# Testing

## Testing the final system; Produce evidence of all problems encountered and actions taken to overcome these problems.

## Design a test plan to test:

### Each individual system function

### That each individual function works with typical, extreme or invalid data

### The whole system to ensure that the system produces the correct results for the data input.

## Actual test; Runs Produce annotated test runs that include commentaries on the outcomes of the testing process.

1. **All users have the ability to view and search for a band on the bands page.**

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| --- | --- | --- | --- | --- | --- |
| Test number | Description of test | Test data type (Typical/ Extreme/ Invalid) | Tests data to be used | Expected outcome | Test type  (Functional / logical) |
| [1](#O1T1) | Testing the Grade radio button filter | Typical | Grade 1 | On “Search by grade” button bands from Grade 1 only shown | Functional |
| [2](#O1T2) | Testing the Grade radio button filter | Typical | Grade 2 | On “Search by grade” button bands from Grade 2 only shown | Functional |
| [3](#O1T3) | Testing the Grade radio button filter | Typical | Grade 3A | On “Search by grade” button bands from Grade 3A only shown | Functional |
| [4](#O1T5) | Testing the Grade radio button filter | Typical | Grade 3B | On “Search by grade” button bands from Grade 3B only shown | Functional |
| [5](#O1T5) | Testing the Grade radio button filter with no bands registered in this grade. | Typical | Grade 4A | On “Search by grade” button message box will appear telling user no bands have been entered and they will be presented the list of all bands. | Functional |
| [6](#O1T6) | Testing the Grade radio button filter | Typical | Grade 4B | On “Search by grade” button bands from Grade 4B only shown | Functional |
| [7](#O1T7) | Testing the Grade radio button filter | Invalid | No radio selection chosen | On “Search by grade” button no bands will be shown as no filter had been selected | Functional |
| [8](#O1T8) | Testing the searching my name filter | Typical | “Ballydonaghy” | On “Search by name” button only one band should appear in the selection. | Functional |
| [9](#O1T9) | Testing the searching my name filter | Typical | “ballydonaghy” | On “Search by name” button only one band should appear in the selection. | Functional |
| [10](#O1T10) | Testing the searching my name filter | Typical | “Bally” | On “Search by name” button only one band should appear in the selection. | Functional |
| [11](#O1T11) | Testing the searching my name filter | Invalid | “Ba11ydonaghy” | On “Search by name” button only one band should appear in the selection. | Functional |

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| Test number | Evidenced test data | Actual outcome | Outcome screenshot | Comments |
| 1 |  | Bands from Grade 1 only shown in the list box. |  | This test has passed |
| 2 |  | Bands from Grade 2 only shown in the list box. |  | This test has passed |
| 3 |  | Bands from Grade 3A only shown in the list box. |  | This test has passed |
| 4 |  | Bands from Grade 3B only shown in the list box. |  | This test has passed |
| 5 |  | Bands from Grade 4A only shown in the list box. |  | This test has passed |
| 6 |  | Bands from Grade 4B only shown in the list box. |  | This test has passed |
| 7 | N / A | Message box to tell user that they haven’t selected a grade to filter results |  | This test has passed |
| 8 |  | User displayed any matching results from their search – in this case all details from Ballydonaghy will appear. |  | This test has passed |
| 9 |  | No bands shown – this was not supposed to happen, this has not met the required criterion |  | Failed – My program does not allow the user to enter the band name when it is not identical to what is stored in the database. I will need to implement some validation to ensure the input is in title case. |
| 10 |  | No bands will be shown as this is not the name of any band. User will be displayed bands. |  | This test has passed |
| 11 |  | Message box presented to user as no bands found with this search. However, this data is not invalid as bands can have “1st” prefix |  | This test has passed |

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| Test number | Issue | Resolution | Commentary |
| 9 | Band wasn’t found due to the inputted data not being in title case. |  | I tried to use the SQL SELECT LIKE clause however I couldn’t get this working. Instead, I was able to resolve this issue by checking if the first character was lower case. If it was, I converted it and then concatenated it to the band name minus the first letter. |

1. **All users have the ability to view and search for a competition on the competitions page.**

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| --- | --- | --- | --- | --- | --- |
| Test number | Description of test | Test data type (Typical/ Extreme/ Invalid) | Tests data to be used | Expected outcome | Test type  (Functional / logical) |
| [1](#O2T1) | Select a competition and be presented with list box to select the grade to view | Typical | Ards And North Down Championship radio button selected | Brought to the select grade page | Functional |
| [2](#O2T2) | Select a competition and be presented with list box to select the grade to view | Invalid | No radio button selected | Message box telling the user that they must select a competition by clicking on the radio button beside the competition they want to view. User to remain on the competitions page. | Functional |
| [3](#O2T3) | Testing the back button on the select grade page | Typical | Pressing back button | The Competitions page should be displayed so the user can select another competition to view the results for. | Functional |
| [4](#O2T4) | Select a grade to view results for that grade | Typical | “1” | Page to view the results. The grade number is displayed, the competition name and all the bands in the grade with their circle number and competing time must also be displayed. For this test the user should expect to see the competition name as “Ards And North Down”, the grade as “Grade 1”, the number of bands entered should be “2”. Field Marshal should have a circle number of 1 and a competing time of 9:00. PSNI should have circle number of 1 and competing time of 9:10 | Functional |
| [5](#O2T5) | Select a grade to view results for that grade | Invalid | No grade selected | Message box stating that no grade has been selected | Functional |
| 6 | Selected a grade where no bands entered the grade. | Typical | Competition selected – Champion of Championships  Grade selected – 4B | Message displayed on screen – “No bands have entered this grade” | Functional |
| 7 | Selecting a competition which hasn’t been drawn yet. | Typical | Competition selected – Moria Championships | Informative message – “This competition hasn’t been drawn yet” | Functional |

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| --- | --- | --- | --- | --- |
| Test number | Evidenced test data | Actual outcome | Outcome screenshot | Comments |
| 1 |  | Select Grade screen was displayed |  | This test has passed |
| 2 |  | Message has been displayed, the exception has been captured and the user remains on the page to select a competition |  | This test has passed |
| 3 |  | Competitions page displayed |  | This test has passed |
| 4 |  | Draw page displayed will all correct data as expected. |  | This test has passed |
| 5 |  | Message has been displayed to the user and the exception has been captured. |  | This test has passed |
| 6 |  | View Draw screen displayed informing that no bands have entered this grade. |  | This test has passed.  The back button will allow them to return to previous screen to select another grade or go back again to select another competition. This has also been tested and is working on both the view draw page and select grade page |
| 7 |  | Message has been displayed to the user as the drawn hasn’t taken place yet - exception has been captured. User remains on the competitions screen. |  | This test has passed |

1. **All users have the ability to view and search for a grades’ result in a competition on the results page.**

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| --- | --- | --- | --- | --- | --- |
| Test number | Description of test | Test data type (Typical/ Extreme/ Invalid) | Tests data to be used | Expected outcome | Test type  (Functional / logical) |
| 1 | Pressing the select competition button without selecting a competition | Invalid | None | A message box presented to user asking them to select a competition | Functional |
| 2 | Selecting a competition to view Results | Typical | Ards and North Down Championships | User will be brought to a new screen to select a grade to view the results from | Functional |
| 3 | Selecting a grade with no bands entered it. | Typical | 4A | The Results screen will be shown with a message saying that no bands have entered this grade. | Logical |
| 4 | Selecting a grade with bands entered | Typical | 2 | The bands with their full results will be displayed. This should match the output which has been sent to all bands to ensure both are valid. | Logical |

