

Testing and Evaluation

Test Strategy

During the development of my solution, I would compile the code and see if there were any syntax or coding errors. But even after fixing these errors, my solution may still contain operational errors, causing it to operate in an incorrect way. I will test the features of my solution to identify any faults which have not been discovered prior to this.

I will perform Navigational Testing. This involves testing all the buttons in my program to see if they perform the correct actions e.g. displaying the correct form when clicked. If incorrect forms are shown when a button is pressed, the program will become largely unuseable. This testing will ensure that the user can navigate through the program properly. As this testing will be so extensive, I will not document it due to time constraints as it is extremely repetitive

Also, I will assess the Interface of the solution. Ensuring the user interface and colour scheme are professional and allow the user to be efficient with their use of the program.

Furthermore, I will test the Program Functionality to ensure that the program functions fully when carrying out tasks.

I will test:

- The security of the LoginForm- It should only allow access to subsequent forms if the username and password are correct.
- Adding data- new data should be added without errors
- Deleting data- existing data should be able to be deleted
- Sorting data- data should be sorted dependant on a user-selected field in ascending order
- Filtering data- data should be filtered based on a user-selected field and filter term
- Validation of data- erroneous data should not be stored in the table and the user should be prevented from entering this data.
- Calculations- Calculations should be correct

Test Data

All of the data fields will be tested to ensure they only allow valid data.

The types of data I will use to test my program are:

- “Normal Data” –Data which is expected to be entered and which should be accepted by the program
- “Extreme Data” – Data which is too high or too low of a value to be considered feasible by the program
- “Incompatible Data” – Data which is of the wrong type for the field it is to be stored. E.g. entering numbers in a Name field.
- “Non-Existent Data” – Data which does not exist because no data has been entered.

Examples of these data types:

- Normal data: a sensible string for a name such as “Matthew”
- Extreme data: entering a very long string for a town name such as “Llanfairpwllgwyngyllgogerychwyrndrobwllllantysiliogogoch”
- Incompatible data: entering a number in a name field such as “6746488342478”
- Non-Existent data: leaving the data entry box empty

Data Testing**LoginForm**

Test No.	Testing Field	Reason for test	Test data	Expected outcome	Outcome	Reference to evidence
1	Username	To test username authentication	Username: "test" Password: "admin"	Username check will fail and an error message will be shown	The username check failed and an error message was shown	1
2	Password	To test password authentication	Username: "admin" Password: "abcde"	Password check will fail and an error message will be shown	The password check failed but no error message was shown	2

BuildingPlanForm

Test No.	Testing Field	Reason for test	Test data	Expected outcome	Outcome	Reference to evidence
3	X, Y, Width, Height	To test that only numbers are accepted	"birthday"	The rectangle will not change position	The rectangle did not change position	3
4	X, Y, Width, Height	To test that only integers are accepted and that small values do not cause errors	"0.6"	The rectangle will not change position	The rectangle did not change position	4
5	X, Y, Width,	To test that a null value	Null	The rectangle will not change	The rectangle did	5

	Height	will not cause an exception		position	not change position	
6	X, Y, Width, Height	To test that a very large value will not throw an exception	1123581321345589144	The rectangle will change position	An exception was thrown	6
7	New Defect, View Defect and Add Room Buttons	To test that each button works correctly for each different rectangle, leading to the correct form with the correct data	Test each button with various rectangles selected	Each button will lead to the correct form with the correct data	Each button leads to the correct form with the correct data	7
8	Print Report	The button correctly opens different reports dependant on which item of the combobox is selected	Test the button with each combobox item selected	The correct report will open for each combobox option	The correct report was opened for each combobox option	8
9	EnableEditing, Increment & Decrement Buttons and Save Button	To test that the EnableEditing button gives access to the other controls, All the increment, decrement & save buttons work	Use each button and check that they perform the correct task	The EnableEditing button will give access to the other controls, All the increment, decrement & save buttons work	The EnableEditing button gave access to the other controls, All the increment, decrement & save buttons worked	9

ViewRoomDefectsForm

Test No.	Testing Field	Reason for test	Test data	Expected outcome	Outcome	Reference to evidence
10	Filter Textbox with DefectID selected	Test that using a string does not cause an exception	"birthday"	The table is not filtered	The table was not filtered	10
11	Filter Textbox	Test that using a large value does not cause an exception	1123581321345589144	The table is filtered	The table was filtered	11
12	Radio Buttons	To check that all the radio buttons for sorting work	Test each radio button	The tables will be sorted correctly for each radio button	The tables were sorted correctly for each radio button	12
13	Delete Button	To check that a warning is given to the user if they are sure they want to delete the row	Select several rows and use the delete button	A dialog box will be shown, if the user chooses to delete the row, the row is then deleted	A dialog box was shown, if the user chose to delete the row, the row was then deleted	13

