­­­G51FSE Assessed Lab 4

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| **The Assemblers with Flip-Flops** |  | 09/03/2018 |

# 3. Test Plans

This section of the software specification document highlights the details of the system through the use of Unified Modelling Language and prototypes.

We have added some additional columns to the bug table. These are notes and a description for the changes are given in this paragrah.We have decided to have additional columns in the test table so we can provide more detail about the tests carried out. This will increase the traceability of the tests and make the changes easier to see. Firstly, we added **a Test ID** so that we can have a unique id for each test carried out. This will make it easier to refer back to the tests later on in the document. In addition to this, we added a column for prerequisite which will store detail about what other functions need to be performed before this test is carried out. Next, we included a column for the **actual output**. This is necessary so that we can compare if the expected output matches the actual output. If it doesn’t, a reason must be provided as to why and most likely there is an error/flow in the program. In addition to this, we added a column called ‘**test created by’**. This will hold the name of the person who created the tests and carried it out. This will increase accountability. Next, we added a column called ‘**pass or fail’**. This will make it easier to see the number of tests that has passed without the person having to read the details of each individual test. We then created a column which will store the **date** that the test has been carried out on. This will make it easier to see which version of a test is the latest if a test had been carried out multiple times. Finally, we added a column for **notes** which can be used to store additional details about the tests that does not fall into any other category. For example, if a test has failed, the notes could include a description as to why the test has failed.

Company Email System (Main Class)

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| Test ID | Function Name | Test Aim (From perspective of method/how method handles this) | Source: Spec or code inspection | Test Created By | Pre-Requisites | Inputs (+ examples) | Expected Output(s) | Actual Output | Pass / Fail | Date | Tested By | Notes (Questions/Assumptions) |