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| --- | --- | --- | --- | --- |
| Test number | Evidenced test data | Actual outcome | Outcome screenshot | Comments |
| 1 |  | As expected |  | This test has passed. |
| 2 | N/A | As expected |  | This test has passed |
| 3 |  | This was not as expected. |  | This test has not passed as there is no information displayed to let the user know why no results have been displayed here. |
| 4 |  | As expected. | The screenshot below shows the results on the results page    The output below confirms that the same logic has been used to reproduce the same results successfully. | This test has passed. |

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| --- | --- | --- | --- |
| Test number | Issue | Resolution | Commentary |
| 3 | User was not informed that no bands had entered the competition when they received a results screen which has not been populated |  | To resolve this issue, I checked to see if any bands existed in the list for the grade. If the list was empty, then instead of trying to get the results for each band, my system will output a message to the screen telling the user what to do as they have selected a grade with no bands entered. |

1. **All users have the ability to login if they have an account.**

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| --- | --- | --- | --- | --- | --- |
| Test number | Description of test | Test data type (Typical/ Extreme/ Invalid) | Tests data to be used | Expected outcome | Test type  (Functional / logical) |
| 1 | Log in with admin credentials | Typical | Username - JStirling454  Password - fc4AM7DvH9 | Welcome message box and user directed to home screen. Band buttons, admin buttons and judge buttons should appear for the user | Functional |
| 2 | Log in with band credentials | Typical | Username - Wayne\_Byrne  Password - Byrne\_Wayne000 | Welcome message box with their name and user directed to home screen. Only Band buttons should appear to user once logged on. | Functional |
| 3 | Log in with judge credentials | Typical | Username - DOfficer295  Password - gh67EC6Hi8 | Welcome message box with their name and user directed to home screen. Only judge buttons should appear to user once logged on. | Functional |
| 4 | Log in with incorrect username | Invalid | Username - DOfficer295  Password – Password123 | Displays an error message as an account with these credentials cannot be found. | Functional |
| 5 | Log in with incorrect password | Invalid | Username - DOfficer295  Password - DOfficer295 | Displays an error message as an account with these credentials cannot be found. | Functional |

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| --- | --- | --- | --- | --- |
| Test number | Evidenced test data | Actual outcome | Outcome screenshot | Comments |
| 1 |  | Outcome was as expected – user has been logged on with correct access level; test has met this criterion. |  | Success – inputted credentials can never be extreme as they have been validated before they have been saved to database and there is no length limit on these fields. |
| 2 |  | Outcome was as expected – user has been logged on with correct access level; test has met this criterion. |  | This test has passed |
| 3 |  | Outcome was as expected – user has been logged on with correct access level; test has met this criterion. |  | This test has passed |
| 4 |  | Outcome was as expected – User has been denied entry and user remains on log in screen; test has met this criterion. |  | This test has passed |
| 5 |  | Outcome was as expected – User has been denied entry and user remains on log in screen; test has met this criterion. |  | This test has passed |

1. **All Account holders have the ability to reset their login credentials.**

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| Test number | Description of test | Test data type (Typical/ Extreme/ Invalid) | Tests data to be used | Expected outcome | Test type  (Functional / logical) |
| 1 | Attempting to reset password for Field Marshall Montgomery with correct username and email address | Typical | “rparkes111”, “rparkes@gmail.com” | The user will be then asked for their security question answer on a new page | Functional |
| 2 | Attempting to reset password for Field Marshall Montgomery with incorrect username | invalid | “rparkes1”, “rparkes@gmail.com” | An error message will appear indicating to the user that their username or email address does not match. Username and password fields will clear | Functional |
| 3 | Attempting to reset password for Field Marshall Montgomery with incorrect email address | invalid | “rparkes111”, “rparkes1234@gmail.com” | An error message will appear indicating to the user that their username or email address does not match. Username and password fields will clear | Functional |
| 4 | Attempting to reset password for Field Marshall Montgomery with incorrect email address and username | invalid | “rparkes1”, “rparkes1234@gmail.com” | An error message will appear indicating to the user that their username or email address does not match. Username and password fields will clear | Functional |
| 5 | Forgot username and password. User has clicked “forgot password” and then pressed “forgot username” button on next screen provided. | Typical | N/A – button press | A message presented to user explaining that they must contact an administrator on the number given. | Functional |
| 6 | Attempting to reset password, entering security question after entering matching username and password | Invalid | “Dublin” | An error message will appear indicating to the user that their security question is incorrect. Answer field will clear | Functional |
| 7 | Attempting to reset password, entering security question after entering matching username and password. The user has entered their security question wrong three times. | Invalid | “Dublin”  “dublin”  “Belfast” | An error message will appear on the first two occasions indicating to the user that their security question is incorrect. Answer field will clear. On the third wrong occasion, the user will be prompted with another error message telling them they have tried incorrectly too many times and to contact an administrator. | Logical |
| 8 | Attempting to reset password - entering security question after entering matching username and password | Typical | “London” | The user will be then asked to enter their new password once they have been able to identify themselves. | Functional |
| 9 | Attempting to reset password – entering new password once successfully matching security question. Both passwords not meeting validation as there is no uppercase letter. | Invalid | “password123”, “password123”, | An error message will appear indicating to the user that their password must contain at least one uppercase character. User will remain on change password page. | Logical |
| 10 | Attempting to reset password – entering new password once successfully matching security question. Both passwords not meeting validation as they are shorter than 8 characters. | Invalid | “Pass123”, “Pass123” | An error message will appear indicating to the user that their password must be at least 8 characters in length. User will remain on change password page. | Logical |
| 11 | Attempting to reset password – entering new password once successfully matching security question. Both passwords not meeting validation as they don’t contain a number | Invalid | “P@ssWord”, “P@ssWord” | An error message will appear indicating to the user that their password must contain more than one number. User will remain on change password page. | Logical |
| 12 | Attempting to reset password – entering new password once successfully matching security question. Password changed and is eight characters in length | Extreme | “bfbdc45D”, “bfbdc45D” | A message to user indicating that the user’s password has been changed. User brought to the Login page. | Logical |
| 13 | Attempting to reset password – entering new password once successfully matching security question. Password fields do not match. | Invalid | “Password123”, “Password321” | An error message to the user indicating to the user that the passwords they have entered do not match. User will remain on change password page. | Functional |

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| --- | --- | --- | --- | --- |
| Test number | Evidenced test data | Actual outcome | Outcome screenshot | Comments |
| 1 |  | As expected. |  | This test has passed. |
| 2 |  | As expected. |  | This test has passed. |
| 3 |  | As expected. |  | This test has passed. |
| 4 |  | As expected. |  | This test has passed. |
| 5 | N/A | As expected. |  | This test has passed |
| 6 |  | As expected. |  | This test has passed. |
| 7 |  | As expected |  | This test has passed. |
| 8 |  | As expected. | This screenshot shows that the security question answer matches the answer in the database allowing the user to change their password. | This test has passed |
| 9 |  | As expected |  | This test has passed |
| 10 |  | As expected. |  | This test has passed |
| 11 |  | As expected. |  | This test has passed |
| 12 |  | As expected. |  | This test has passed |
| 13 |  | As expected. |  | This test has passed |

1. **Update and set password, security question and answer when accounts are logged in for the first time.**