NewRoomForm

Test No.	Testing Field	Reason for test	Test data	Expected outcome	Outcome	Reference to evidence
14	Room ID	To test that the room will not be added if the Room ID is null	RoomID: null RoomType: "Kitchen" Description: "Large room"	The room would not be added. An error will be shown	The room was not added and an error was shown	14

15	Room Type	To test that the room will not be added if the Room Type is null	RoomID: "C9" RoomType :null Description: "Large room"	The room would not be added. An error will be shown	The room was not added and an error was shown	15
16	Description	To test that the room will not be added if the Description is null	RoomID: "C9" RoomType : "Kitchen" Description: null	The room would not be added. An error will be shown	The room was not added and an error was shown	16

NewUserForm

Test No.	Testing Field	Reason for test	Test data	Expected outcome	Outcome	Reference to evidence
17	UserID	To test that the user cannot be added if UserID is null	UserID: null Password1: "password" Password2: "password"	The user cannot be added	The user could not be added	17
18	Password	To test that the user cannot be added if Password 1 & 2 are null	UserID: "Name" Password1: null Password2: null	The user cannot be added	The user could not be added	18
19	Password	To test that the user cannot be added if Password and Password2 are not exactly the same	UserID: "Name" Password1: "Word" Password2: "word"	The user cannot be added	The user could not be added	19
20	Email	To test that only valid emails are accepted	Email: "email@email.c" Email: " @mail.com"	The user cannot be added	The user could not be added	20
21	Telephone Number	To test that only valid phone numbers are accepted	Tel: "0121341251h" Tel: "11332212412"	The user cannot be added	The user could not be added	21

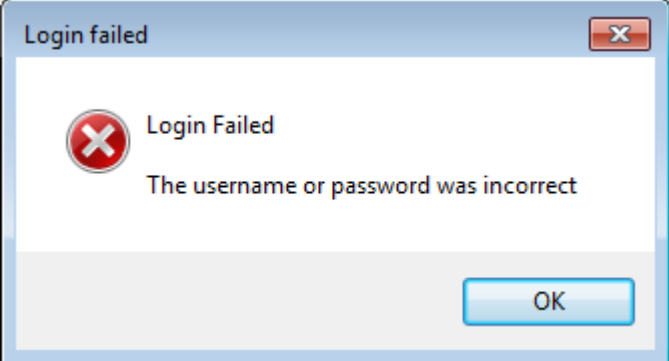

ViewDefectsForm

Test No.	Testing Field	Reason for test	Test data	Expected outcome	Outcome	Reference to evidence
22	Filter Textbox with DefectID selected	Test that using a string does not cause an exception	"birthday"	The table is not filtered	The table was not filtered	22
23	Filter Textbox	Test that using a large value does not cause an exception	1123581321345589144	The table is filtered	The table was filtered	23
24	Radio Buttons	To check that all the radio buttons for sorting work	Test each radio button	The tables will be sorted correctly for each radio button	The tables were sorted correctly for each radio button	24

ViewUserTable

Test No.	Testing Field	Reason for test	Test data	Expected outcome	Outcome	Reference to evidence
25	Filter Textbox	Test that using a large value does not cause an exception	1123581321345589144	The table is filtered	The table was filtered	25
26	Radio Buttons	To check that all the radio buttons for sorting work	Test each radio button	The tables will be sorted correctly for each radio button	The tables were sorted correctly for each radio button	26

Reference to evidence

Reference	Screenshot
1	 A screenshot of a Windows-style error dialog box titled "Login failed". It features a red circular icon with a white 'X' on the left. To the right of the icon, the text reads "Login Failed" followed by "The username or password was incorrect". At the bottom center, there is a blue "OK" button.
2	 A screenshot of a "Login" dialog box. The title bar says "Login". The main content area has the word "Login" in large black font. Below it are two input fields: "Username:" with the text "admin" and "Password:" with five black dots. At the bottom, there are two buttons: "Login" and "Cancel".
3	

