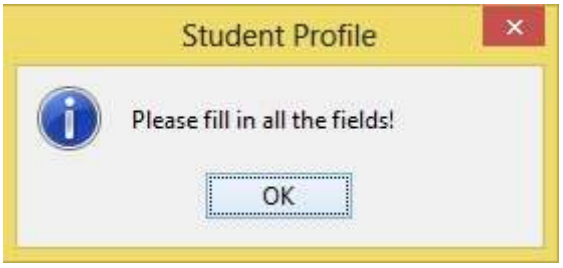
Equivalence classes :

- Required fields are correctly filled
- Required fields are not filled or incorrectly filled
- Help is not selected

Class	Sample Input	Expected Output	Actual Output
Fields complete and correctly filled	As shown in the image given below	Message of successful update is displayed	Message of successful update is displayed
Required Fields not filled or incorrectly filled.	As shown in the image given below	Displays fill all the required fields correctly message.	Displays fill all the required fields correctly message.
Help is not selected	None of the radio buttons selected	Displays select help message.	Displays select help message.

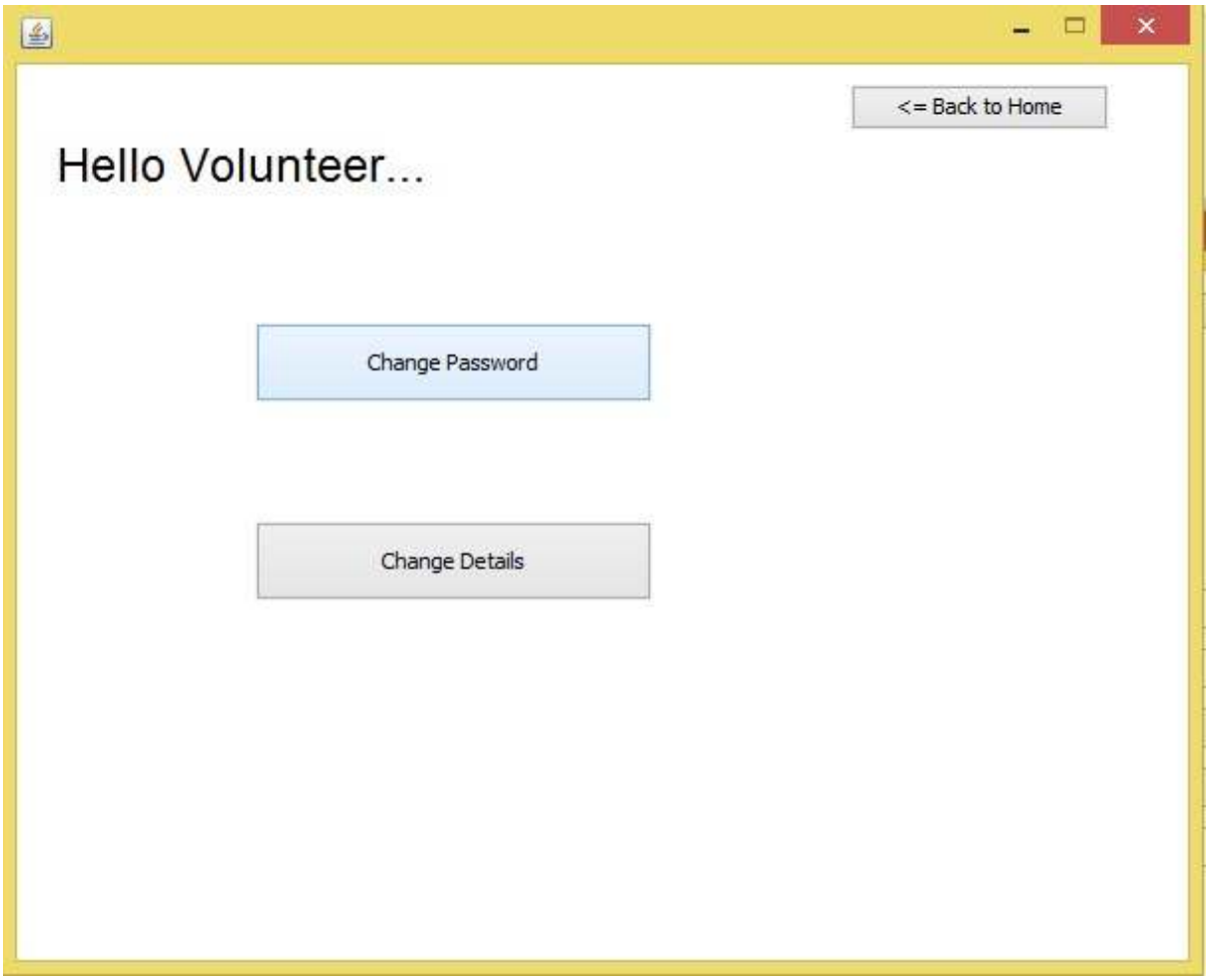



NMS
Student account updated successfully!
OK


Student Profile
Please fill in all the fields!
OK

Student Profile
Please select the help required by the student!
OK

UPDATE VOLUNTEER PROFILE TESTING :



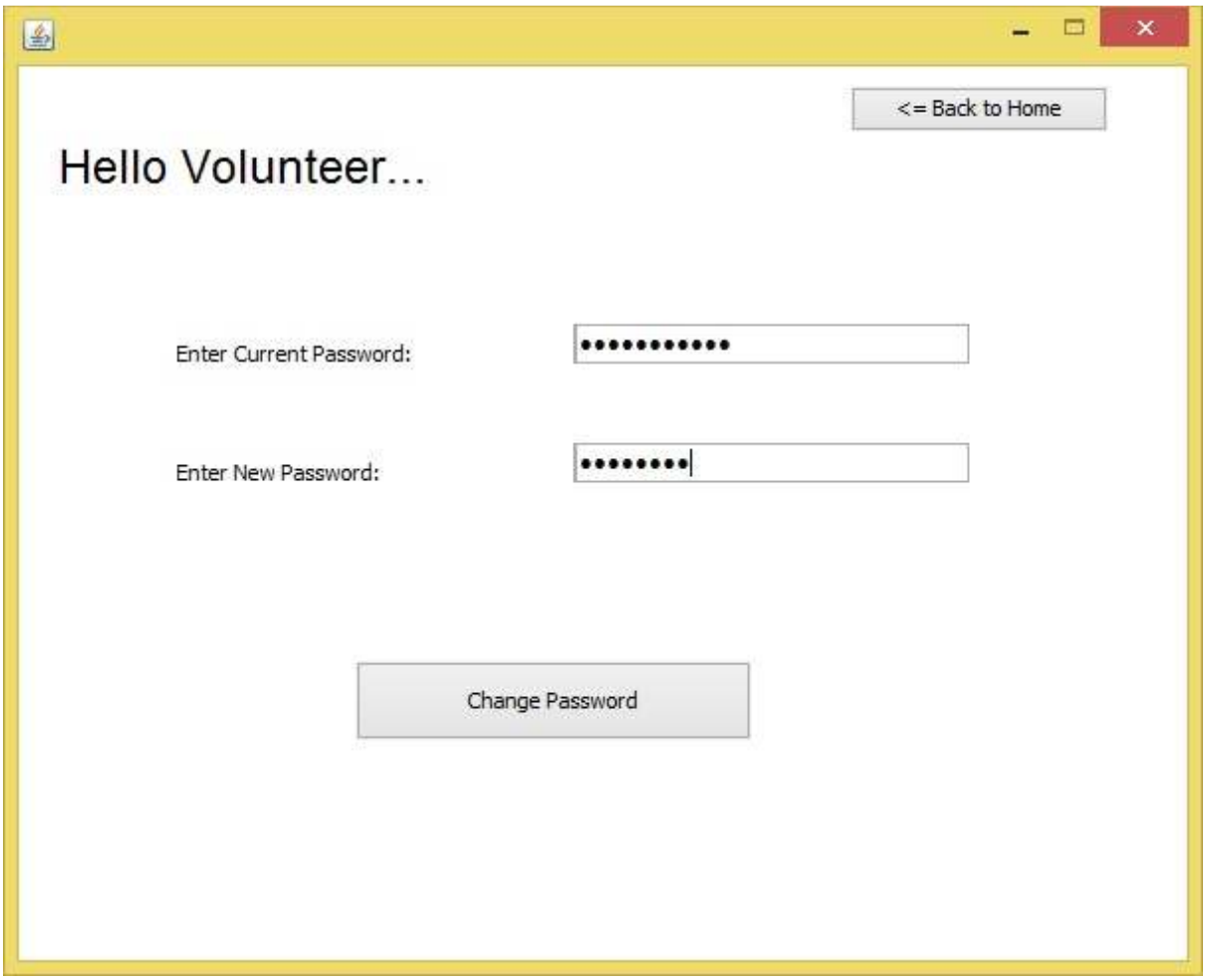
CHANGE VOLUNTEER PASSWORD TESTING :

Inputs : Fill all the required fields : Current Password(String), New Password(String)

Equivalence classes :

- Current Password match
- Current password does not match

Class	Sample Input	Expected Output	Actual Output
Correct current password.	Current password : password123	Message of successful password change displayed.	Message of successful password change displayed.
Incorrect Current Password.	Current password : password	Displays incorrect current password message.	Displays incorrect current password message.



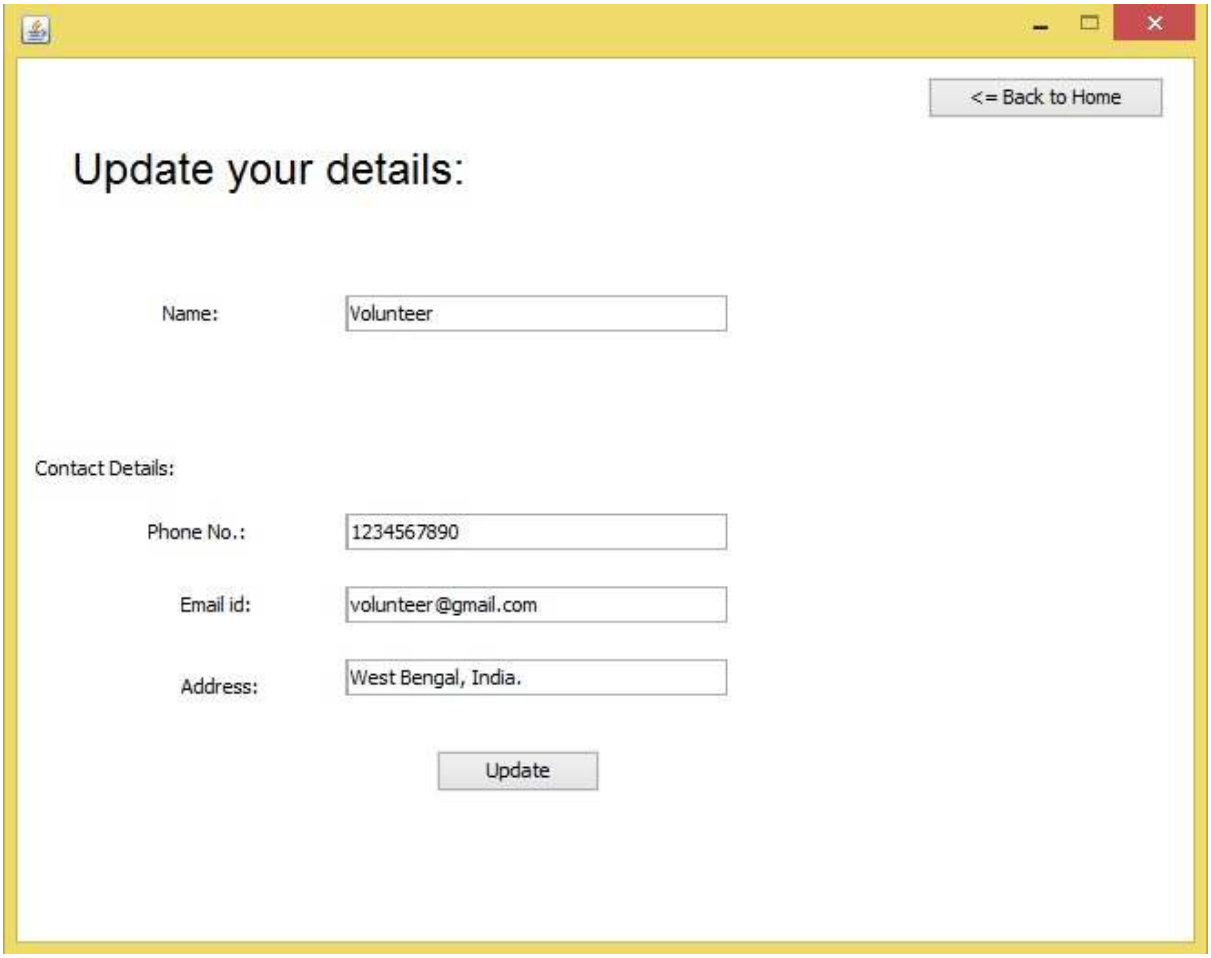
UPDATE VOLUNTEER DETAILS TESTING :