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| Test number | Description of test | Test data type (Typical/ Extreme/ Invalid) | Tests data to be used | Expected outcome | Test type  (Functional / logical) |
| 1 | Logging into an account which has just been initialised by an admin. (FirstLogIn = True) | Typical | N/A | Pop up screen will appear asking user to update and set their password. | Functional |
| 2 | Validation of password | Invalid | N/A | Password will not be accepted unless both match and password contain at least 8 characters long and contains lowercase, uppercase and numbers. | Functional |
| 3 | After setting a valid password in the first-time log in. The user must select a security question and provide an answer. None given | Invalid | No security question selected, no answer given | An error message indicating that the user must select a question. | Functional |
| 4 | After setting a valid password in the first-time log in. The user must select a security question and provide an answer. Question selected but no answer given. | Invalid | What is your favourite team?, “” | An error message indicating that the user must provide an answer to their chosen question. | Functional |
| 5 | After setting a valid password in the first-time log in. The user must select a security question and provide an answer. | Typical | What is your favourite team?, “Northern Ireland” | Updated password saved to database (see objective 5, test 10)  Security question and their answer saved to database.  FirstLogIn set to True in database | Functional |

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| --- | --- | --- | --- | --- |
| Test number | Evidenced test data | Actual outcome | Outcome screenshot | Comments |
| 1 | FirstLogin is set to True as the band has not been logged in before | As expected. |  | This has partly passed. I must disable this pop up window so that the user cannot exit out of it without finishing their account set up. |
| 2 | This is evidenced in the “Forgot Password” objective (5) and uses the same programming constructs. | As expected. | N/A | I have not shown my test for this as I would have been testing the same code as in the re setting password from objective number 5. Please see Tests 9-13. |
| 3 | N/A | As expected. |  | This test has passed |
| 4 |  | As expected. |  | This test has passed. |
| 5 |  | As expected. | This shows the updated security questions being committed to the database and stored againt the account logged in | This test has passed |

1. **Band accounts will have the ability to update the Bands details & their band members details.**

Validation routines that exist are the same as the registering band & registering member forms. I therefore will not test the validation – it can be seen in **objective 10.**

Update Band Details:

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| --- | --- | --- | --- | --- | --- |
| Test number | Description of test | Test data type (Typical/ Extreme/ Invalid) | Tests data to be used | Expected outcome | Test type  (Functional / logical) |
| 1 | Updating bands details. – Vale of Atholl. | Typical | Band Name = “Vale”  Pipe Major’s First Name = “Matthew”  Pipe Major’s Second Name = “Hull”  EmailAddress = “matthewHull23456@gmail.com” | The user will be presented with a message box to confirm the changes to the band account.  BandAccount table will reflect these changes. The respective fields will be updated to contain the test data in replace of the original data.  Email sent to the new pipe major’s email address to confirm changes  User brought back to home screen. | Functional |

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| --- | --- | --- | --- | --- |
| Test number | Evidenced test data | Actual outcome | Outcome screenshot | Comments |
| 1 | Database before.    These details populated in the edit band details page.    Evidence of edited details. | As expected. | These screenshots show the message box presented to the user and the email received by the pipe major. | This test has passed. |

Update Band Member Details:

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| Test number | Description of test | Test data type (Typical/ Extreme/ Invalid) | Tests data to be used | Expected outcome | Test type  (Functional / logical) |
| 1 | Updating members details. – | Typical | Second Name = “Clarke”  AddressLine 1 =”32 Roseville Street”  AddressLine2 = “”  County = Co.Down  Postcode = “BT18 5GH”  EmailAddress = “Patricia.Clarke543@gmail.com” | The user will be presented with a message box to confirm the changes to the Member.  BandMemebers table will reflect these changes. The respective fields will be updated to contain the test data in replace of the original data.  Email sent to pipe major to confirm changes about their member.  Member should also receive confirmation of updating.  Members name will appear updated in the list box to select a member to edit. | Functional |

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| --- | --- | --- | --- | --- |
| Test number | Evidenced test data | Actual outcome | Outcome screenshot | Comments |
| 1 | Database before    The details of the database populated on form.    Evidence form with test data before committing update. | As expected | This screenshot confirms the updated details have been committed the database.    This screenshot shows the name of the member updated in the edit member details list box. |  |

1. **Bands will have the ability to enter and withdraw from competitions**

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| --- | --- | --- | --- | --- | --- |
| Test number | Description of test | Test data type (Typical/ Extreme/ Invalid) | Tests data to be used | Expected outcome | Test type  (Functional / logical) |
| 1 | Displaying a list of all competitions the band hasn’t entered and still can enter in a list box. | Typical | Logged in as Ravara (BandID is 9)  Comps entered are: 2,7,11,12,13  Competitions not entered are: 1,3,14,15  Competitions not drawn are: 14,15 | A list of competitions not entered and not drawn. The list should include two competitions for Ravara, these being Moira championships (15) and Lisburn Championships (14) | Logical |
| 2 | Attempt to enter a competition with no competitions selected | Invalid | None | An error message telling the user to select one or more competitions to be able to enter | Functional |
| 3 | Selecting one competition to enter | Typical | Lisburn Championships | An on-screen message telling user that they have successfully entered the competition(s) and they will receive a confirmation via email. Email received to pipe majors email address confirming entry. | Functional |
| 4 | Selecting multiple competitions to enter | Typical | Lisburn Championships & Moira Championships | An on-screen message telling user that they have successfully entered the competition(s) and they will receive a confirmation via email. Email received to pipe majors email address confirming entry for each competition. | Functional |
| 5 | Selecting a competition to withdraw from which has already been drawn | Typical | Ards and North Down Championships | A confirmation message asking if they want to with draw. On yes button, an error message presented to user stating that the competition cannot be withdrawn from as the draw has already taken place. On no press user returned to withdraw page. | Functional |
| 6 | Selecting a competition to withdraw from which hasn’t been drawn | Typical | Moira Championships | A confirmation message asking if they want to with draw. On yes button, a message to confirm withdraw from competition. Email sent to confirm. Moira is removed from list box. | Functional |

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| --- | --- | --- | --- | --- |
| Test number | Evidenced test data | Actual outcome | Outcome screenshot | Comments |
| 1 |  | As expected. |  | This test has passed |
| 2 | N/A | As expected. |  | This test has passed |
| 3 |  | As expected |  | This test has passed |
| 4 |  | As expected. | The screenshots here show the emails received by the pipe major on entering competitions | This test has passed |
| 5 |  | As expected |  | This test has passed |
| 6 |  | As expected. | This screenshot above show that the band that has entered does not appear in this table anymore so can not be drawn. | This test has passed |

1. **Bands have the option of booking transport.**

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| --- | --- | --- | --- | --- | --- |
| Test number | Description of test | Test data type (Typical/ Extreme/ Invalid) | Tests data to be used | Expected outcome | Test type  (Functional / logical) |
| 1 | Attempt to book transport without completing the given form. / Validation check for the trip type radio buttons. | Invalid | None | An error message will appear. It will be thrown on the trip type validation if form is empty. Message will say trip type is invalid. User to remain on Book Transport page | Functional |
| 2 | Presence check validation for: Pick-up point, pick-up time, Destination, return time, party size and number of instruments. | Invalid | Blank pick-up point field | An error message indicating to the user that the pick-up field is invalid and requesting to enter a pick-up point.  User returned to same form. | Functional |
| 3 | Date validation check for: Pick-up Day, Pick-up Month, Pick-up Year, Return Day, Return Month, Return Year. | Invalid | Blank pick-up day | An error message indicating to the user that the pick-up day is invalid and requesting to enter a pick-up day.  User returned to same form. | Functional |
| 4 | Submitting the completed enquiry | Typical | One Way,  “34 Carnbeg Road”  9 August 2018, “9am”  “Stormont Estate”  9 August 2018, “18:00”  “60”  “Fourty” | User will receive a message indicating that their enquiry has been sent.  A word document is generated with details provided and is attached to an email and sent to the bus company  Pipe Major will also receive a copy for his/her reference |  |