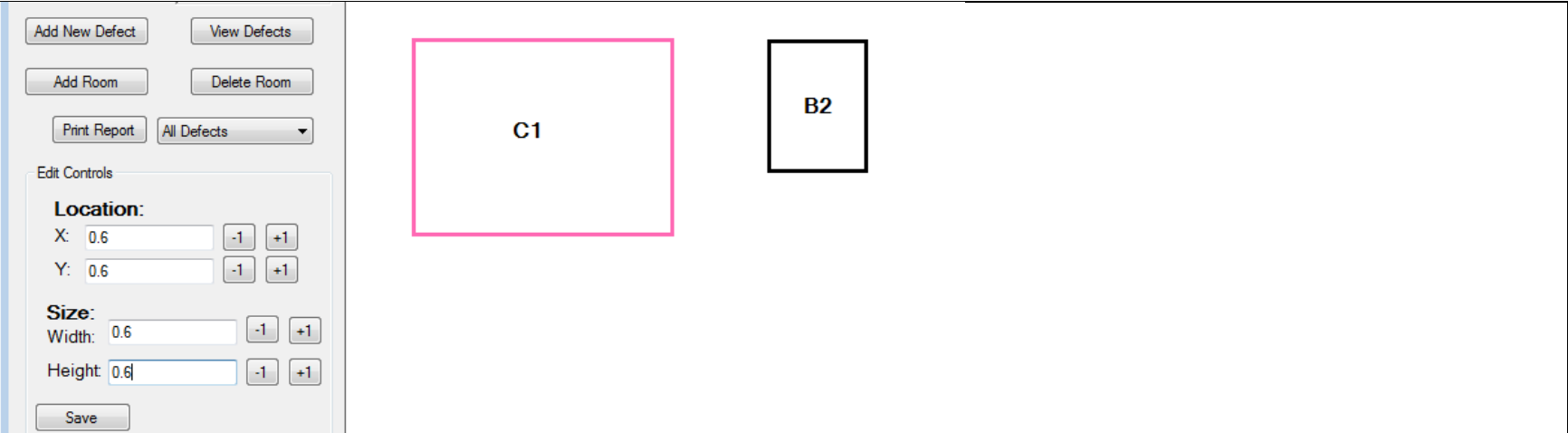
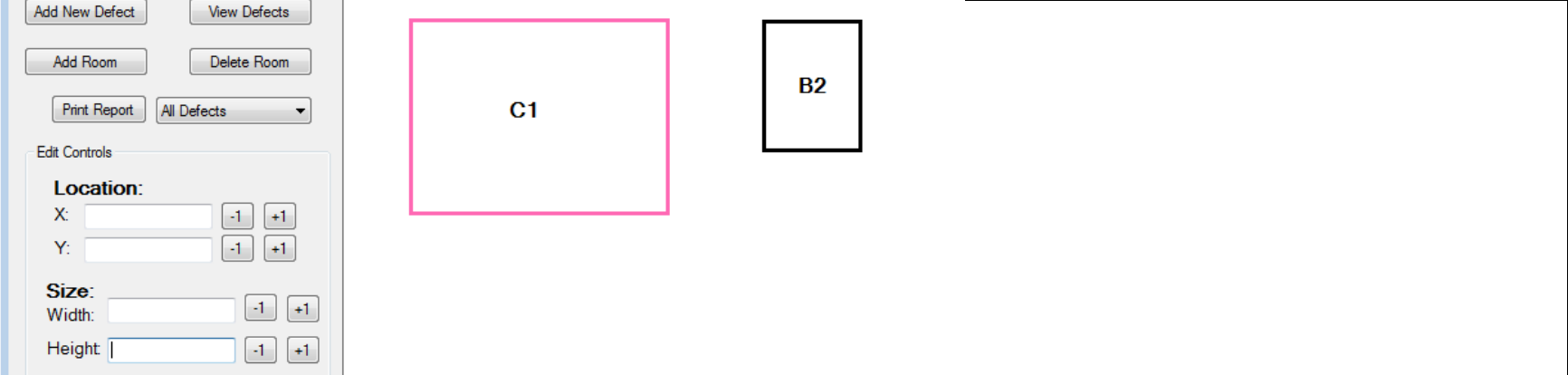
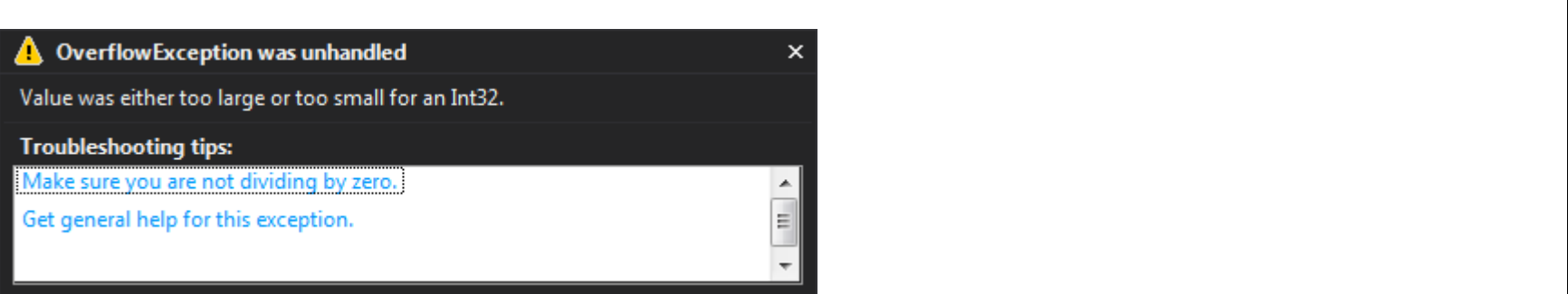
The image displays a software interface with two identical panels. Each panel consists of a control sidebar on the left and a main workspace on the right.