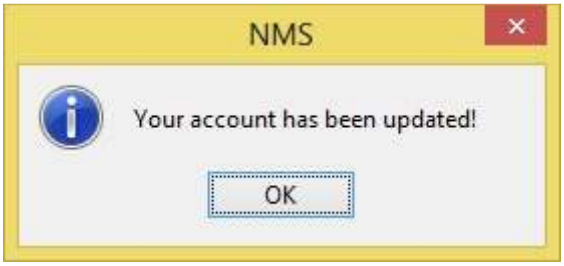
Inputs : Fill all the required fields : Name(String), Phone Number(String), Email ID(String), Address(String)

Equivalence classes :

- Required fields are correctly filled
- Required fields are not filled or incorrectly filled

Class	Sample Input	Expected Output	Actual Output
Fields complete and correctly filled	As shown in the image given below	Message of successful update is displayed	Message of successful update is displayed
Required Fields not filled or incorrectly filled.	As shown in the image given below	Displays fill all the required fields correctly message.	Displays fill all the required fields correctly message.


<= Back to Home
Update your details:
Name:
Volunteer
Contact Details:
Phone No.:
1234567890
Email id:
volunteer@gmail.com
Address:
West Bengal, India.
Update


NMS
Your account has been updated!
OK

Volunteer Profile
Please fill the required fields!
OK

PRESIDENT PAGE TESTING :

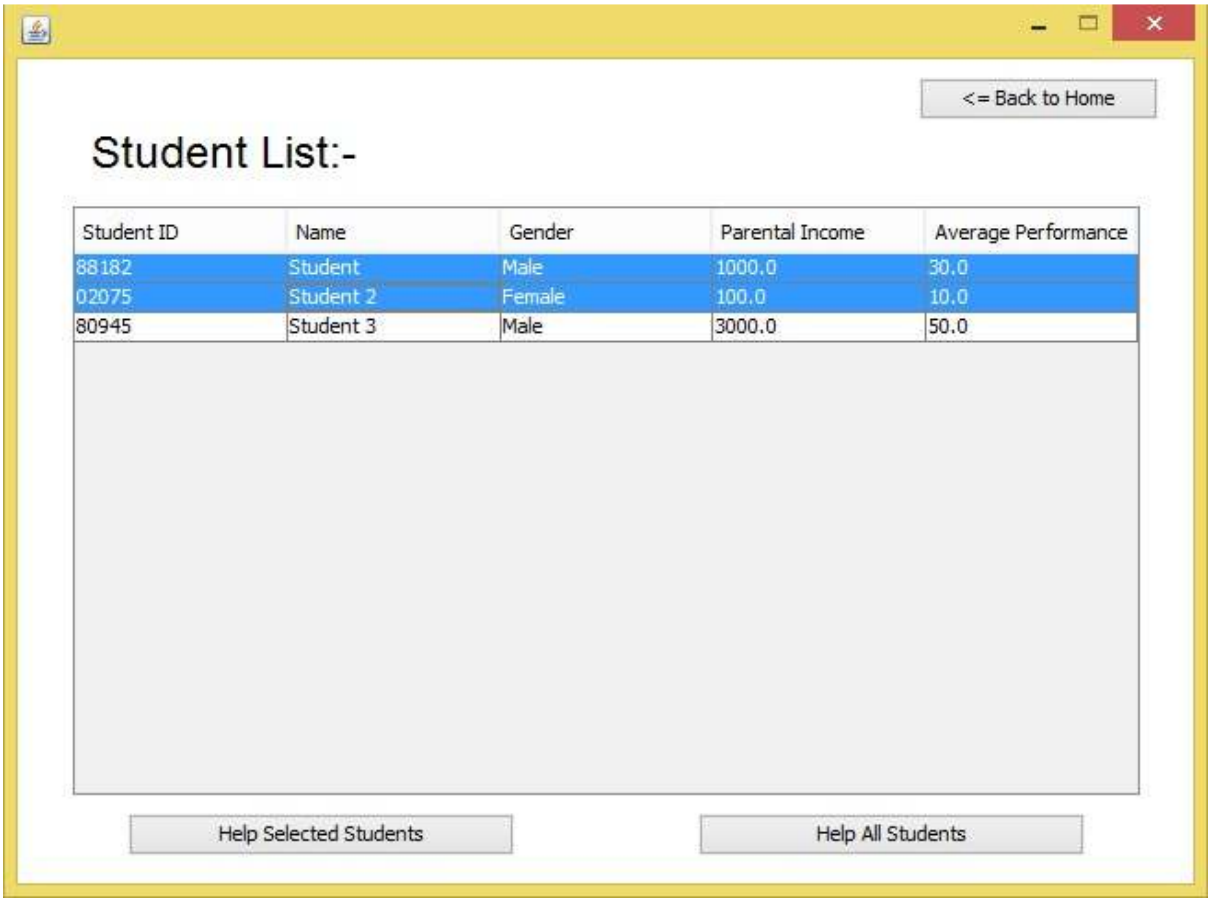
INITIATE STUDENT TESTING :

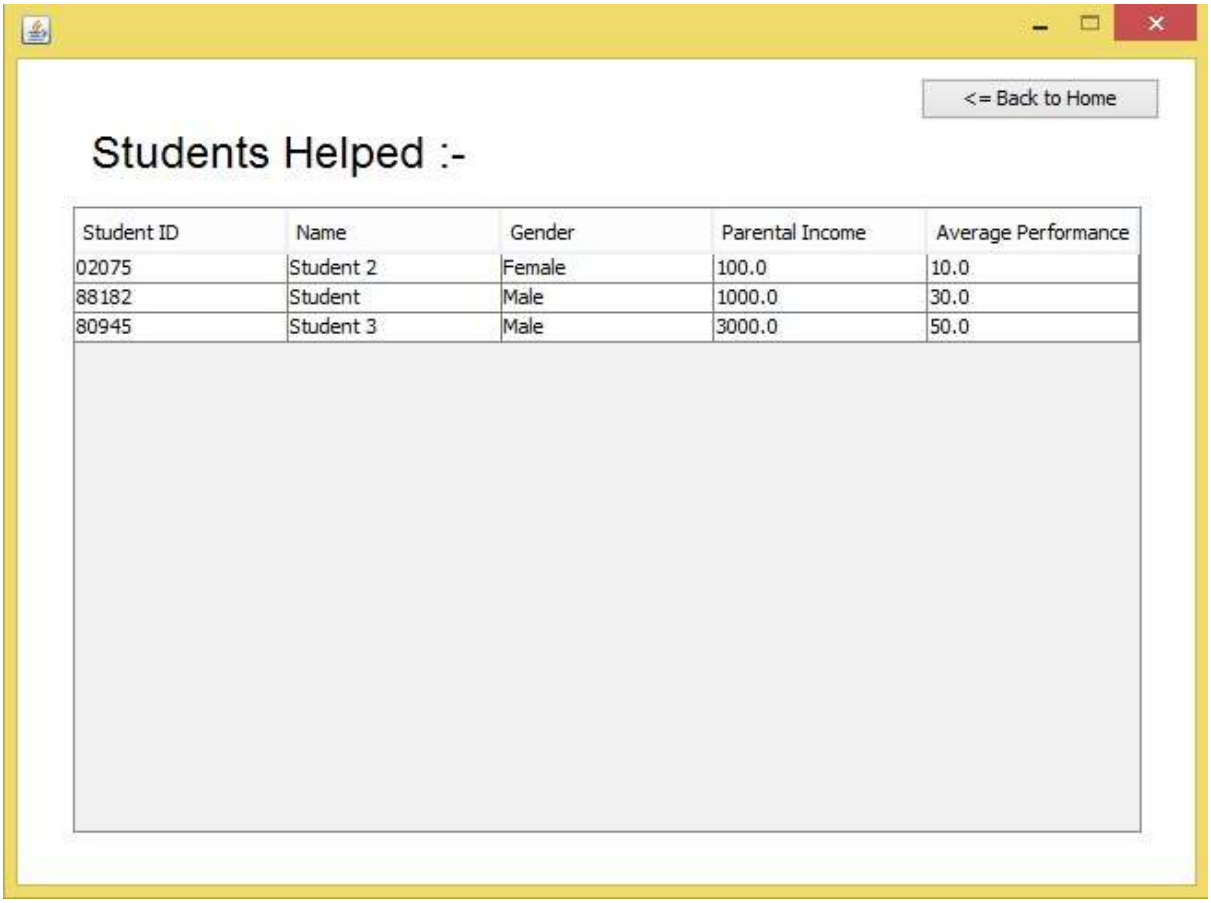
Inputs : Select Students from the list of student displayed.

Equivalence classes :

- Students selected
- Students not selected

Class	Sample Input	Expected Output	Actual Output
Students selected	Students selected from table	Students Helped Windows displayed.	Students Helped Windows displayed.
Students not selected	No student selected.	Displays Select student message.	Displays Select student message.





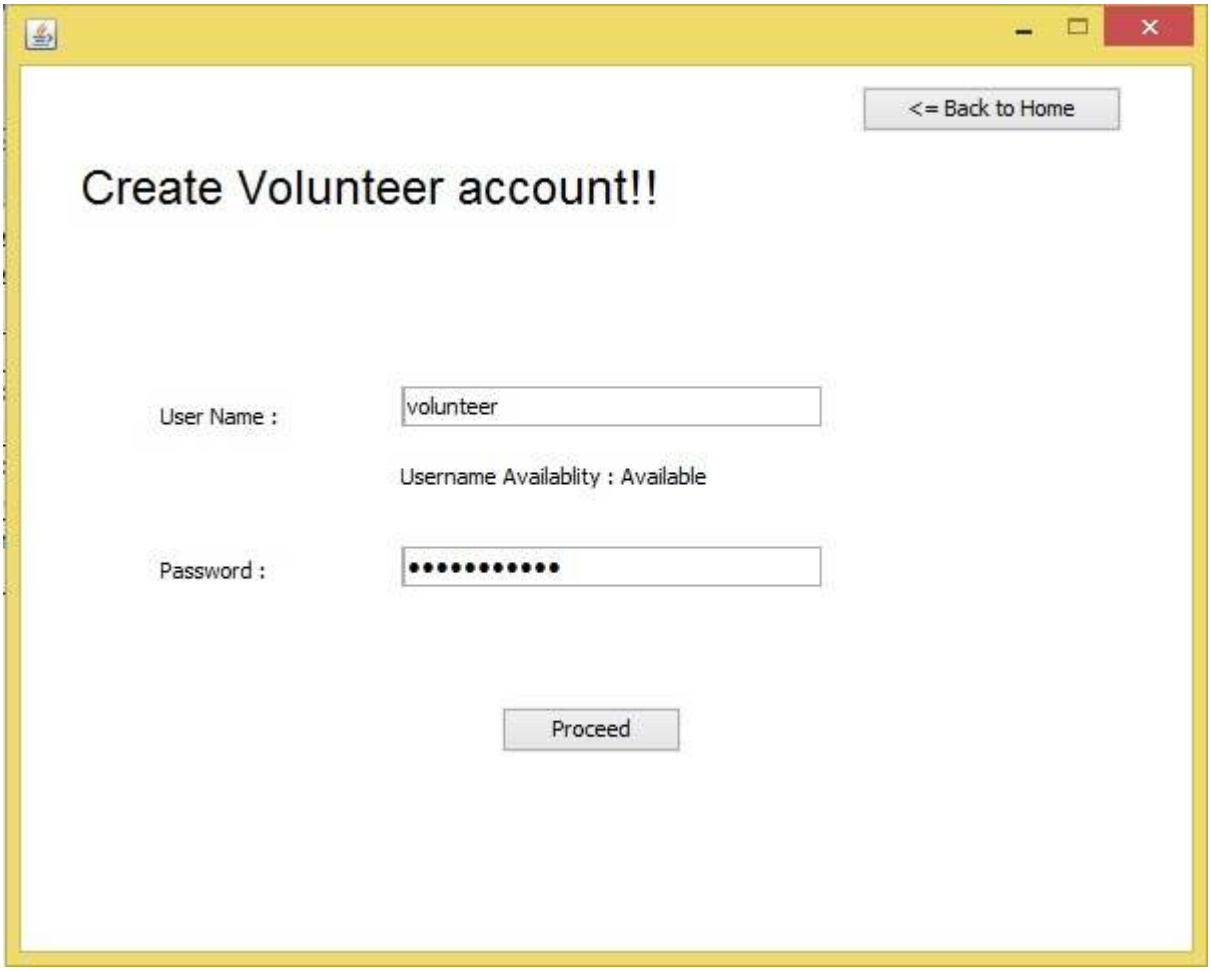
REGISTER VOLUNTEER TESTING :