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| --- | --- | --- | --- | --- |
| Test number | Evidenced test data | Actual outcome | Outcome screenshot | Comments |
| 1 |  | As expected |  |  |
| 2 | N/A | As expected |  | The function for this presence check is used throughout the stated fields in the test description and works for all fields. |
| 3 | N/A |  |  | The function for this date check is used throughout the stated fields in the test description and works for all fields. |
| 4 | N/A |  | This screenshot below shows the email of confirmation received by the pipe major of the band that has enqired.    This screenshot below shows the email received by the bus company along with enquiry attached. |  |

1. **Bands have the ability to register new players and transfer existing members.**

I will only show testing extreme data when registering new users or updating users below as the validation used is the same throughout all these features for each specific field.

Register new band members: - For all below I will be registering new members to Broughshane.

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| --- | --- | --- | --- | --- | --- |
| Test number | Description of test | Test data type (Typical/ Extreme/ Invalid) | Tests data to be used | Expected outcome | Test type  (Functional / logical) |
| 1 | Attempt to register a new member without completing registration form. This is also my validation test | Invalid | None | An error message will appear. It will be thrown on the role validation if form is empty. Message will say Role is invalid. User to remain on Register Member page. | Functional |
| 2 | Alphabetic check validation for: first name, second name and Member’s signature fields. | Invalid | Blank first name field | An error message indicating to the user that the first name field is invalid and requesting to  User returned to same form. | Functional |
| 3 | Droplist check validation for: Title, Gender, Day of birth, Month of birth, Year of birth, County | Invalid | No selected title. | An error message indicating to the user that they haven’t selected a title.  User returned to same form. | Functional |
| 4 | Address Line One field validation; - empty | Invalid | Blank Address line one | An error message presented to user telling them that their address line one is invalid. It must include house number and road.  User returned to same form. | Functional |
| 5 | Address line one validation testing where only the road is given and not the house number. | Invalid | “Crum Road” | An error message presented to user telling them that their address line one is invalid. It must include house number and road.  User returned to same form. | Functional |
| 6 | Address line one validation testing where they have only provided a number and not the name of the road. | Invalid | “23” | An error message presented to user telling them that their address line one is invalid. It must include house number and road.  User returned to same form. | Functional |
| 7 | Postcode validation – Postcode longer than 7 characters in length. | Invalid | “BT29 5GHJ” | An error message presented to the user telling them that the postcode they have entered is not valid. The required format is LLNN NLL.  User returned to same form. | Functional |
| 8 | Postcode validation – Postcode less than 6 characters | Invalid | “BT2 5G” | An error message presented to the user telling them that the postcode they have entered is not valid. The required format is LLNN NLL.  User returned to same form. | Functional |
| 9 | Postcode validation – Postcode containing only three letters. | Invalid | “T29 5GH” | An error message presented to the user telling them that the postcode they have entered is not valid. The required format is LLNN NLL.  User returned to same form. | Functional |
| 10 | Postcode validation – not in correct format as numbers come before letters in the first part of the postcode. | Invalid | “29BT 5GH” | An error message presented to the user telling them that the postcode they have entered is not valid. The required format is LLNN NLL.  User returned to same form. | Functional |
| 11 | Postcode Validation – Postcode including a space between the two parts. Email Address is invalid so that program throws an error message after it checks that the email is valid. | Typical | “BT29 5GH” | Program will check the rest of the fields in the form. If the rest of the fields are valid then member will be registered. If not, the program will produce an error message at the invalid field.  User returned to same form. | Functional |
| 12 | Postcode Validation – Postcode not including the space between the two parts. Email Address is invalid so that program throws an error message after it checks that the email is valid. | Typical | “BT295GH” | Program will check the rest of the fields in the form. If the rest of the fields are valid then member will be registered. If not, the program will produce an error message at the invalid field. | Functional |
| 13 | Email Validation – no “@” symbol in email address field | Invalid | “ashly.portergmail.com” | An error message indicating that the email address the user has entered is not valid. | Functional |
| 14 | Email Validation – no “.” symbol after the “@”in the email address field | Invalid | “ashly.porter@gmailcom” | An error message indicating that the email address the user has entered is not valid.  User returned to same form. | Functional |
| 15 | Email Validation – entering a valid email address. Members signature is not valid | Typical | “ashly.porter@gmail.com” | Program will check the last remaining field on the form, Member’s signature, if this is valid then the program will proceed to save details to the database. Program will alert user that members signature is in valid | Functional |
| 16 | Registering a user with fully valid fields | Typical | Piper, Miss, “Ashly”, “Porter”, Female, 4, April, 1992, “23 Crum Road”, “Enniskillen”, County Fermanagh, “BT29 5GH”, “ashly.porter@gmail.com”, “A Porter” | Program will check all validation, which this test will pass. All information will be saved to the database. A pop-up message will be displayed to user to confirm registration. An email will be sent to the pipe major of the band whom the member is now registered to. An email will also be sent to the newly registered member also confirming their registration. | Functional |
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| --- | --- | --- | --- | --- |
| Test number | Evidenced test data | Actual outcome | Outcome screenshot | Comments |
| 1 |  | As expected. |  | This test has passed. |
| 2 | N/A | As expected. |  | This test has passed. |
| 3 | N/A | As expected. |  | This test has passed. |
| 4 | N/A | As expected. |  | This test has passed. |
| 5 | N/A | As expected. |  | This test has passed. |
| 6 | N/A | As expected. |  | This test has passed. |
| 7 | N/A | As expected. |  | This test has passed. |
| 8 | N/A | As expected. |  | This test has passed. |
| 9 | N/A | As expected. |  | This test has passed. |
| 10 | N/A | As expected. |  | This test has passed. |
| 11 | N/A | As expected. |  | This test has passed. |
| 12 | N/A | As expected. |  | This test has passed. |
| 13 | N/A | As expected. |  | This test has passed. |
| 14 | N/A | As expected. |  | This test has passed. |
| 15 | N/A | As expected. |  | This test has passed. |
| 16 | N/A | As expected. | This screenshot below shows the new member with a foreign key relating to the band they have registered with.    This screeshot below shows the email received by the pipe major on registering a new member.      This screenshot above shows the email received by the new member registered with a band. | This test has passed – user has been saved to database and the Band ID of the band they are registered to. |

Transfer existing members:

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| --- | --- | --- | --- | --- | --- |
| Test number | Description of test | Test data type (Typical/ Extreme/ Invalid) | Tests data to be used | Expected outcome | Test type  (Functional / logical) |
| 1 | Attempt to transfer a member without selecting a member from the list box. | Invalid | None | An error message telling the user to select a member to transfer. | Functional |
| 2 | Selecting Colin Torrington to Transfer from Broughshane and not selecting a new band from the list box provided | Invalid | None | An error message warning user that they haven’t selected a band to transfer the member to. | Functional |
| 3 | Selecting Colin Torrington to Transfer from Broughshane and then Field Marshal Montgomery. | Valid | Colin Torrington, Field Marshal Montgomery | The list box of bands will have all the bands that are registered minus the band that the user is currently registered to.  A confirmation message ensuring the user wants to transfer Colin. They must select yes to carry on with the transfer.  An email shall be received by the transferred member to confirm transfer. | Functional |

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| --- | --- | --- | --- | --- |
| Test number | Evidenced test data | Actual outcome | Outcome screenshot | Comments |
| 1 | N/A | As expected. |  | This test has passed |
| 2 | N/A | As expected. |  | This test has passed |
| 3 |  | As expected. |  | The BandID of Colin has been updated to reflect the Band ID of this new band. |

1. **Admins have the ability to carry out these band features above on behalf of the band.**

For this objective, I am only showing the testing of one feature in my test plan as it is the same code implemented to develop this objective for all band features.