Control Sidebar (Left):

- Buttons: Add New Defect, View Defects, Add Room, Delete Room, Print Report.
- Dropdown: All Defects.
- Section: Edit Controls
- Location: X: 52, Y: 243 (with -1 and +1 buttons).
- Size: Width: 200, Height: 150 (with -1 and +1 buttons).
- Save button.

Main Workspace (Right):

- Two boxes: a large pink box labeled 'C1' and a smaller black box labeled 'B2'.

4	
5	
6	

7

New Defect

Add New Defect

Room ID:	C1
Defect Type:	Building Works
Priority:	Normal
Description:	<input type="text"/>
Date Found:	17 March 2014

New Room

Add New Room

Room ID:

Room Type:

Room Description:

View Defects

DefectID	RoomID	Type	Priority	Description	DateFound	DateResolved	UserID
1	E1	FFE	Normal	Wood of bed bac...	29/11/2013		admin
3	E1	FFE	Normal	Something ...	05/01/2014		admin
9	E1	Building Works	Normal	...	10/03/2014		admin

Sorting

- Defect ID
- Room ID
- Type
- Priority

Mark Defect as Resolved

Search/Filter: DefectID

Close

8

Print Report

17/03/2014

All Defects

Percentage of Unresolved Defects:		Number of Each Type of Defect					
		Low	Normal	High	Urgent	Critical	Total
88%		1	4	1	1	2	9

Defect ID	Room ID	Type	Priority	Description	Date Found	Date Resolved	User ID
8	C1	Building Works	Low	No Cakes	28/01/2014		admin
1	E1	FFE	Normal	Wood of bed backboard is cracked slightly	29/11/2013		admin
3	E1	FFE	Normal	Something	05/01/2014		admin
9	E1	Building Works	Normal		10/03/2014		admin
2	E2	FFE	Normal	Sink Broken	29/11/2013		admin
6	C1	M and E	High	No water in room	28/01/2014		admin
7	C1	Building Works	Urgent	Large crack in ceiling	28/01/2014		admin
5	C1	Building Works	Critical	Door does not	28/01/2014		admin

'''

Print Close

Print Report

17/03/2014

Unresolved Defects

Number of Each Type of Defect					
Low	Normal	High	Urgent	Critical	Total
1	4	1	1	1	8

Defect ID	Room ID	Type	Priority	Description	Date Found	Date Resolved	User ID
	8 C1	Building Works	Low	No Cakes	28/01/2014		admin
	1 E1	FFE	Normal	Wood of bed backboard is cracked slightly	29/11/2013		admin
	3 E1	FFE	Normal	Something	05/01/2014		admin
	9 E1	Building Works	Normal		10/03/2014		admin
	2 E2	FFE	Normal	Sink Broken	29/11/2013		admin
	6 C1	M and E	High	No water in room	28/01/2014		admin
	7 C1	Building Works	Urgent	Large crack in ceiling	28/01/2014		admin

Print Close

9

Building Plan [Close]

Selected Room:
Room ID: C1

Number of Defects: 5

Room Type: Kitchen

Room Description: First floor main kitchen

Add New Defect View Defects

Add Room Delete Room

Print Report All Defects

Edit Controls

Location:
X: 52 [-1] [+1]
Y: 243 [-1] [+1]

Size:
Width: 200 [-1] [+1]
Height: 150 [-1] [+1]

Save

Disable Editing

The diagram shows a floor plan with the following rooms:

- A row of four rooms at the top: E1, E2, E3, and D3.
- A large room labeled C1 on the left side.
- A smaller room labeled B2 in the center.
- A room labeled W7 on the right side.

The screenshot displays a software window titled "Building Plan" with a standard Windows-style title bar. The interface is divided into a left-hand control panel and a central main workspace.