Inputs : Fill all the required fields : Username(String), Password(String), Name(String), Phone Number(String), Email ID(String), Address(String)

Equivalence classes :

- Required fields are correctly filled
- Required fields are not filled or incorrectly filled

Class	Sample Input	Expected Output	Actual Output
Fields complete and correctly filled	As shown in the image given below	Message of successful registration is displayed	Message of successful registration is displayed
Required Fields not filled or incorrectly filled.	As shown in the image given below	Displays fill all the required fields correctly message.	Displays fill all the required fields correctly message.

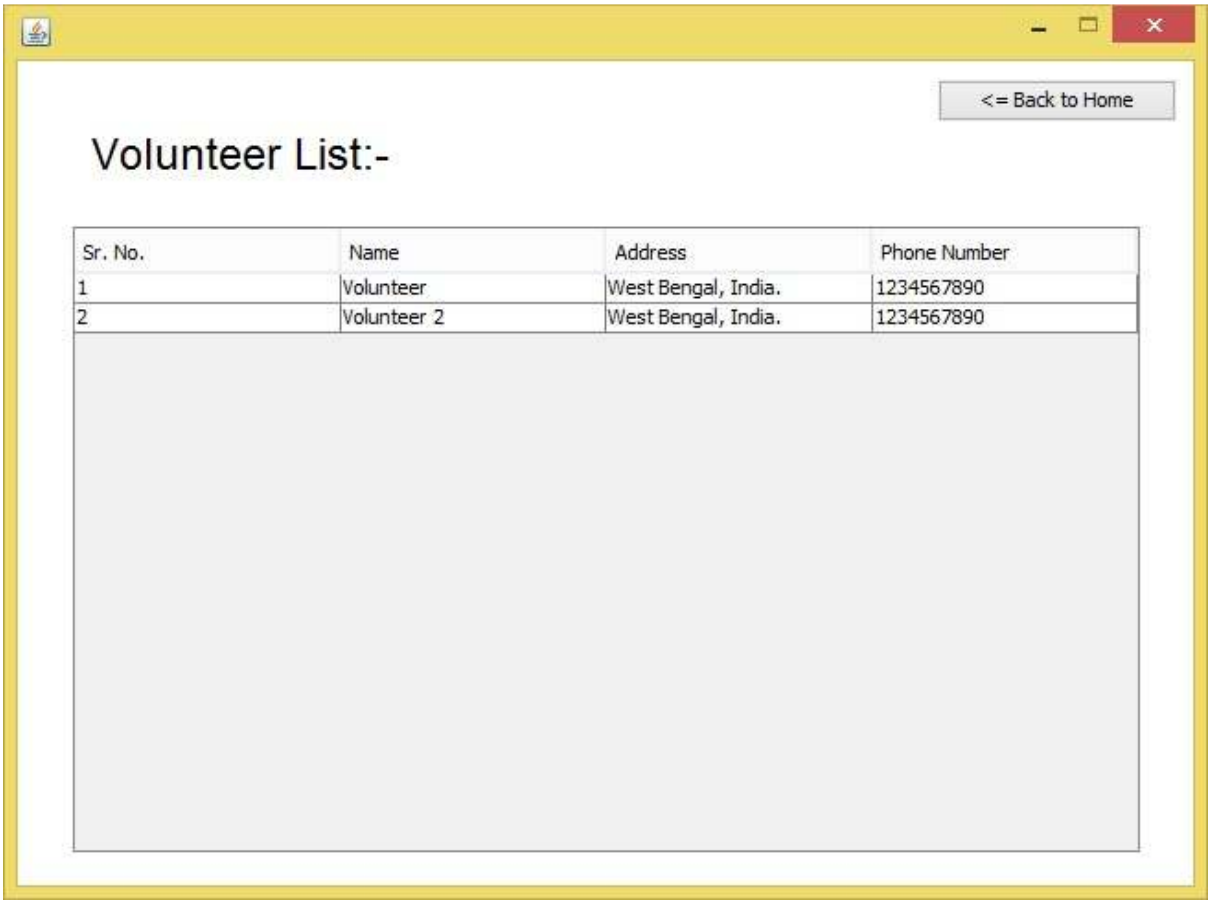

<= Back to Home
Create Volunteer account!!
User Name :
volunteer
Username Availablity : Available
Password :
Proceed

<= Back to Home
Volunteer Registration
Name:
Volunteer
Contact Details:
Phone No.:
1234567890
Email Id :
volunteer@gmail.com
Address:
West Bengal, India.
Register

Register Volunteer
Please fill the required fields!
OK

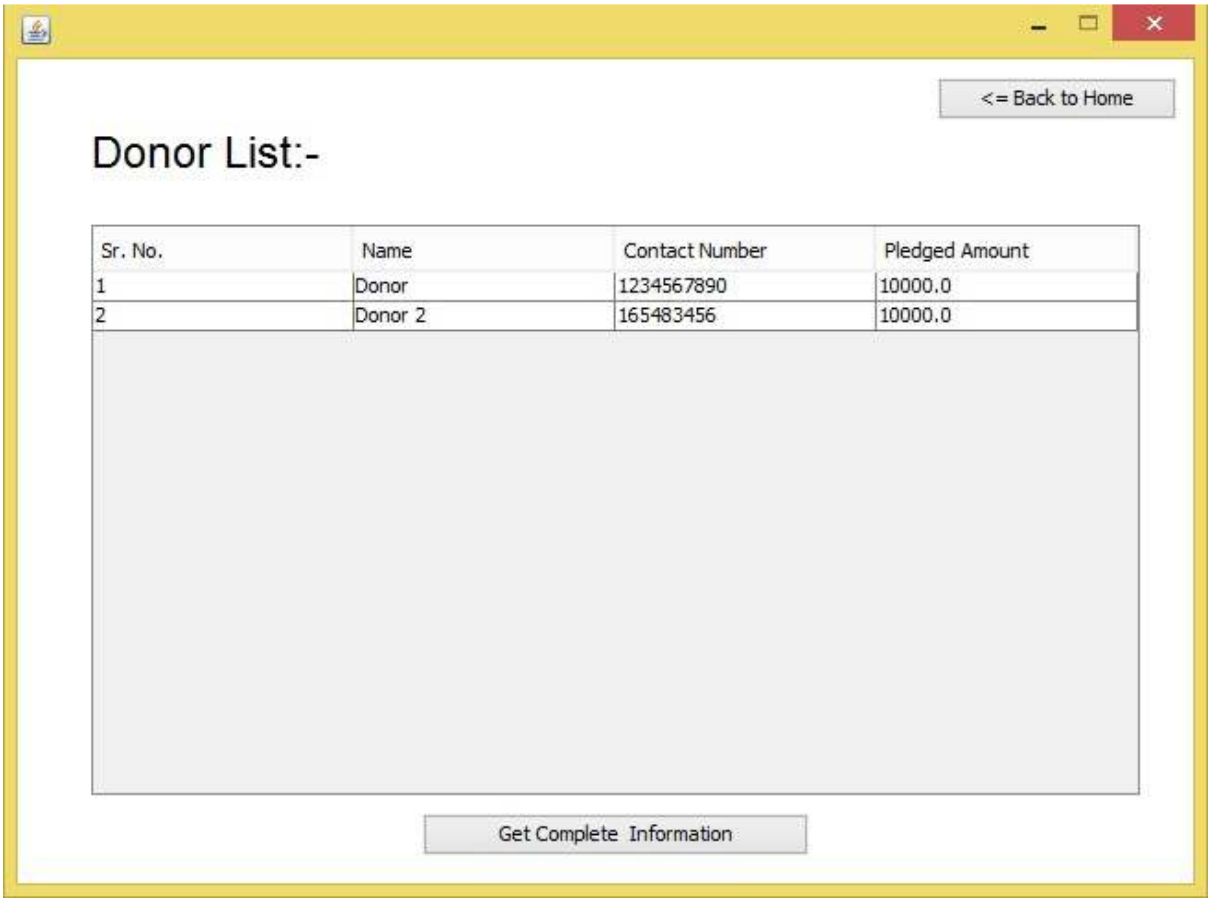
CHECK VOLUNTEER LIST TESTING :

Inputs : No Inputs.



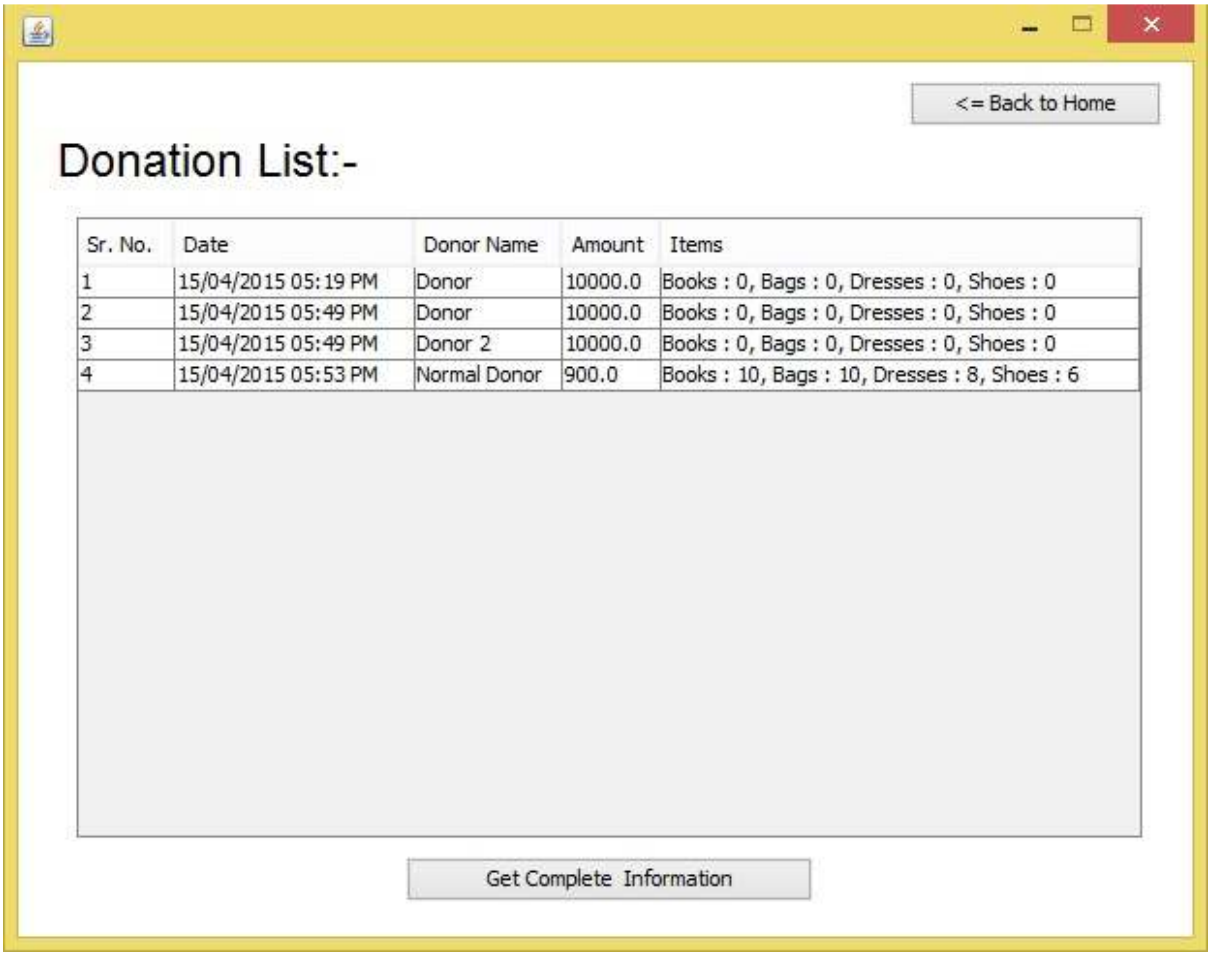
CHECK DONOR LIST TESTING :