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| Test ID | Function Name | Test Aim | Source: Spec or code inspection | Test Created By | Prerequisite | Inputs | Expected Output(s) | Actual Output | Pass / Fail | Date (Completed by) | Tested By | Notes |
| 301 | Main Method | Testing the user sees the correct menus when not in a project. | Class Description | Aidan Reed | N/A | N/A | A list of user options:   * See a list of projects * Add a new project * Viewing a project * Exit the system | A list of user options:   * See a list of projects * Add a new project * Viewing a project * Exit the system | PASS | 01/05/2018 | Aidan Reed |  |
| 302 | Main Method | Ensures the system exists at the main menu when user types X | Class Description | Aidan Reed | Create input streams and buffer the required inputs before launching main | “X” | System should output Good Bye! | Good Bye! | PASS | 01/05./2018 | Aidan Reed |  |
| 303 | Main Method | Tests the ArrayList can grow to large size | Class Description | Aidan Reed | Create 10,000 Projects after initializing project array | N/A | When checking size of array list should be 10000 | Error: Complication | FAIL | 01/05/2018 | Aidan Reed | Error: Complication Error method is not public and Projects array is not public |
| Error: No Line found | FAIL | 02/05/2018 | Aidan Reed | Failure: no line found CompanyEmailSystem - 112 |
| 10000 | PASS | 03.05.2018 | Christian Stubbs | Passed after adding a new line to the input stream before hand full notes can be found under BUG301 – CS 03.05.2018 |
| 304 | List Project | Checks that the function returns the correct number of projects created | Class Description | Aidan Reed | Initialize the Projects array and add 5 emails with constant **KPTITLE1 + I** the index of for loop | **KPTITLE1 + I** the index of for loop to create the projects | The list of projects in the format:   1. **kPTITLE1 + I** [Design] – 0 emails] | Error: Complication Error: No Line found | FAIL | 01/05/2018 | Aidan Reed | Error: Complication Error method is not public |
| Error: No Line found | FAIL | 02/05/2018 | Aidan Reed | Failure: no line found CompanyEmailSystem – 112 |
| 5 Emails created in expected output format | PASS | 03.05.2018 | Christian Stubbs | Passed after adding a new line to the input stream before hand full notes can be found under BUG301 – CS 03.05.2018 |
| 305 | List Project | Checks projects are listed correctly with the correct stages and email count. 6 projects should be created one for each phase each with 0 email counts | Class Inspection | Aidan Reed | Creates 6 email projects and sets the correct phase | N/A | 1. **kPTITLE**1 + I [Feasibility] – 0 Emails 2. **kPTITLE1** + I [Design] – 0 Emails | Error: Complication | FAIL | 01/05/2018 | Aidan Reed | Error: Complication Error method is not public |
| Error: No Line found | FAIL | 02/05/2018 | Aidan Reed | Failure: no line found CompanyEmailSystem – 112 see BUG301 |
| … 0emails | FAIL | 03/05/2018 | Christian Stubbs | No space between count and word emails – logged |
| Expected Result | PASS | 03.05.2018 | Christian Stubbs | After changes were made relating to BUG303 the system now produces string in correct format |
| 306 | List Project | Checks the correct formatting when | Code Inspection | Aidan Reed | Creates 1 project and adds 10000 emails to the project | N/A | 1. kPTITLE1 [Feasibility] – 10000 emails | Error: Complication | FAIL | 01/05/2018 | Aidan Reed | Error: Complication Error method is not public |
| Error: No Line found | FAIL | 02/05/2018 | Aidan Reed | Failure: no line found CompanyEmailSystem – 112 see BUG301 |
| kPTITLE1 [Feasibility] – 10000 emails | PASS | 03.05.2018 | Christian Stubbs | After changes made to inputs – see BUG301 The tests stopped producing errors and produced the correct result – Note test was run after BUG303 was fixed so formatting bug would of impacted this too |
| 307 | Add Project | Ensures the project title added as input is correctly the system provided feedback [Project added] | Class Description | Aidan Reed | Initialize the Projects array and create a project with title **KPTITLE1** | Project Title **KPTITLE1** | System output [Project added] | Error: Complication | FAIL | 01/05/2018 | Aidan Reed | Error: Complication Error method is not public |
| Error: No Line found | FAIL | 02/05/2018 | Aidan Reed | Failure: no line found CompanyEmailSystem – 112 – See BUG301 |
| System output [Project added] | PASS | 03.05.2018 | Christian Stubbs | After changes made to inputs – see BUG301 The tests stopped producing errors and produced the correct result |
| 308 | Add Project | Ensures the project is created and title is set correctly | Class Description | Aidan Reed | Initialize the Projects array and create a project with title **KPTITLE1** | Project Title **KPTITLE1** | When calling get Project title **KPTITLE1** should be displayed | Error: Complication | FAIL | 01/05/2018 | Aidan Reed | Error: Complication Error method is not public |
| Error: No Line found | FAIL | 02/05/2018 | Aidan Reed | Failure: no line found CompanyEmailSystem – 112 – See BUG301 |
| **KPTITLE1** | PASS | 03/05/2018 | Athullya Roy |  |