Control Panel (Left):

- Selected Room:** Room ID: C1
- Number of Defects:** 5
- Room Type:** Kitchen
- Room Description:** First floor main kitchen
- Buttons:** Add New Defect, View Defects, Add Room, Delete Room, Print Report, All Defects (dropdown), Save, Disable Editing.
- Edit Controls:**
 - Location:** X: 53, Y: 242 (with -1 and +1 adjustment buttons)
 - Size:** Width: 201, Height: 151 (with -1 and +1 adjustment buttons)

Main Workspace (Center):

The workspace shows a floor plan with several rooms and defects:

- A row of four rectangular boxes at the top labeled E1, E2, E3, and D3.
- A large square box labeled C1, which is highlighted with a pink border.
- A smaller square box labeled B2.
- A square box labeled W7.

10

View Rooms & Defects
✕

Rooms

Room ID	Room Type	Room Description
B2	Bathroom ...	Second bathroom on right
C1	Kitchen ...	First floor main kitchen
D3	Cleaning Cupboa...	Primary cleaning cupboard
E1	Bedroom ...	First on left
E2	Bedroom ...	Second on left
E3	Bedroom ...	Third on left
W7	Office ...	Tutor office
*		

Defects

1 of 5

DefectID	RoomID	Type	Priority	Description	DateFound	DateResolved	Use
4	C1	M and E	Critical	Unsealed Gas O...	28/01/2014	30/01/2014	admi
5	C1	Building Works	Critical	Door does not op...	28/01/2014		admi
6	C1	M and E	High	No water in room ...	28/01/2014		admi
7	C1	Building Works	Urgent	Large crack in ce...	28/01/2014		admi
8	C1	Building Works	Low	No Cakes ...	28/01/2014		admi
*							

Room ID: Acending Decending

Sorting: Defect ID Room ID Type Priority

Search/Filter: DefectID birthday Save

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View Rooms & Defects

Rooms

Room ID	Room Type	Room Description
B2	Bathroom ...	Second bathroom on right
C1	Kitchen ...	First floor main kitchen
D3	Cleaning Cupboa...	Primary cleaning cupboard
E1	Bedroom ...	First on left
E2	Bedroom ...	Second on left
E3	Bedroom ...	Third on left
W7	Office ...	Tutor office
*		

Defects

0 of 0

DefectID	RoomID	Type	Priority	Description	DateFound	DateResolved	Use
*							

Room ID:

 Ascending
 Descending

Sorting

 Defect ID
 Room ID
 Type
 Priority

Search/Filter: DefectID

Save

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View Rooms & Defects

Rooms

Room ID	Room Type	Room Description
B2	Bathroom ...	Second bathroom on right
C1	Kitchen ...	First floor main kitchen
D3	Cleaning Cupboa...	Primary cleaning cupboard
E1	Bedroom ...	First on left
E2	Bedroom ...	Second on left
E3	Bedroom ...	Third on left
W7	Office ...	Tutor office
*		

Defects

1 of 5

DefectID	RoomID	Type	Priority	Description	DateFound	DateResolved	Use
4	C1	M and E	Critical	Unsealed Gas O...	28/01/2014	30/01/2014	adm
5	C1	Building Works	Critical	Door does not op...	28/01/2014		adm
6	C1	M and E	High	No water in room ...	28/01/2014		adm
7	C1	Building Works	Urgent	Large crack in ce...	28/01/2014		adm
8	C1	Building Works	Low	No Cakes ...	28/01/2014		adm
*							

Room ID:

 Ascending
 Descending

Sorting

 Defect ID
 Room ID
 Type
 Priority

Search/Filter: DefectID

Save

View Rooms & Defects

Rooms

Room ID	Room Type	Room Description
B2	Bathroom	Second bathroom on right
C1	Kitchen	First floor main kitchen
D3	Cleaning Cupboa...	Primary cleaning cupboard
E1	Bedroom	First on left
E2	Bedroom	Second on left
E3	Bedroom	Third on left
W7	Office	Tutor office

Defects

1 of 5

DefectID	RoomID	Type	Priority	Description	DateFound	DateResolved	User
5	C1	Building Works	Critical	Door does not op...	28/01/2014		adm
7	C1	Building Works	Urgent	Large crack in ce...	28/01/2014		adm
8	C1	Building Works	Low	No Cakes	28/01/2014		adm
4	C1	M and E	Critical	Unsealed Gas O...	28/01/2014	30/01/2014	adm
6	C1	M and E	High	No water in room ...	28/01/2014		adm