Inputs : No Inputs.



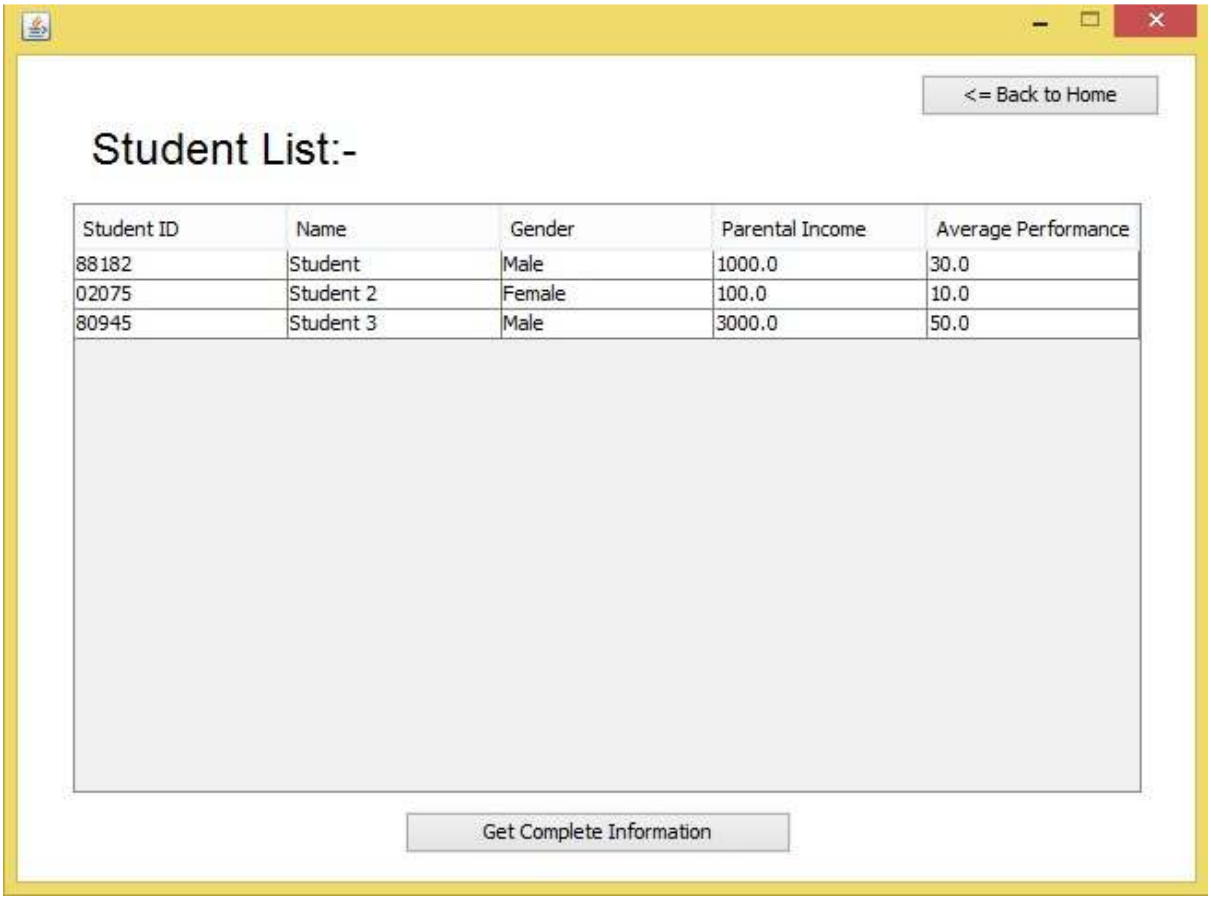
CHECK DONATION LIST TESTING :

Inputs : No Inputs.



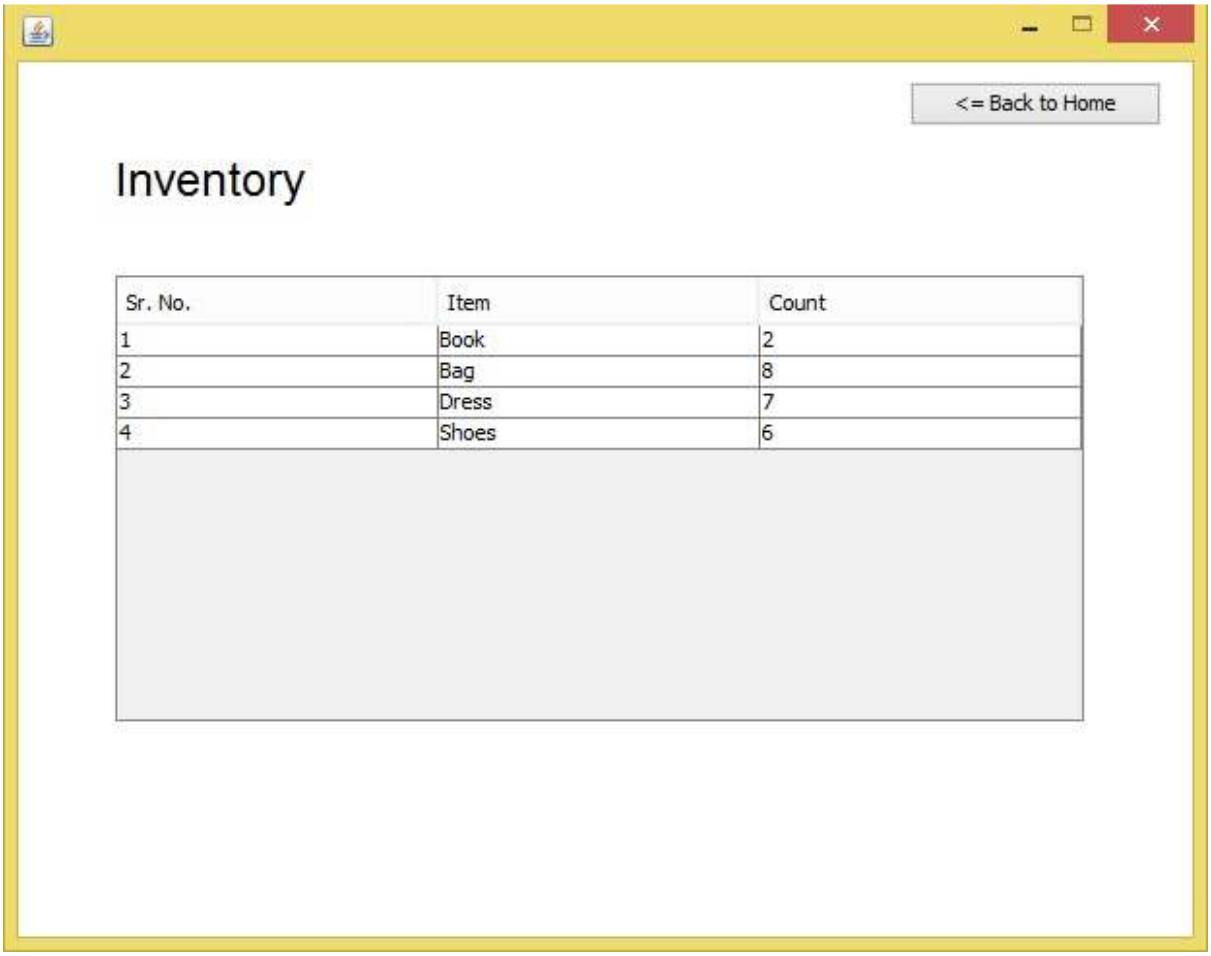
CHECK STUDENT LIST TESTING :

Inputs : No Inputs.



CHECK INVENTORY TESTING :

Inputs : No Inputs.

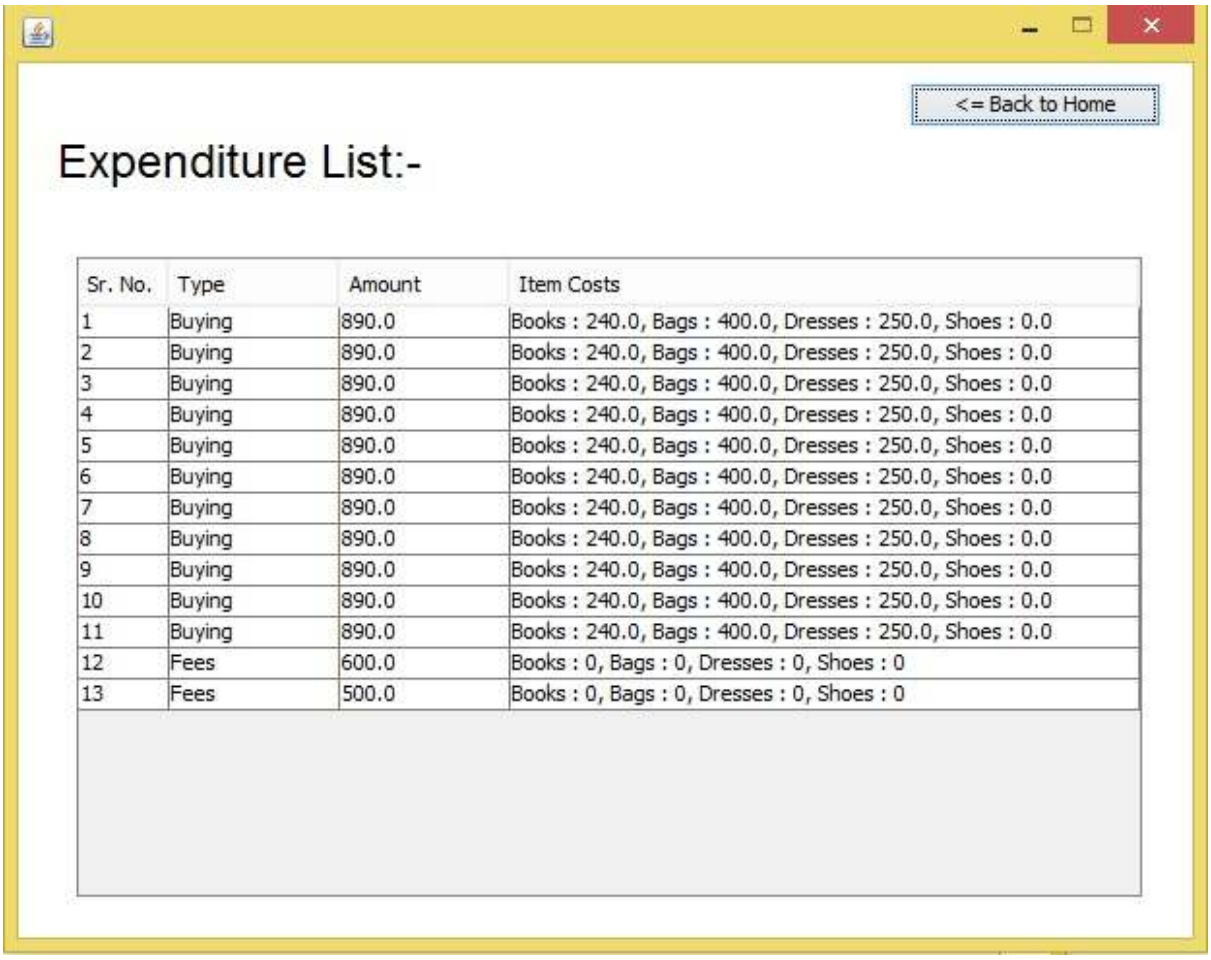


CHECK FUNDS TESTING :

Inputs : No Inputs.