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| --- | --- | --- | --- | --- | --- |
| Test number | Description of test | Test data type (Typical/ Extreme/ Invalid) | Tests data to be used | Expected outcome | Test type  (Functional / logical) |
| 1 | Admin attempt to carry out the Enter Competitions Page without selecting the band to carry out this feature on behalf of. | Invalid | None | An error message telling the user to select the band they wish to carry out this feature. | Functional |
| 2 | Admin editing a bands details. They admin will change the practice time of Field Marshal Montgomery | Typical | Field Marshall Montgomery, “Mon; 7:30 – 10:30pm” | Once the admin user has selected and pressed the “select Band” button, the user will be brought to the Bands Details form. It will be populated with the Bands current details using the Band ID of the band the admin selected to query the database of information about the band.  Email sent to PM to confirm changes. | Functional |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Test number | Evidenced test data | Actual outcome | Outcome screenshot | Comments |
| 1 | N/A | As expected |  | Due to the list box design there isn’t much else testing wise than ensuring that if the user presses the button without selecting a band, the error is caught and dealt with by the system. |
| 2 |  | As expected | This screenshot above shows the email the pipe major will receive when the band details have been updated. | This test passed. |

1. **Admins have the ability to add and remove band accounts, judge accounts and admin accounts. When a band account is created an email is sent to the Pipe Major to include the initial log in details.**

I have not shown the testing of my validation for these registration pages with regards to the fields I have already shown in the registration of band members in objective 10. I will test the additional validation on the band registration page and just test the functionality of the other registration pages to ensure they so what they have been designed and implemented to do.

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| --- | --- | --- | --- | --- | --- |
| Test number | Description of test | Test data type (Typical/ Extreme/ Invalid) | Tests data to be used | Expected outcome | Test type  (Functional / logical) |
| 1 | Pressing the register band button before filling out the form. (Validation check for Band name) | Invalid | None | An error message will appear to the user. My program is not able to detect whether the user was meant to press the button or not so when it tries to register the band, it will check validation for the band name field. It will throw this field as invalid as the error for an empty registration form. | Functional |
| 2 | Username validation check – username entered has already been taken | Invalid | “ABellingham584” | An error message stating that the username select is not valid or is already in use. | Functional |
| 3 | Username validation check – no username entered | Invalid | None | An error message stating that the username select is not valid or is already in use. | Functional |
| 4 | Username validation check – length is exactly 8 characters (password invalid will throw an error catching the invalid password after the username has been deemed valid) | Typical | “Abell864” | System will accept username. However, because I will leave the password out to show that the username was accepted, and the next field was validated. | Functional |
| 5 | Password Validation Check – Password too short | Invalid | “Test” | An error message telling user that the password they have entered is invalid. The message will list the requirements of a suitable password; at least 8 characters and contain at least one upper- and lower-case letter and a number. | Functional |
| 6 | Password Validation Check – Password not containing a number | Invalid | “HelloWorld” | An error message telling user that the password they have entered is invalid. The message will list the requirements of a suitable password; at least 8 characters and contain at least one upper- and lower-case letter and a number. | Functional |
| 7 | Password Validation Check – Password not containing an uppercase letter | Invalid | “helloworld3” | An error message telling user that the password they have entered is invalid. The message will list the requirements of a suitable password; at least 8 characters and contain at least one upper- and lower-case letter and a number. | Functional |
| 8 | Password Validation Check – Password not containing a lower-case letter | Invalid | “HELLOWORLD234” | An error message telling user that the password they have entered is invalid. The message will list the requirements of a suitable password; at least 8 characters and contain at least one upper- and lower-case letter and a number. | Functional |
| 9 | Successfully registering a band account. | Typical | Antrim, 3A ,“Aldergrove Orange Hall”, “10 Dublin Road”, “Antrim”, Co Antrim, “BT294HD”, “8-10pm”, “MacLennan”, “Randal”, “Stewart”, ross.martin1201@gmail.com, “RStewart10”, “Winter1820” | A pop-up message will appear to the admin user confirming to them that the account has been made.  Band is saved to the database.  Band is also populated into the bands page.  Email is sent to the pipe major with their initial log on details.  Fields in form are emptied. |  |
| 10 | Integration test – logging into the newly registered band account. | Typical | “RStewart10”, “Winter1820” | User will be presented with a welcome message and the first-time log in window will display for the user of the account to begin to finalise their account details. | Functional |
| 11 | Deletion of a band account | Typical | None | The user will be asked to confirm if they still wish to delete the account. If yes then account deleted else, account will remain. | Functional |

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| --- | --- | --- | --- | --- |
| Test number | Evidenced test data | Actual outcome | Outcome screenshot | Comments |
| 1 | N/A | As expected. |  | This test has passed |
| 2 | N/A | As expected. |  | This test has passed |
| 3 | N/A | As expected. |  | This test has passed |
| 4 | N/A | As expected. |  | This test has passed |
| 5 | N/A | As expected. |  | This test has passed |
| 6 | N/A | As expected. |  | This test has passed |
| 7 | N/A | As expected. |  | This test has passed |
| 8 | N/A | As expected. |  | This test has passed |
| 9 | N/A | As expected. | This screenshot above shows the new band in the bands page.  This screenshot shows the initial email sent to pipe majors of newly registered bands | This test has passed |
| 10 |  | As expected. |  | This test has passed |
| 11 |  | As expected. | This screenshot show that Tullylagon has been deleted from the BandAccount table      This screenshot shows no band members with a bandID of 16 are stored in the BandMembers table. | This test has passed.  Like said in the messagebox, when this band is deleted, all the members of this band are also deleted.  Because the band has been deleted you can be assured it will not appear in any list boxes through my program allowing you to select it etc.  However, any remaining competitions that they have entered will still remain if they have been drawn. Else the entry to the competition will be deleted. This is because the drawn will have already been sent out to all the bands and therefore can not be removed from the drawn competition. |

1. **Admins have the ability to create, update, delete and draw individual competitions.**

Creation, updating and deletion of competition:

All validation used in this form has already been testing in above objectives. In this objective I will just be testing the functionality of the feature.