Room ID: Ascending Descending


Sorting: Defect ID Room ID Type Priority

Search/Filter: DefectID

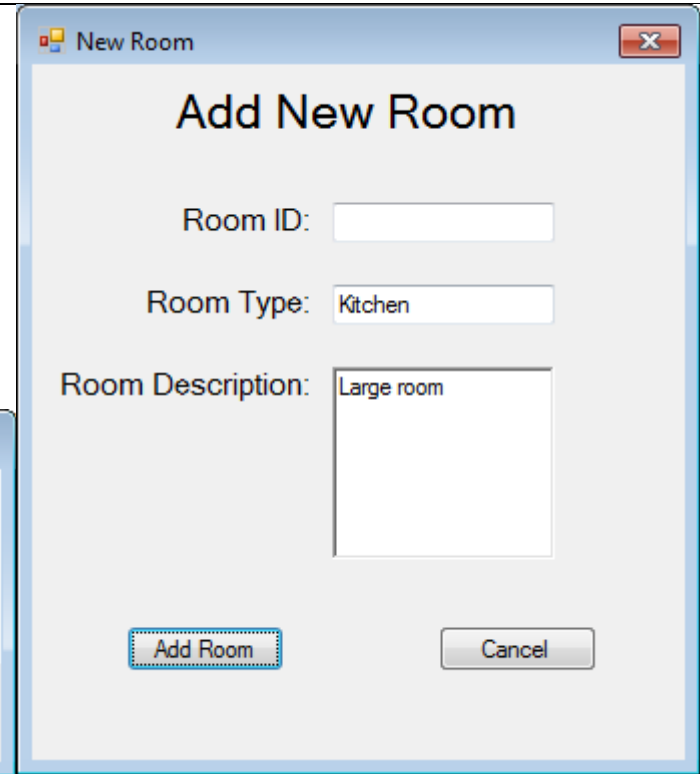
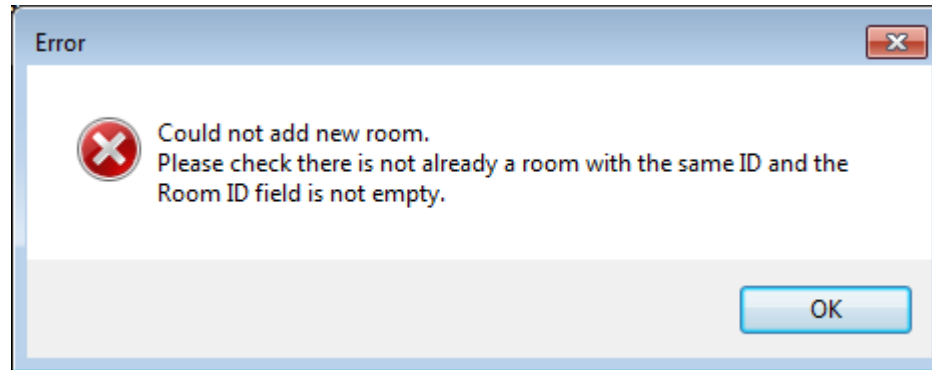
Save

13

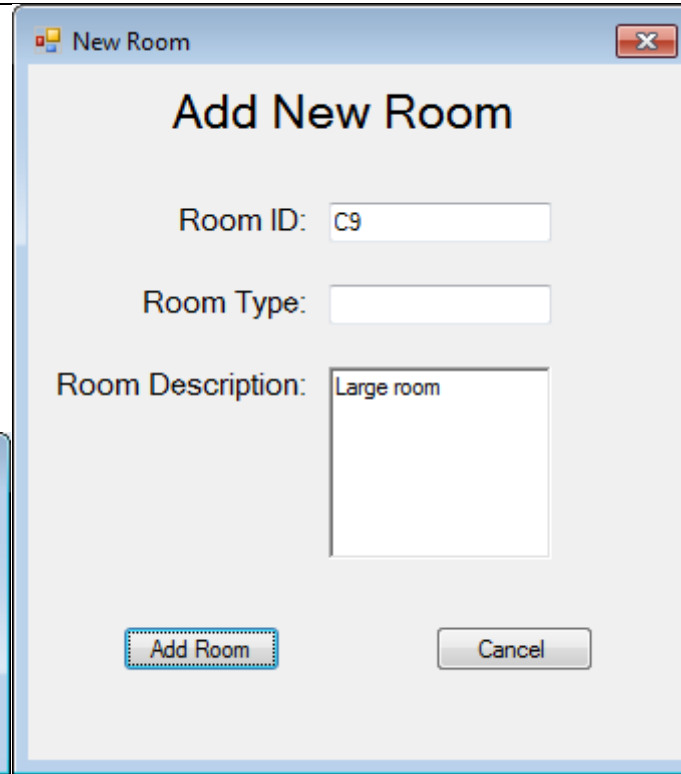
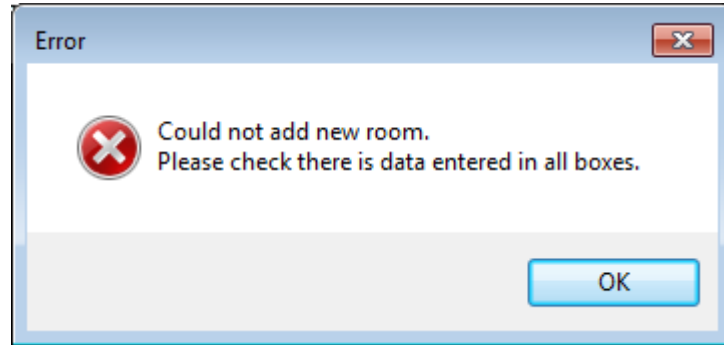
Are you sure?