CHECK VOLUNTEER LIST TESTING :

Inputs : No Inputs.



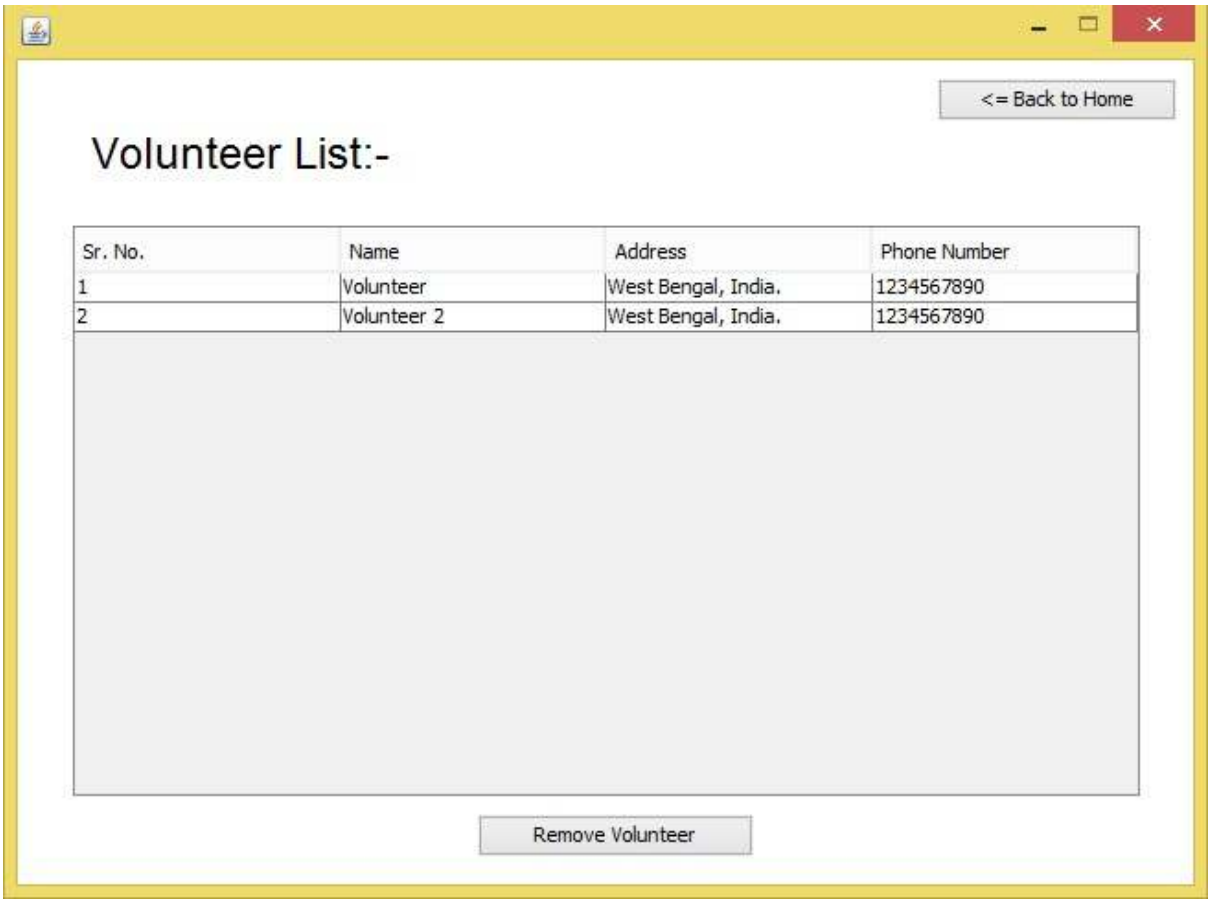
REMOVE VOLUNTEER TESTING :

Inputs : Select Volunteer from the list of volunteer displayed.

Equivalence classes :

- Volunteer selected
- Volunteer not selected

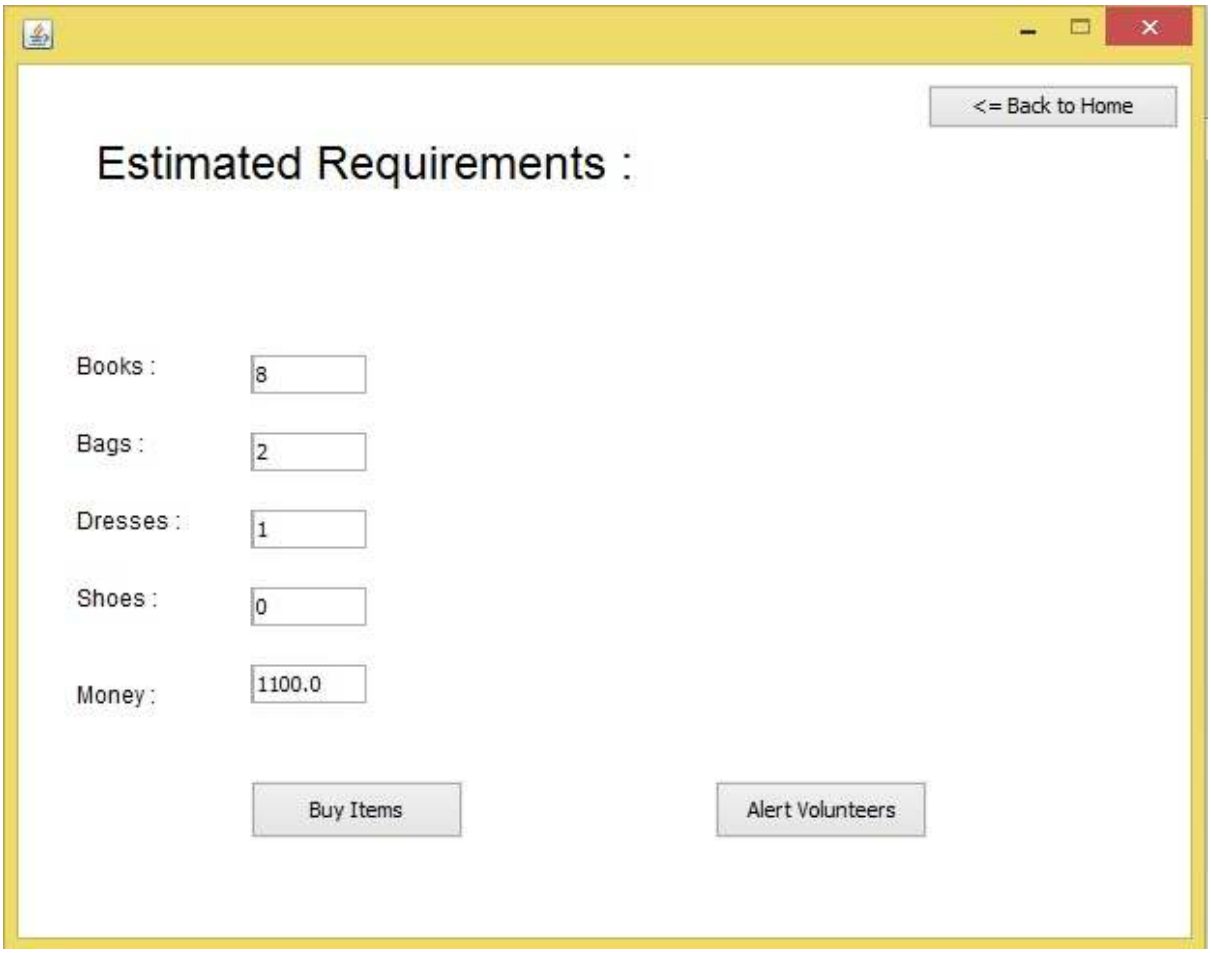
Class	Sample Input	Expected Output	Actual Output
Volunteer selected	Volunteer selected from table	Displays a Remove Volunteer Confirmation Question Message.	Displays a Remove Volunteer Confirmation Question Message.
Volunteer not selected	No volunteer selected.	Displays Select volunteer message.	Displays Select volunteer message.



NMS
Volunteer removed successfully!
OK

Remove Volunteer
Select the volunteer to be removed!
OK

ESTIMATE AND PROCURE REQUIREMENTS TESTING :



BUY ITEMS TESTING :

Inputs : No Inputs.

Equivalence classes :

- Funds sufficient to buy items
- Funds insufficient to buy items

Class	Sample Input	Expected Output	Actual Output
Funds sufficient to buy items	No input.	Displays Items Bought Message.	Displays Items Bought Message.
Funds insufficient to buy items	No input.	Displays Insufficient Funds to Buy Items message.	Displays Insufficient Funds to Buy Items message.

ALERT VOLUNTEERS TESTING :

Inputs : No Inputs.

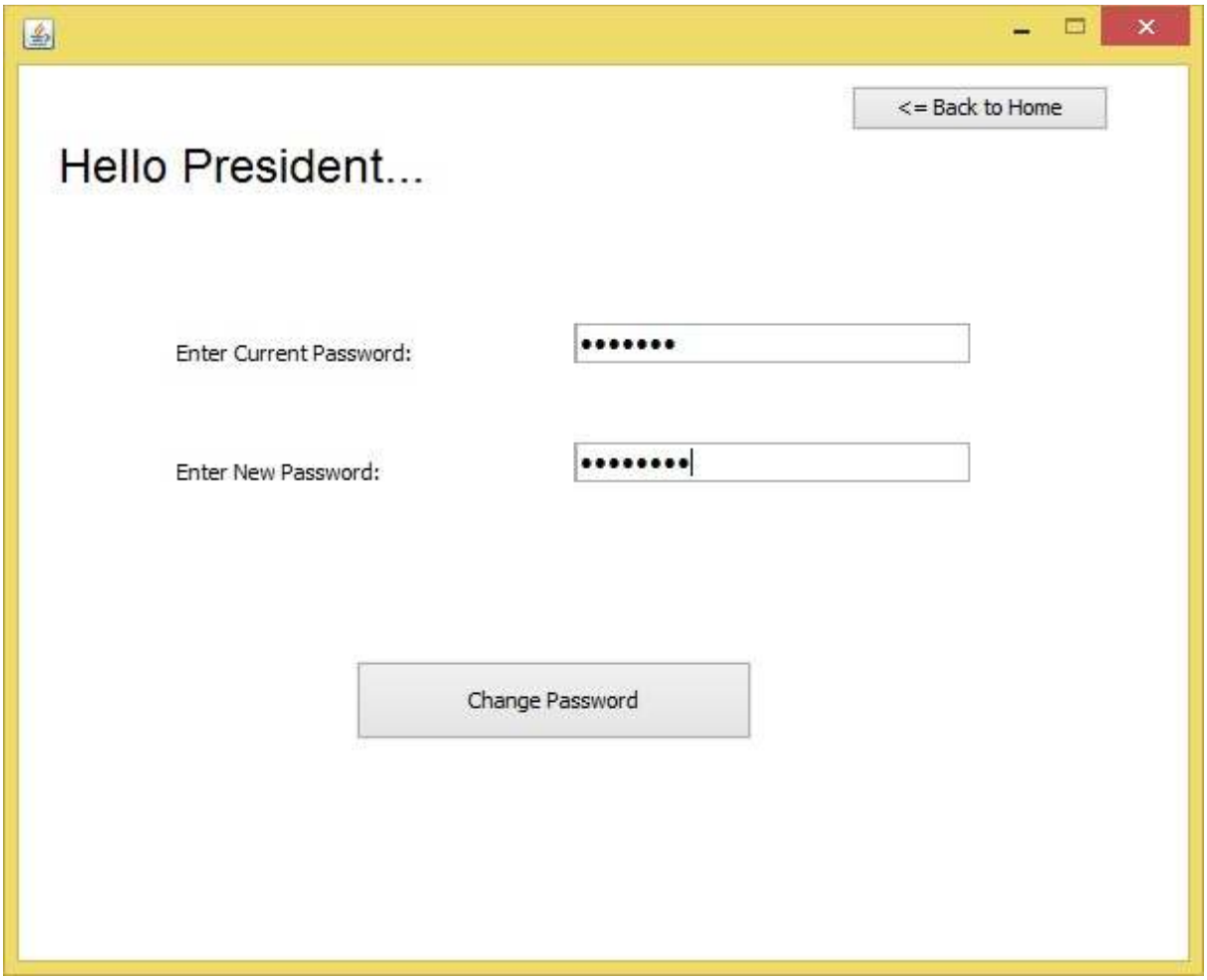
CHANGE PRESIDENT PASSWORD TESTING :