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| --- | --- | --- | --- | --- | --- |
| Test number | Description of test | Test data type (Typical/ Extreme/ Invalid) | Tests data to be used | Expected outcome | Test type  (Functional / logical) |
| 1 | Creation of a competition | Typical | “Mid Ulster Championships”, 2, June, 2018, “Cookstown High School”, 2, April, 2018 | Competition saved to database.  Competition listed in Competitions page, and when click it will say hasn’t been drawn yet.  Also, will appear in the enter competitions list box. | Functional |
| 2 | Updating the competition | Typical | “Cookstown Grammar School” | The location of the competition will be updated to the test data of this test.  Competitions page will reflect this update. | Functional |
| 3 | Deletion of a competition | Typical | Deletion of Co. Down Championships | The competition will be deleted from competitions table in database. All Bands entered into the competition will be deleted, any entered bands draw if it had taken place along with the corresponding records in the results table for each drawn band in the competition.  Competition removed from list boxes and competitions page. | Functional |

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| --- | --- | --- | --- | --- |
| Test number | Evidenced test data | Actual outcome | Outcome screenshot | Comments |
| 1 |  | As expected | This screenshot shows the updated competition details on the competition page. | This test has passed. |
| 2 | N/A | As expected | This screenshot shows the new competition created in the list of competitions on the competitions page. | This test has passed. |
| 3 |  | As expected | This screenshot shows that all details stored about the competitions have been deleted from the competitions table    This screenshot shows that all the bands entered the competitions have been deleted      This screenshot shows the deletion of the competition as it has been removed from the database.    This screenshot shows the competition now does not appear on the competitions page either | This test passed |

Drawing competitions:

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| --- | --- | --- | --- | --- | --- |
| Test number | Description of test | Test data type (Typical/ Extreme/ Invalid) | Tests data to be used | Expected outcome | Test type  (Functional / logical) |
| 1 | Attempting to draw a competition without selecting a competition. | Invalid | None | Message to user – they must select a competition to draw | Functional |
| 2 | Ensuring only competitions that haven’t been drawn appear in the list box to be drawn | Typical | None | Only the competitions that have the drawn flag set to “False” will populate the list box | Functional |
| 3 | Selecting a competition. | Typical | Moira Championships | A list of grades will be shown. | Functional |
| 4 | Not selecting a grade | Invalid | None | A message telling user to select a grade. | Functional |
| 5 | Selecting a grade with only one band entered. | Extreme | Moira Championships, 1 | Draw screen populated with the Band ID and an entry box for the circle number and another for the competing time. | Functional |
| 6 | Selecting a grade with two bands entered. | Typical | Moira Championships, 2 | Draw screen populated with the Band ID and an entry box for the circle number and another for the competing time for both bands. | Functional |
| 7 | Selecting a grade with no bands entered | Typical | Moira Championships, Grade = 3B | Message box letting user know there are no bands entered this grade. Grade will be removed from the grade list. | Functional |
| 8 | Entering a circle number that is not between the range of possible circles. | Invalid | Circle Number = “0”  AND  Circle Number = “7” | The user will receive a message stating that the circle number must be between 1 and 6. | Functional |
| 9 | Entering a circle number that will test the limits of my validation | Extreme | Circle Number = “1”  AND  Circle Number = “6” | System will send email to band as these circle numbers are valid. | Functional |
| 10 | Entering the earliest competing time and latest competing time | Extreme | Competing Time = “9”,”00”  Competing Time = “17”,”59” | System will send email to band as these competing times are valid. | Functional |
| 11 | Entering an invalid hour and minute for competing time. | Invalid | Competing Time = “5”, “00”  Competing Time = “9”, “69” | System will produce a messagebox. It will state that the time chosen is not between the hours of 9am and 6pm | Functional |
| 12 | Completing draw by entering a valid circle number and competing time. | Typical | Grade 1 – Circle Num = “1” Competing time = “10”, “00”  Grade 2 – Circle Num = “2” Competing time = “10”, “00”, Circle Num = “2” Competing time = “10”, “10”  Grade 3A – Circle Num = “3” Competing time = “10”, “30”  Grade 3B – Circle Num = “4” Competing time = “10”, “50”  Grade 4B – Circle Num = “5” Competing time = “11”, “00” | Grade to be drawn must be selected. The order of grade selected does not matter. Once the grade has been drawn, a message box will appear to user to tell them the draw has been sent and saved. The email sent is to all of the bands entered. The user will then be presented back to the grade list box. Only the grades that haven’t been drawn will be shown in the list box. Once all grades have been drawn, another message will let the user know that all grades have been entered, User will be returned to the list of competitions to be drawn.  Drawn flag set to true – Band does not appear in drawn competition list box.  Competition Draw now available on competitions page for all bands to view.  Competition draw saved to database and number of bands in each grade.  Results record made for each entry where judges scores are saved to on competition day. | Functional |

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| --- | --- | --- | --- | --- |
| Test number | Evidenced test data | Actual outcome | Outcome screenshot | Comments |
| 1 | N/A | As expected. |  | This test has passed. |
| 2 |  | As expected. |  | This test has passed. |
| 3 | N/A | As expected. |  | This test has passed. |
| 4 | N/A | As expected. |  | This test has passed. |
| 5 | N/A | As expected. |  | This test has passed. |
| 6 | N/A | As expected. |  | This test has passed. |
| 7 | N/A | As expected |  | This test has passed |
| 8 | N/A | This outcome was not as expected. My validation had not caught the “0” as an invalid entry. |  | This test failed. However since then I have been able to fix this issue and the user will now receive a message as input is invalid. To fix this bug I had to correct the condition from the value being “>= 0” to “> 0”. |
| 9 | N/A | As expected |  | This test has passed |
| 10 | N/A | As expected. |  | This test has passed. |
| 11 | N/A | As expected. |  | This test has passed |
| 12 |  | As expected | This screenshot shows the email sent to every band once the draw has taken place.  This screenshot below shows the output that has been produced and sent to each band in each grade              This screenshot above shows that all bands have been sent the draw for their grade.    Example of the draw as seen on the competitions page.    This screenshot above shows the creation of the results record for each band once the draw has taken place  This screenshot below shows all the bands Drawn information which can be found on the competitions page.    This screenshot shows the number of band that have entered each grade which has been calculated after the competition has been drawn. | This test has passed |

1. **Judges have the ability to write comments about each section and the score bands in competitions.**

Before a judge has the ability to write their comments about the performing band, they must navigate their way through a selection of list boxes. These list boxes ensure that the judge has selected a competition, then the grade they wish to judge and then the section they are judging until they get to list of bands. They can then write their comments and update them if they wish by selecting the band again. Once all the bands have competed. They must score (rank) all the bands in that particular grade. The first test will show the progression of screens until the judge gets to the comments sheet.