 Are you sure you want to delete this defect?

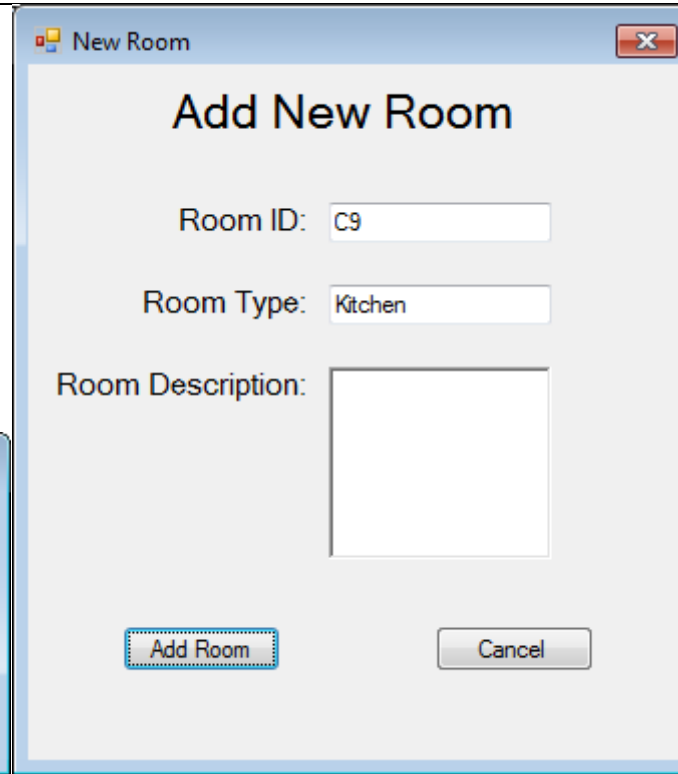
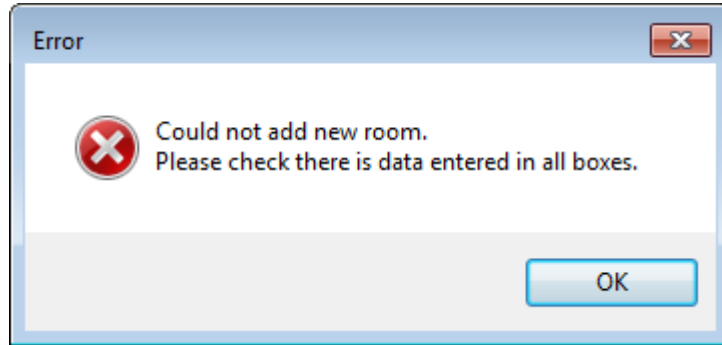
14



15



16



17

The image shows a 'New User' dialog box with the following fields and values:

- UserID*:** [Empty text box]
- Password*:** [password]
- Re Enter Password*:** [password]
- Email:** [Empty text box]
- Telephone Number:** [Empty text box]
- User Level*:** [user]

Below the fields, there is a message: "One or more fields contain incorrect information". At the bottom, there are two buttons: "Add User" and "Cancel". A legend at the bottom left states: "* - Required Field".

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New User

Add New User

UserID*:

Password*:

Re Enter Password*:

Email:

Telephone Number:

User Level*:

One or more fields contain incorrect information

* - Required Field

19

The image shows a 'New User' dialog box with the following fields and values:

- UserID*:** Name
- Password*:** Word
- Re Enter Password*:** word
- Email:** (empty)
- Telephone Number:** (empty)
- User Level*:** user

Below the fields, there is a message: "One or more fields contain incorrect information". At the bottom, there are two buttons: "Add User" and "Cancel". A legend at the bottom left states: "* - Required Field".