Inputs : Fill all the required fields : Current Password(String), New Password(String)

Equivalence classes :

- Current Password match
- Current password does not match

Class	Sample Input	Expected Output	Actual Output
Correct current password.	Current password : user123	Message of successful password change displayed.	Message of successful password change displayed.
Incorrect Current Password.	Current password : password	Displays incorrect current password message.	Displays incorrect current password message.



NMS
Your password has been changed successfully!
OK

Change Password
Invalid current password!
OK

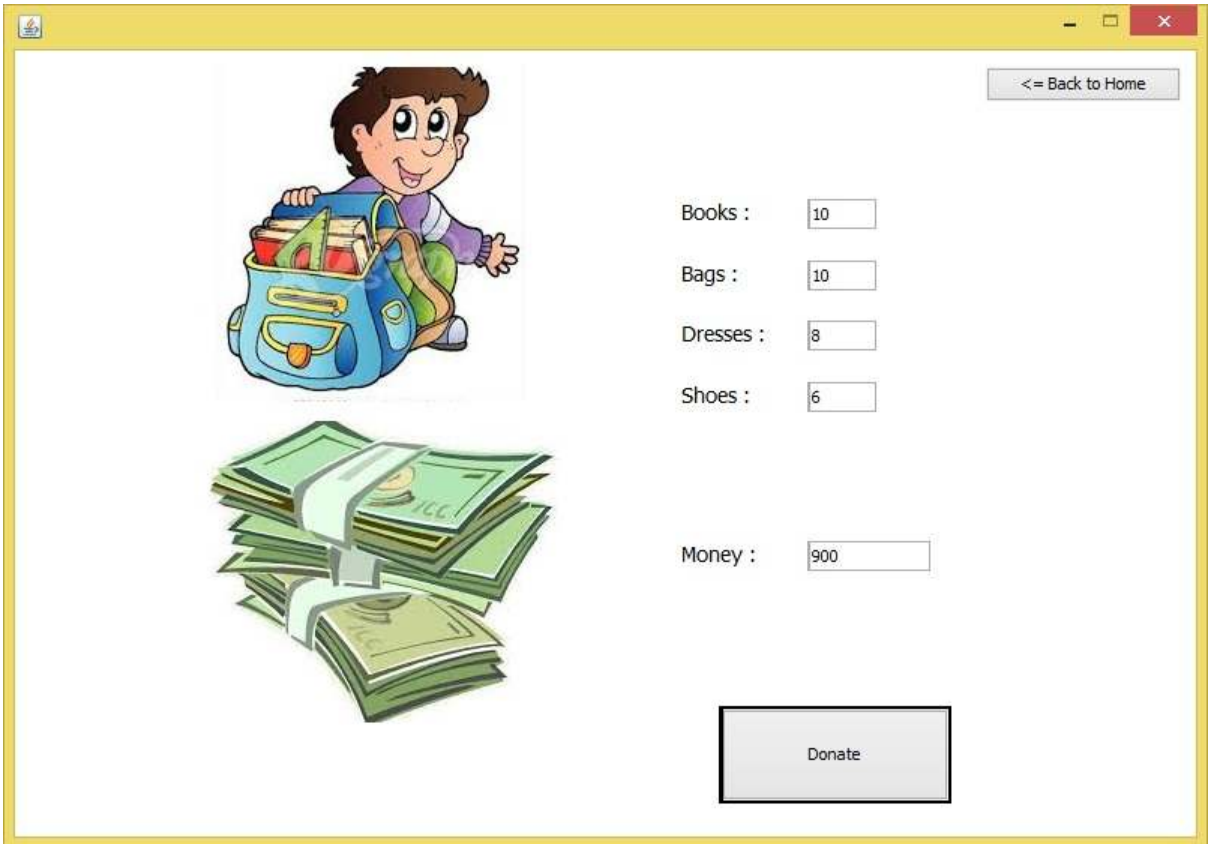
DONATION TESTING :

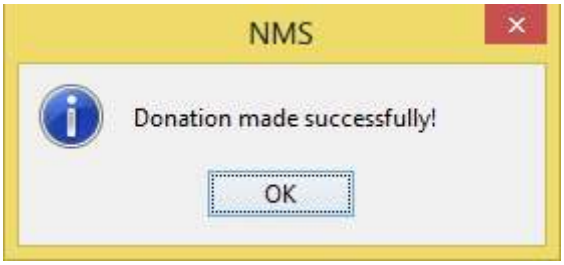
Inputs : Type of Donation(Buttons)

Equivalence classes :

- Anonymous Donation
- Detailed Donation

Class	Sample Input	Expected Output	Actual Output
Anonymous Donation	No input.	Displays Donation Window.	Displays Donation Window.
Detailed Donation	No input.	Displays Donor Details Window.	Displays Donor Details Window.


<= Back to Home
Books :
10
Bags :
10
Dresses :
8
Shoes :
6
Money :
900
Donate


NMS
Donation made successfully!
OK

WHITE–BOX TESTING :

- **White-box testing** (also known as **clear box testing**, **glass box testing**, **transparent box testing**, and **structural testing**) is a method of testing software that tests internal structures or workings of an application, as opposed to its functionality (i.e. black-box testing)
- In white-box testing an internal perspective of the system, as well as programming skills, are used to design test cases.
- The tester chooses inputs to exercise paths through the code and determine the appropriate outputs. This is analogous to testing nodes in a circuit, e.g. in-circuit testing (ICT)
- While white-box testing can be applied at the unit, integration and system levels of the software testing process, it is usually done at the unit level

1. **Unit testing.** White-box testing is done during unit testing to ensure that the code is working as intended, before any integration happens with previously tested code. White-box testing during unit testing catches any defects early on and aids in any defects that happen later on after the code is integrated with the rest of the application and therefore prevents any type of errors later on
2. **Integration testing.** White-box testing at this level are written to test the interactions of each interface with each other. The Unit level testing made sure that each code was tested and working accordingly in an isolated environment and integration examines the correctness of the behavior in an open environment through the use of white-box testing for any interactions of interfaces that are known to the programmer.
3. **Regression testing**. White-box testing during regression testing is the use of recycled white-box test cases at the unit and integration testing levels

White-box test design techniques include:

- Control flow testing
- Data flow testing
- Branch testing
- Path testing
- Statement coverage
- Decision coverage

White-box testing involves the testing of the software code for the following :

- Internal security holes
- Broken or poorly structured paths in the coding processes
- The flow of specific inputs through the code
- Expected output
- The functionality of conditional loops

Advantages:

White-box testing is one of the two biggest testing methodologies used today. It primarily has three advantages:

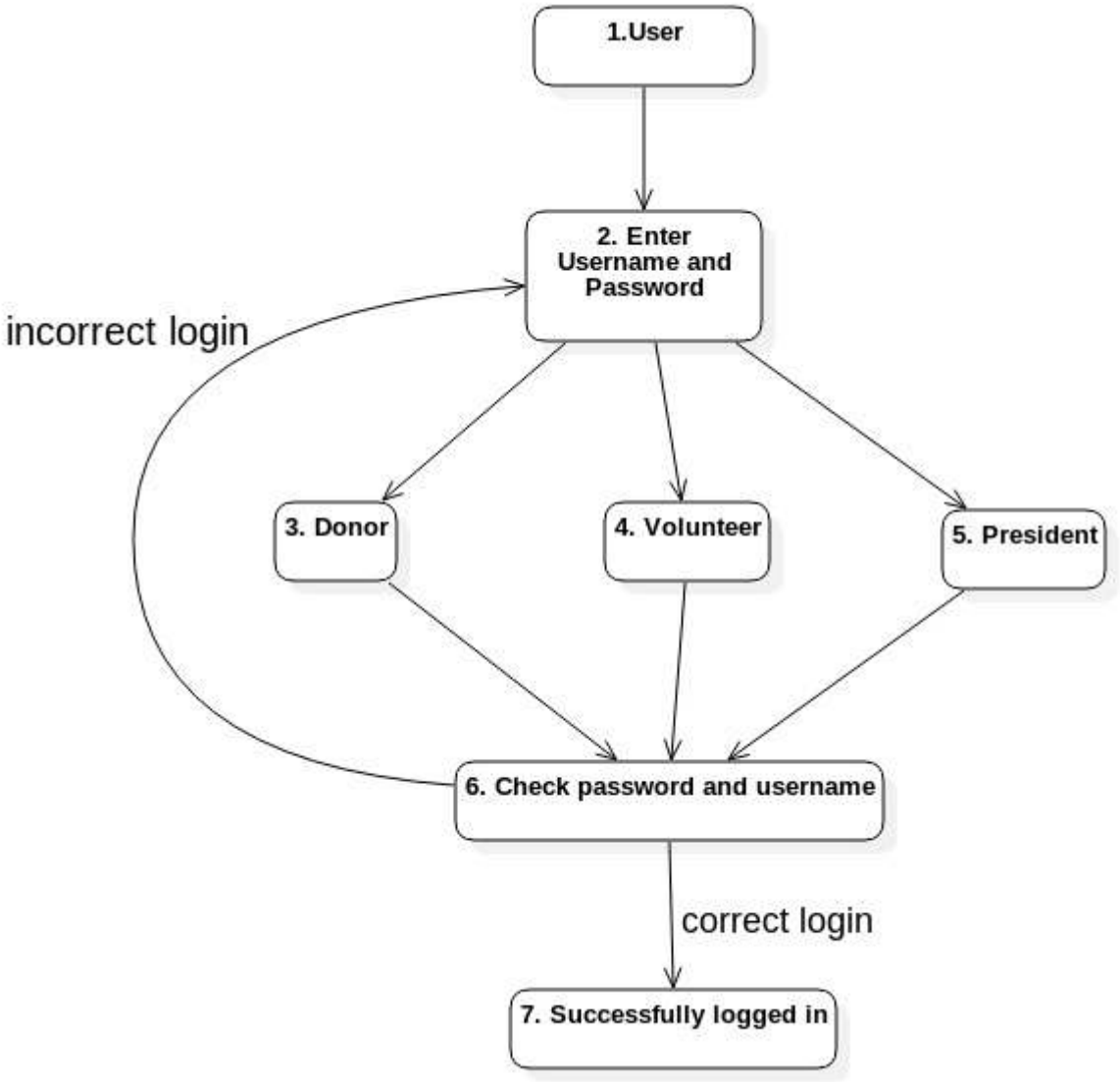
1. Side effects of having the knowledge of the source code are beneficial to thorough testing.
2. Optimization of code by revealing hidden errors and being able to remove these possible defects.
3. Gives the programmer introspection because developers carefully describe any new implementation.