Writing Comment sheets:

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| --- | --- | --- | --- | --- | --- |
| Test number | Description of test | Test data type (Typical/ Extreme/ Invalid) | Tests data to be used | Expected outcome | Test type  (Functional / logical) |
| 1 | Navigation testing to the comments sheet for the piping 1 section of Vale of Athol in grade 2 in the Moira championships. | Typical | Moira Championships,  2,  Vale of Athol,  Piping 1. | The user after each selection will be presented with another selection to make. The screen will have the relevant information on what the user must select.  For example, When the user selects the grade of the competition. They will be brought to the Select grade page where should tell the user to select the grade they would like to judge.  They is repeated with the bands in the grade and the section they judge is scoring.  Finally, the user will be presented with a text area to record their comments about the performance and press save once they are finished. | Functional |
| 2 | Navigation testing – not selecting a competition. | Invalid | None | User presented a message box telling them they must select a competition. | Functional |
| 3 | Navigation testing – not selecting a grade. | Invalid | None | User presented a message box telling them they must select a grade. | Functional |
| 4 | Navigation testing – not selecting a band. | Invalid | None | User presented a message box telling them they must select a band. | Functional |
| 5 | Navigation testing – not selecting a section. | Invalid | None | User presented a message box telling them they must select a section. | Functional |
| 6 | Entering all sections comments for all bands in grade 2 in the Moira Championships.  For each comment sheet instead of writing comments about a bands performance I will populate the comments with the details of the competition, band name and section, I am writing about to show how the data is being saved to the database. | Typical | <CompetitionName>, <BandName>, <Section> | Once the judge has pressed the save button to save their comments about a band, will they be shown back to the list of bands in the grade. Where they can select the next band that is competing. | Logical & Functional |
| 7 | Logging in as another judge to test if the ID of the judge is being recorded properly | Typical | Logging on as Winston Pollock. | The Judge ID saved to the database will be of Winston pollocks (2) | Functional |

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| --- | --- | --- | --- | --- |
| Test number | Evidenced test data | Actual outcome | Outcome screenshot | Comments |
| 1 | N/A | As expected. |  | This test has passed |
| 2 | N/A | As expected. |  | This test has passed |
| 3 | N/A | As expected. |  | This test has passed |
| 4 | N/A | As expected. |  | This test has passed |
| 5 | N/A | As expected. |  | This test has passed |
| 6 | Example as it is not necessary to show myself entering all comments as it would be too tedious: | As expected. | Outcome after all bands in the grade have competed and judges have submitted their comments.    This screenshot shows that the results are being saved to the correct field in the database (Ravara’s Band ID is 9) | This test has passed |
| 7 |  | As expected. | This screenshot shows that Winston Pollock has been the Piping 2 judge for this competition. |  |

Scoring bands:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Test number | Description of test | Test data type (Typical/ Extreme/ Invalid) | Tests data to be used | Expected outcome | Test type  (Functional / logical) |
| 1 | Once the judge as entered their comments about all bands. They must select the enter score button. This will then move them to another page where they must select the section to enter the scores of then another page to rank the bands of the grade they have just judged. | Typical | None | After selecting the section to enter scores, the user will be brought the enter scores page. For every band entered the competition, they will find an entry box to enter their score for the band. | Functional |
| 2 | Entering the same score for both bands. | Invalid | “1”, “1” | A message box appears to user that entered scores are not valid. The scores entered must be between 1 and the number of bands entered the grade and scores must not be used twice. | Functional |
| 3 | Entering a score above the number of bands entered. | Invalid | “1”, “3” | A message box appears to user that entered scores are not valid. The scores entered must be between 1 and the number of bands entered the grade and scores must not be used twice. | Functional |
| 4 | Entering a negative score for the band | Invalid | “-1”, “2” | A message box appears to user that entered scores are not valid. The scores entered must be between 1 and the number of bands entered the grade and scores must not be used twice. | Functional |
| 5 | Entering a letter instead of a number | Invalid | “L”, “2” | A message box appears to user that entered scores are not valid. The scores entered must be between 1 and the number of bands entered the grade and scores must not be used twice. | Functional |
| 6 | Entering valid scores for both bands in the grade for piping 1. | Typical | “2”, “1” | Band Scores saved to the database.  Program checks to see if both piping 1 and piping 2 have been entered, if so program will calculate the total piping score for each band.  Message box to tell judge scores have been saved. | Functional |
| 7 | Entering valid scores for both bands in the grade for piping 2. | Typical | “2”, “1” | Band Scores saved to the database.  Program checks to see if both piping 1 and piping 2 have been entered, if so program will calculate the total piping score for each band.  Ravara should have a total piping score of 4 and Vale of Athol should have a total score of 2 | Functional |
| 8 | Entering Score for Piping 2 first, then Piping 1. This is testing to ensure that the total score is still calculated if scores are entered the opposite way around. | Typical | “1”, “2”  “1”, “2” | Ravara will have piping 1 & 2 score of 1  Vale will have piping 1 & 2 score of 2  Ravara should have a total piping score of 2 and Vale of Athol should have a total score of 4. | Functional |
| 9 | Entering Drumming Score | Typical | None | User must select the best Bass section as well as entering the section score | Logical |
| 10 | Entering Ensemble Score | Typical | None | User must select the band with best Marching and deportment as well as entering the section score | Logical |
| 11 | Not selecting a band for best Bass section | Invalid | None | A message box displayed to user telling them to select a band for best Bass section | Functional |
| 12 | Selecting Ravara as best Bass section in grade 2 of Moira Championships | Valid | Ravara | Scored saved message box.  Ravara is saved as best Bass section for grade 2 in the record for the Moira Championships. | Logical |
| 13 | Not selecting a band for best Bass section | Invalid | None | A message box displayed to user telling them to select a band for best Bass section | Functional |
| 14 | Entering Vale of Athol as the band with best M&D in the ensemble scoring page. | Typical | Vale of Athol | A message box displayed to user telling them to select a band for best M&D | Functional |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Test number | Evidenced test data | Actual outcome | Outcome screenshot | Comments |
| 1 | N/A | As expected. |  | This test has passed |
| 2 |  | As expected. |  | This test has passed |
| 3 |  |  |  |  |
| 4 |  |  |  |  |
| 5 |  | System Crashed. |  | This test failed when it tried to convert a letter to an integer. |
| 6 | N/A |  |  |  |
| 7 | N/A | As expected | Shows the database after the data has been committed | This test has passed. |
| 8 |  | As expected | Database after only piping 2 entered    Database once piping 1 is entered. | This test has passed. |
| 9 |  | As expected |  | This test has passed. |
| 10 |  | As expected |  | This test has passed. |
| 11 |  | As expected |  | This test has passed. |
| 12 |  | As expected. | This screenshot shows that Ravara have been saved as G2 best Bass section for Moira Championships. | This test has passed. |
| 13 |  | As expected. |  | This test has passed. |
| 14 |  | As expected. | This screenshot shows the inputted data being saved to the database under the correct competition. | This test has passed. |

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| --- | --- | --- | --- |
| Test number | Issue | Resolution | Commentary |
| 5 | Program can’t convert a letter to an integer. |  | I included an additional comparison check to ensure that all invalid data which could be entered would be caught. I created a statement where I checked if the digit was not a number. If the data wasn’t a number then I set it to “0” so that during the remainder of the validation routine it got caught instead and the message box was hit. |

1. **Admins then have the ability to collate the judges results and produce the results and send them to all bands and update the latest results feed on home page.**

Collating and production of results from judges scores:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Test number | Description of test | Test data type (Typical/ Extreme/ Invalid) | Tests data to be used | Expected outcome | Test type  (Functional / logical) |
| 1 | Displaying only competitions that have been drawn and not already collated will appear in the list box | N/A | None | Only competitions that have the Drawn flag set to True and the Collated flag set to False will appear in the list box. | Logical |
| 2 | Pressing the select competition button without selecting a competition from the list box of competitions | Invalid | None | A message box telling user to select a competition to collate its results | Functional |
| 3 | Pressing button to collating results of Moira Championships | Typical | None | Total score for every band in competition calculated.  For each grade, the bands scores are compared and then are placed from 1st to last. In the event of two or more bands getting the same score, the ensemble score of the bands are compared and the band with the lowest ensemble score are placed ahead of the other. These positions are saved to the database.  For each band, their comments sheets are produced using the docx library, with the judge who marked them the competitions details and their written comments. The file is named using the Entry ID as this is unique and saved to database. Message box displayed once all sheets have been created.  The full results are also produced, the scores for each section for each band in every grade are published in this document along with their total score and position. The grade is then ranked by Position for the first band is at the top and last is at the bottom. The individual best bass and best M&D will also be found after the full results summary for each grade. | Logical |
| 4 | Creating results whereby two bands will have the same overall score to ensure my program is able to order them by ensemble score in this case. | Typical | Vale of Athol - Total score = 6, Ensemble Score = 2  Ravara – Total Score = 6, Ensemble Score = 1 | Ravara will be first as they have the lowest ensemble score | Logical |
| 5 | Creating full results when no bands have entered the grade. | Typical | Grade 3A in Moira Championships | The results sheet for this grade will just show no bands. For the individual prizes, they will just be blank. | Functional |