20

Add New User

UserID*:

Password*:

Re Enter Password*:

Email:

Telephone Number:

User Level*:

One or more fields contain incorrect information

* - Required Field

Add New User

UserID*:

Password*:

Re Enter Password*:

Email:

Telephone Number:

User Level*:

One or more fields contain incorrect information

* - Required Field

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New User

Add New User

UserID*:

Password*:

Re Enter Password*:

Email:

Telephone Number:

User Level*:

One or more fields contain incorrect information

* - Required Field

New User

Add New User

UserID*:

Password*:

Re Enter Password*:

Email:

Telephone Number:

User Level*:

One or more fields contain incorrect information

* - Required Field

22

View Defects

	DefectID	RoomID	Type	Priority	Description	DateFound	DateResolved	UserID
▶	4	C1	M and E	Critical	Unsealed Gas O...	28/01/2014	30/01/2014	admin
	5	C1	Building Works	Critical	Door does not op...	28/01/2014		admin
	6	C1	M and E	High	No water in room ...	28/01/2014		admin
	7	C1	Building Works	Urgent	Large crack in ce...	28/01/2014		admin
	8	C1	Building Works	Low	No Cakes ...	28/01/2014		admin

Sorting

- Defect ID
- Room ID
- Type
- Priority

Mark Defect as Resolved

Search/Filter: DefectID | Birthday|

Close

23

The screenshot shows a software window titled "View Defects". At the top, there is a table with the following columns: DefectID, RoomID, Type, Priority, Description, DateFound, DateResolved, and UserID. The table area is currently empty. Below the table, there is a "Sorting" section with four radio button options: "Defect ID" (which is selected), "Room ID", "Type", and "Priority". To the right of the sorting options is a button labeled "Mark Defect as Resolved". Below these is a "Search/Filter:" section with a dropdown menu set to "DefectID" and a text input field containing the number "1123581321345589144". At the bottom right of the window is a "Close" button.

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View Defects

DefectID	RoomID	Type	Priority	Description	DateFound	DateResolved	UserID
4	C1	M and E	Critical	Unsealed Gas O...	28/01/2014	30/01/2014	admin
5	C1	Building Works	Critical	Door does not op...	28/01/2014		admin
6	C1	M and E	High	No water in room ...	28/01/2014		admin
7	C1	Building Works	Urgent	Large crack in ce...	28/01/2014		admin
8	C1	Building Works	Low	No Cakes ...	28/01/2014		admin

Sorting

- Defect ID
- Room ID
- Type
- Priority

Mark Defect as Resolved

Search/Filter: DefectID

Close

View Defects

DefectID	RoomID	Type	Priority	Description	DateFound	DateResolved	UserID
4	C1	M and E	Critical	Unsealed Gas O...	28/01/2014	30/01/2014	admin
5	C1	Building Works	Critical	Door does not op...	28/01/2014		admin
6	C1	M and E	High	No water in room ...	28/01/2014		admin
8	C1	Building Works	Low	No Cakes ...	28/01/2014		admin
7	C1	Building Works	Urgent	Large crack in ce...	28/01/2014		admin

Sorting

- Defect ID
- Room ID
- Type
- Priority

Mark Defect as Resolved

Search/Filter: DefectID

Close

25

The screenshot shows a web application window titled "View Users". At the top, there is a navigation bar with a list icon, a left arrow, a text box containing "0", the text "of 0", a right arrow, a double right arrow, and a close icon. Below this is a table with the following columns: "Userid", "Password", "Email", "Tel_Number", and "User_Level". The table body is currently empty. Below the table is a button labeled "Add New User". Underneath that is a "Sorting" section with two radio buttons: "User ID" (which is selected) and "User Level". To the right of the sorting options is a "Search/Filter:" label, followed by a dropdown menu currently showing "Userid" and a text input field containing the number "1123581321345589144".

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The screenshot shows a window titled "View Users" with a close button in the top right corner. Below the title bar is a navigation bar with a list icon, left and right arrows, the number "1", the text "of 4", and a red "X" icon. The main content is a table with the following data:

	Userid	Password	Email	Tel_Number	User_Level
▶	admin	admin			admin
	Beasley	boosloo	thebeasleyd@dm...	07323743839	user
	user	user			user
	user1	user1	...		user

Below the table is a greyed-out area. At the bottom left is a button labeled "Add New User". To its right is a "Sorting" section with two radio buttons: "User ID" (unselected) and "User Level" (selected). Further right is a "Search/Filter:" label, a dropdown menu currently set to "Userid", and an empty text input field.