Disadvantages

Although White-box testing has great advantages, it is not perfect and contains some disadvantages. It has two disadvantages:

1. White-box testing brings complexity to testing because to be able to test every important aspect of the program, you must have great knowledge of the program. White-box testing requires a programmer with a high-level of knowledge due to the complexity of the level of testing that needs to be done.
2. On some occasions, it is not realistic to be able to test every single existing condition of the application and some conditions will be untested.

LOGIN :



PARAMETERS : Username (String), Password (String)

DATA MEMBERS : NMS database.

TEST CASES :

1-2-3-6-7 : User is Donor and he successfully logins into his account by entering correct username and password

1-2-4-6-7 : User is Volunteer and he successfully logins into his account by entering correct username and password

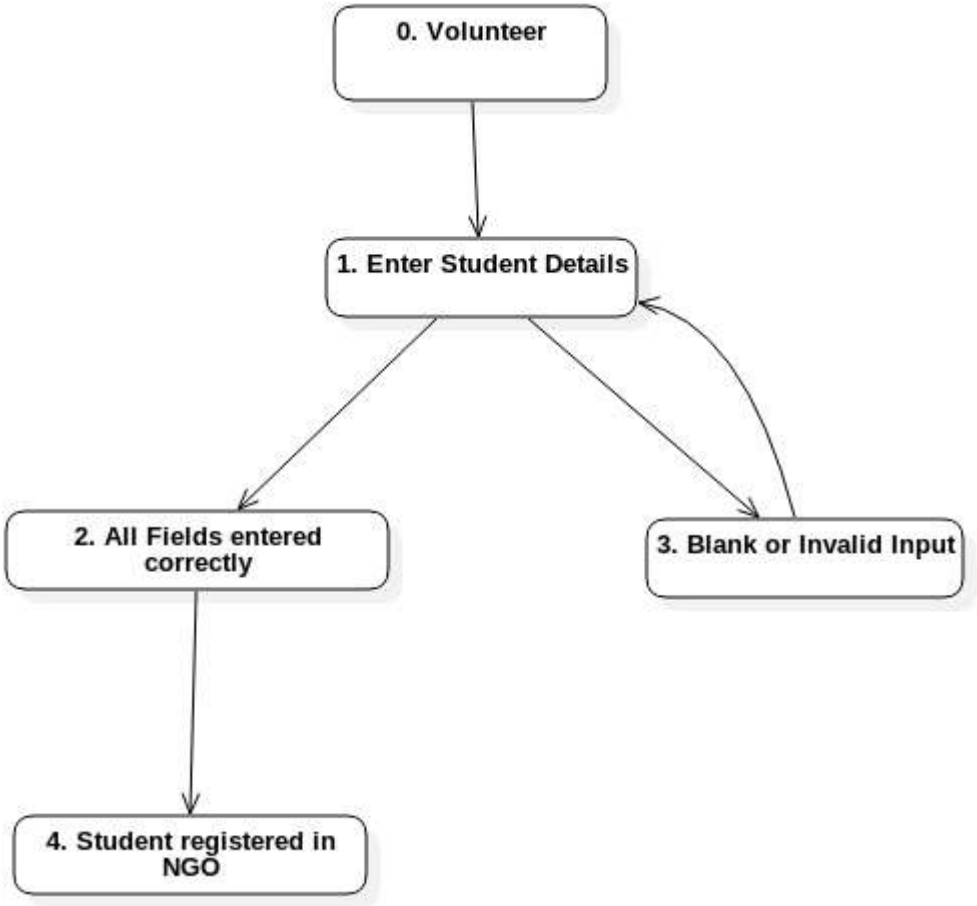
1-2-5-6-7 : User is President and he successfully logins into his account by entering correct username and password

1-2-3-6-2-3-6-7 : User is Donor and enters wrong login information, enters again and logins successfully

1-2-4-6-2-4-6-7 : User is Volunteer and enters wrong login information, enters again and logins successfully

1-2-3-6-2-3-6-7 : User is President and enters wrong login information, enters again and logins successfully

STUDENT REGISTRATION :



PARAMETERS : Name (String), Sex(Combo Box), Date Of Birth (String), Class(Integer), School(String) , Parental Income(Double), Help(set of Radio Buttons and Integers)

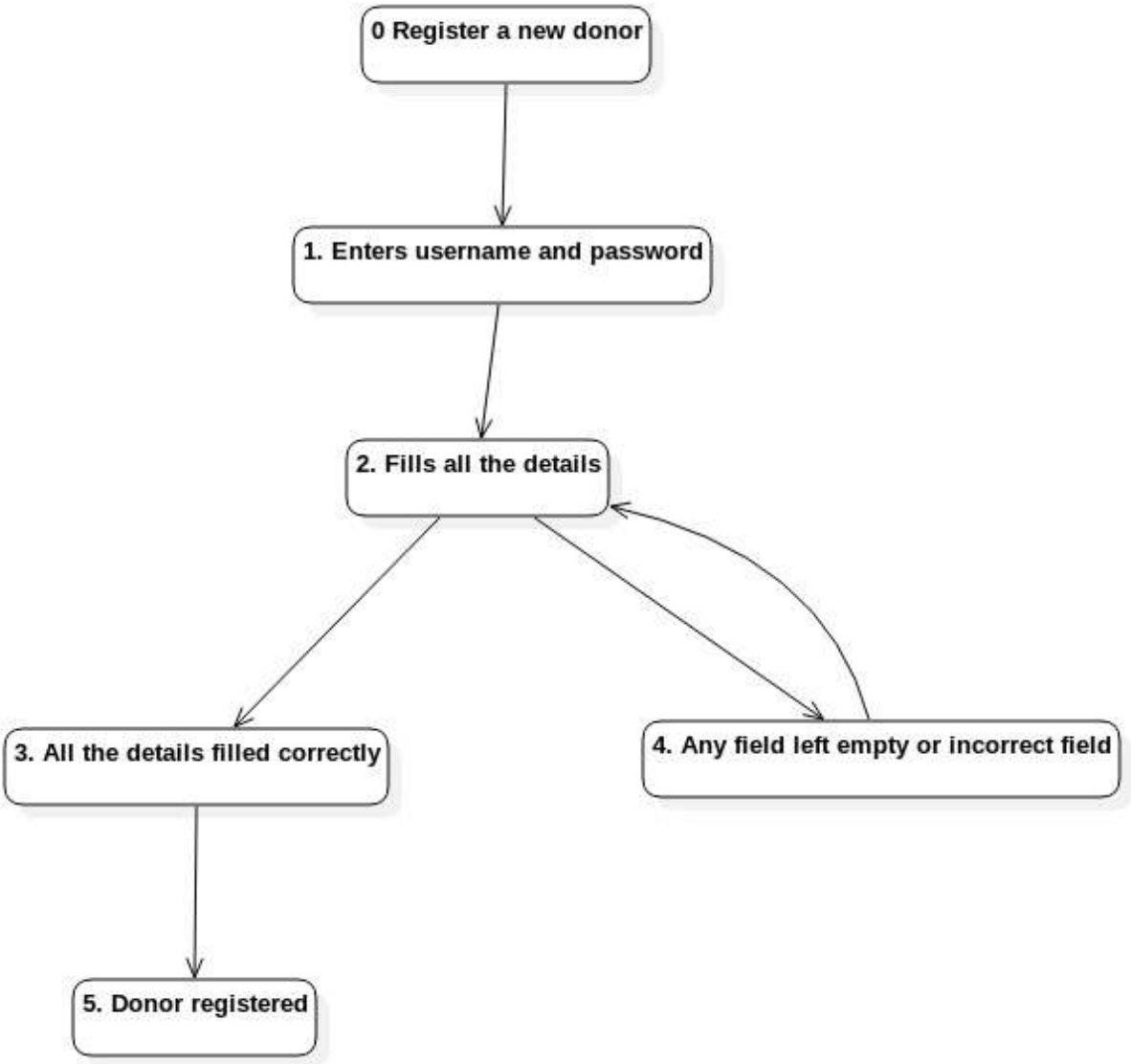
DATA MEMBERS : Student Table in NMS database

TEST CASE :

0-1-3-1-2-4 : Volunteer enters incorrect information in any of the fields or any field is left empty, he enters the student details corrctly and student is registered

0-1-2-4 : Volunteer enters student details correctly and the student is registered

DONOR REGISTRATION :



PARAMETERS : Username(String), Password(String), Name (String), Email ID (String), Phone No (String), Address(String), Donation Period(Combo Box), Amount of Pledge(Double)

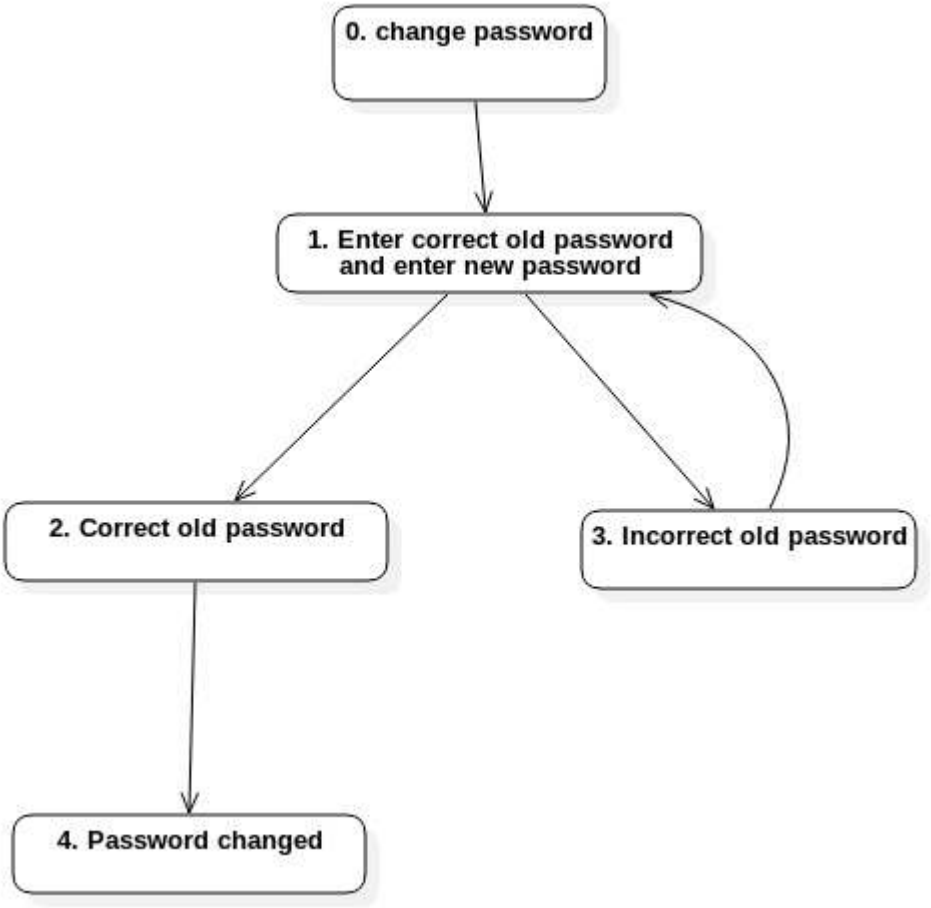
DATA MEMBER : Volunteer Table in NMS Database

TEST CASE :

0-1-2-4-2-3-5 : Donor enters his details, any field is incomplete, fills it again correctly and donor is registered

0-1-2-3-5 : Donor enters his details, all fields are filled correctly and donor is registered