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| Test number | Evidenced test data | Actual outcome | Outcome screenshot | Comments |
| 1 |  | As expected. | This screenshot shows the populated list box with all the competitions that are eligible for collation. | This test has passed |
| 2 | N/A |  |  |  |
| 3 | Entry ID 75 is Ravara  Entry ID 76 is Vale of Athol | As expected. | This screenshot shows the breakdown of all the section results. The highlighted are Ravara and Vale of Athol. The results seen here are correctly reflected in both Outputs.    This example results sheet shows that the band has been matched along with the piping 1 comments.    The following screenshots show the full results summary which has been produced from the results of the competition in the database | This test has passed. I have been able to check using Broughshane as an example for the comment sheets that they have been created with the correct information due to the comments relating to the section and band.  I have manually checked to ensure all the results found in the full results summary are correct and all information has been pulled and populated in the output correctly.  The grade 2 results show that the bands are displayed and ordered by overall position. |
| 4 |  |  |  |  |
| 5 | N/A | As expected. |  | This test has passed |

Sending results and updating results feed:

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| --- | --- | --- | --- | --- | --- |
| Test number | Description of test | Test data type (Typical/ Extreme/ Invalid) | Tests data to be used | Expected outcome | Test type  (Functional / logical) |
| 1 | Viewing competitions in the Results list box | N/A | None | Only competitions that have the Collated Flag set to True and The SentToBands Flag sent to False should appear in this list box. | Functional |
| 2 | Sending Results to Bands | Typical | Moira Championships | All Bands registered to the association will receive a copy of the results file attached to an email sent from the association.  Each band entered will then receive their comments sheets individually. | Functional |
| 3 | Updating the Results news feed on sending of Results | Typical | Moira Championships | Home page Latest results will be updated to the most recently sent out results, as the Latest Flag is set to False for all Bands and the competitions just sent is set to True. | Functional |

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| --- | --- | --- | --- | --- |
| Test number | Evidenced test data | Actual outcome | Outcome screenshot | Comments |
| 1 |  | As expected | This shows the competitions in the results listbox | This test has passed |
| 2 |  | As expected | This screenshot shows the full results sheet being sent to all bands.        This screenshot shows all 6 emails being sent to the entered bands with their comments attached.    This is an example email sent to an entered band with their results attached. | This test has passed |
| 3 |  | As expected. |  | This test has passed |

**Extreme testing field data**

I have extensively tested all data that could be inputted into my system from filling out the many forms on my system. Below I have shown examples of the extreme tests that I have performed on my system to ensure it meets the required criteria of field length in my data structure design in my design section.

The following tests are to ensure extreme data can be entered into my system and still be accepted:

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| --- | --- | --- | --- | --- | --- |
| Test number | Description of test | Test data type (Typical/ Extreme/ Invalid) | Tests data to be used | Expected outcome | Test type  (Functional / logical) |
| 1a | Testing to ensure extreme data can be entered into my system and still be accepted:  BandName can take a length of 30 characters. | Extreme | “abcdefghijklmnopqrst uvwxyzabcd” | Band Name will be accepted | Logical |
| 1b | BandName can take a length of 31 characters. | Invalid | “abcdefghijklmnopqrst  uvwxyzabcde” | Band Name will not be accepted | Logical |
| 2a | Address Line 1 can be a length of 60 | Extreme | “1abcdefghijklmnopqrst uvwxyzabcdefghij klmnopqrstuvwxyz  abcdefg” | Address Line 1 will be accepted | Logical |
| 2b | Address Line 1 cannot be a length of 61 | Invalid | “1abcdefghijklmnopqrst uvwxyzabcdefghij klmnopqrstuvwxyz  abcdefgh” | Address Line 1 will not be accepted | Logical |
| 3a | Address Line 2 can be a length of 60 but not 61 | Extreme | “1abcdefghijklmnopqrst uvwxyzabcdefghij klmnopqrstuvwxyz  abcdefg” | Address Line 2 will be accepted | Logical |
| 3b | Address Line 2 cannot be a length of 61 | Invalid | “1abcdefghijklmnopqrst uvwxyzabcdefghij klmnopqrstuvwxyz  abcdefgh” | Address Line 2 will not be accepted | Logical |
| 4a | Email address can be a length of 60 | Extreme | “abcdefghijklmnopqrst uvwxyzabcdefghij klmnopqrstu@wxyz.  abcdefg” | Email Address will be accepted | Logical |
| 4b | Email address cannot be a length of 61 | Invalid | “abcdefghijklmnopqrst uvwxyzabcdefghij klmnopqrstu@wxyz.  abcdefgh” | Email Address will not be accepted | Logical |
| 5a | First name can be a length of 20 | Extreme | “Abcdefghijklmnopqrst” | First name will be accepted | Logical |
| 5b | First name cannot be a length of 21 | Invalid | “Abcdefghijklmnopqrstu” | First name will not be accepted | Logical |
| 6a | Second name can be a length of 20 | Extreme | “Abcdefghijklmnopqrst” | Second name will be accepted | Logical |
| 6b | Second name cannot be a length of 21 | Invalid | “Abcdefghijklmnopqrstu” | Second name will not be accepted | Logical |
| 7a | Username can be of length 20 | Extreme | “Abcdefghijklmnopqrs1” | Username will be accepted | Logical |
| 7b | Username cannot be of length 21 | Invalid | “Abcdefghijklmnopqrst1” | Username will not be accepted | Logical |
| 8a | Password can be of length 20 | Extreme | “Abcdefghijklmnopqrs1” | Password will be accepted | Logical |
| 8b | Password cannot be of length 21 | Invalid | “Abcdefghijklmnopqrst1” | Password will not be accepted | Logical |

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| --- | --- | --- | --- | --- |
| Test number | Evidenced test data | Actual outcome | Outcome screenshot | Comments |
| 1a |  | As expected |  | This test has passed |
| 1b |  | As expected |  | This test has passed |
| 2a |  | As expected |  | This test has passed |
| 2b |  | As expected |  | This test has passed |
| 3a |  | As expected |  | This test has passed |
| 3b |  | As expected |  | This test has passed |
| 4a |  | As expected |  | This test has passed |
| 4b |  | As expected |  | This test has passed |
| 5a |  | As expected |  | This test has passed |
| 5b |  | As expected |  | This test has passed |
| 6a |  | As expected |  | This test has passed |
| 6b |  | As expected |  | This test has passed |
| 7a |  | As expected |  | This test has passed |
| 7b |  | As expected |  | This test has passed |
| 8a |  | As expected |  | This test has passed |
| 8b |  | As expected. |  | This test has passed |