CHANGE PASSWORD :



PARAMETERS : Current Password (String), New password (String)

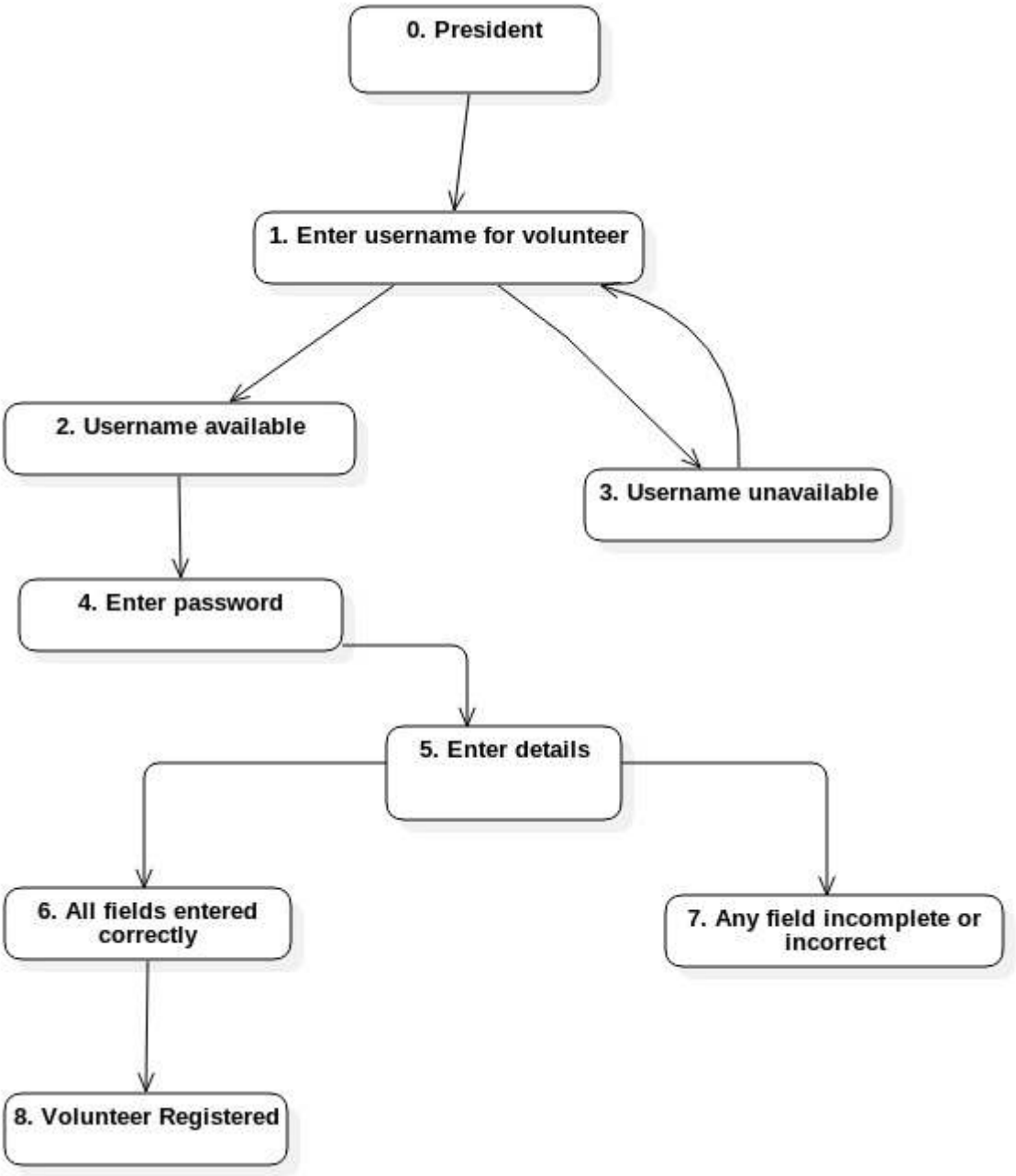
DATA MEMBERS : NMS Database

TEST CASES :

0-1-2-4 : Old password is correct

0-1-3-1-2-4 : Old password is entered incorrectly, then enters the old password again correctly

VOLUNTEER REGISTRATION :



PARAMETERS : Username(String), Password(String), Name (String), Email ID (String), Phone No (String), Address(String)

DATA MEMBER : Volunteer Table in NMS Database

TEST CASE :

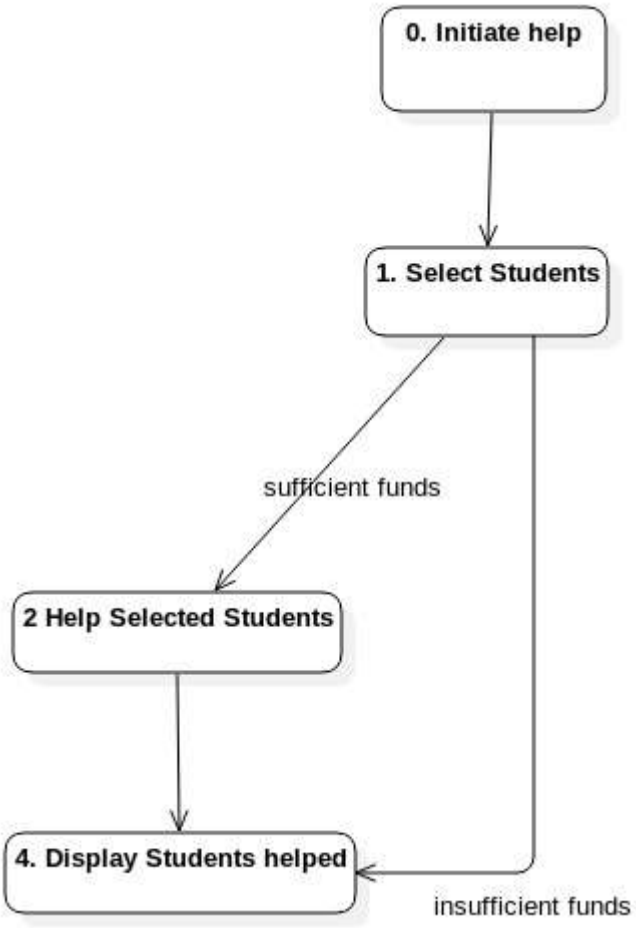
0-1-2-4-5-7-6-8 : President enters details of volunteer, any field is incomplete, fills it again correctly and volunteer is registered

0-1-2-4-5-6-8 : President enters details of volunteer, all fields are filled correctly and volunteer is registered

0-1-3-1-4-5-6-8 : Username entered is not available, re-enters username which is available and then fills the rest of the details correctly and volunteer is registered.

0-1-3-1-4-5-7-5-6-8 : Username entered is not available, re-enters username which is available and then fills the rest of the details incorrectly, fills it again correctly and volunteer is registered.

INITIATE HELP :



PARAMETERS : Select Students

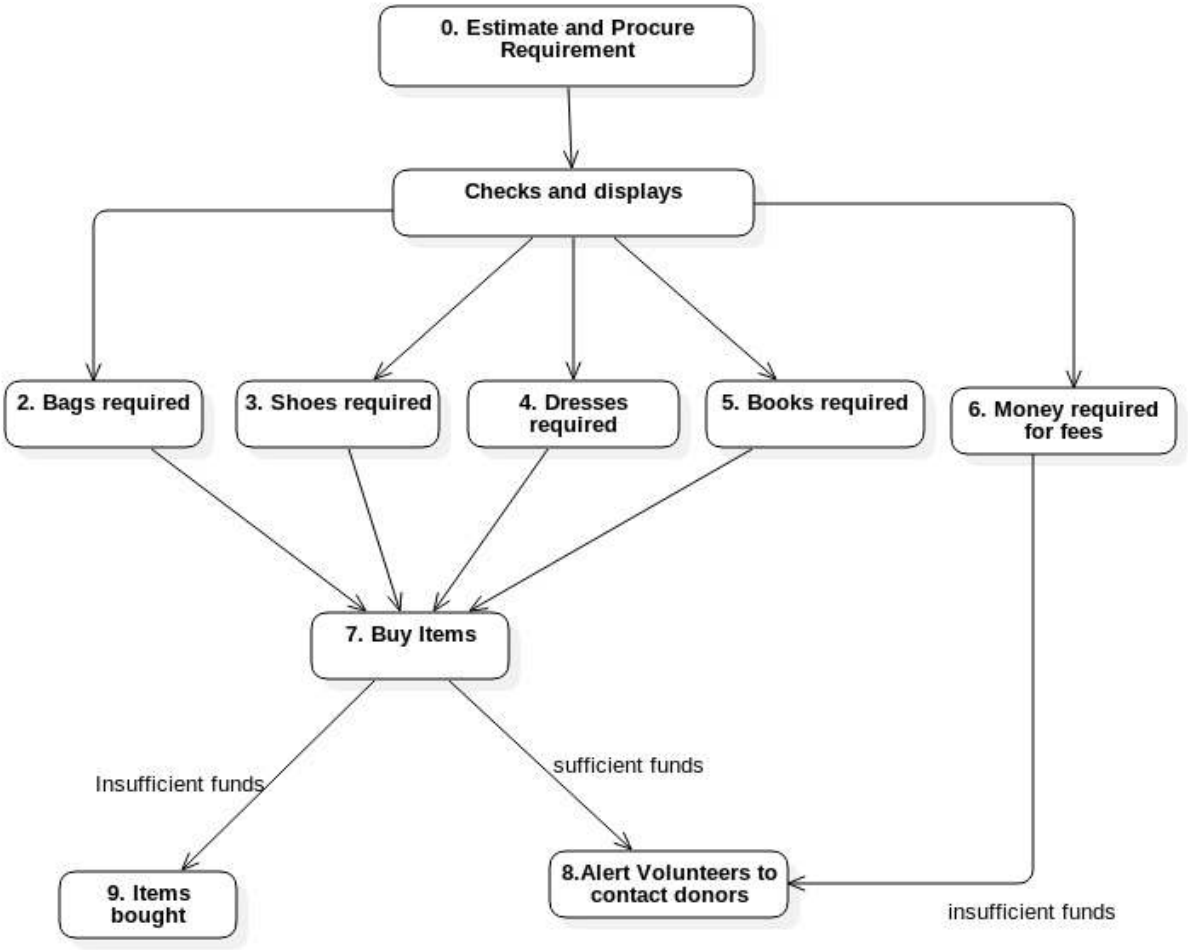
DATA MEMBERS : Inventory table in NMS Database

TEST CASE :

0-1-2-4 : Funds are sufficient and all selected students are helped

0-1-4 : Funds are insufficient and some students are helped according to their priority.

ESTIMATE AND PROCURE REQUIREMENTS :



DATA MEMBERS : Data in NMS Database

TEST CASE :

0-1-2-7-9 President clicks on Estimate and procure requirements, checks and displays the bag required, clicks on buy item and bags are bought

0-1-3-7-9 President clicks on Estimate and procure requirements, checks and displays the shoes required, clicks on buy item and shoes are bought

0-1-4-7-9 President clicks on Estimate and procure requirements, checks and displays the dresses required, clicks on buy item and dresses are bought

0-1-5-7-9 President clicks on Estimate and procure requirements, checks and displays the books required, clicks on buy item and books are bought

0-1-5-7-8 President clicks on Estimate and procure requirements, checks and displays the books required, clicks on buy item and volunteers are alerted.

0-1-4-7-8 President clicks on Estimate and procure requirements, checks and displays the dresses required, clicks on buy item and volunteers are alerted.

0-1-3-7-8 President clicks on Estimate and procure requirements, checks and displays the shoes required, clicks on buy item and volunteers are alerted.

0-1-2-7-8 President clicks on Estimate and procure requirements, checks and displays the bags required, clicks on buy item and volunteers are alerted.

0-1-6-8 President clicks on Estimate and procure requirements, checks and displays the money required for fees, and volunteers are alerted in case of insufficient funds.