| 309 | Add Project | Checks that the project is created if the user does not enter a name the project should be created with a default name “New Project” | Class Description | Aidan Reed | Initialize the Projects array and create a project with no title | N/A | When calling get Project title New project should be displayed | Error: Complication | FAIL | 01/05/2018 | Aidan Reed | Error: Complication Error method is not public |
| Error: No Line Found | FAIL | 02/05/2018 | Aidan Reed | Failure: no line found CompanyEmailSystem – 112 – See BUG301 |
| Empty String | FAIL | 03.05/2018 | Christian Stubbs | The system does not check the title of the project and instead creates empty string |
| New Project | PASS | 03/05/2018 | Aidan Reed | After fixes implemented in BUG303 System now produces correct result. |
| 310 | List Emails | Tests that the function returns the emails set in the current stage – in this test this will be the initial stage | Class Description | Aidan Reed | Initialize the Projects array and create a project add email with **KSENDER kRECIPIENT KSUBJECT KBODY1** used for the inputs | N/A | Returns the sender and subject in format :  From: Subject | Error: Complication | FAIL | 01/05/2018 | Aidan Reed | Error: Complication Error method is not public |
| Error: No Line Found | FAIL | 02/05/2018 | Aidan Reed | Failure: no line found CompanyEmailSystem – 112 |
| Returns the sender and subject in format :  From: Subject | PASS | 03/05/2018 | Athullya Roy | After input stream issues were fixed highlighted in bug 301 the test was able to run successfully |
| 311 | List Emails | Tests the function with an invalid phase ID | Code Inspection | Ram Raja | Initialize the Projects array and create a project | Phase ID 20000 into method ListEmails | Should not return any emails With an error message: Error: Unknown Phase | Error: Unknown Phase | PASS | 03.05.2018 | Christian Stubbs | Although system outputted error this was expected as the phaseID entered was invalid |
| 312 | List Phase | Checks the initial phase of a project with 5 emails added to the project | Code Inspection | Ram Raja | Initialize a project and add five emails – reset output streams then call list phases | N/A | 1. Feasibility – 5 Emails | [] Empty String | FAIL | 03/05/2018 | Aidan Reed | The system did not output anything – upon further investigation a bug within the function has been logged BUG304 |
| Feasibility – 5 Emails | PASS | 03.05.2018 | Christian Stubbs | The fixes applied to BUG 304 through CHGE305 |
| 313 | List Phase | Creates a project and moves it through the 6 stages adding more emails to each phase as each phase passes. E.g:  Feasibility - 1 Email  Design – 2 Emails  At feasibility stage 1 email is added and then another 2 are added at Design – total 3 – repeat for rest of stage | Code Inspection | Ram Raja | Initialize the project array and add email with **KSENDER kRECIPIENT KSUBJECT KBODY1**  When iterating through the for loop | N/A | 1. Feasibility - 1 Emails 2. Design – 2 Emails 3. Implementation – 3 Emails 4. Testing – 4 Emails 5. Deployment – 5 Emails 6. Completed – 6 Emails | 1. Completed – 2 Emails 2. Completed – 3 Emails 3. Completed – 4 Emails 4. Completed – 5 Emails | FAIL | 03/05/2018 | Aidan Reed | The test result has two issues – the first is the stages are all the same with different email counts BUG304. The second is the number of phases returned back. The first and last stage are missing from the results BUG305 |
| Expected output – not included because lengthy | PASS | 03/05/2018 | Aidan Reed | After the issues were resolved in BUGS 304 and 305 the system now produces the correct result when calling this function. |
| 314 | List Contacts | Tests the function returns the correct number of contacts added to project | Code Inspection | Aidan Reed | Initialize the project array adding contacts **KCONTACT1 kCONTACT2 kCONTACT3** | N/A | 1. **KCONTACT1** 2. **KCONTACT2** 3. **KCONTACT3** | 1. **KCONTACT1** 2. **KCONTACT2** 3. **KCONTACT3** | PASS | 03/05/2018 | Aidan Reed | Note Constants used in these tests can be found above this table and also in the Junit test at the top of the code. |
| 315 | Add Email | Tests the function provides the correct prompts to the user in a normal scenario | Class Description | Aidan Reed | Initialize a project and with title **kPTITLE1** | **kSENDER kRECIPIENT kSUBJECT1 kBODY1** | Which email address is this from?  Which email address is this to?  What is the Subject?  What is the Message?  Email added to **kPTITLE1** | Correct question flow but the system prompt [Email added to **kPTITLE1** [Feasibility]] was not expected | FAIL | 03.05.2018 | Ram Raja | The test needs expected output needs editing to include the current phase – The test was did not anticipate this. |
| Same as above but  [Email added to **kPTITLE1** [Feasibility]] | Correct Output | PASS | 03/05/2018 | Aidan Reed | The test was modified due to a slight formatting error in the expected output |
| 316 | Main Method | Ensure the user sees the correct menus when in a project. | Code Inspection | Ram Raja | A project must be selected | Enter a number to access a project | Display project menu, consisting of the following options:  - List Emails  - Add Email  - List Phase Folders  - Move to Next Phase  - List Emails in Phase  - List Contacts  - Exit Project | Displays project menu, consisting of the following options:  - List Emails  - Add Email  - List Phase Folders  - Move to Next Phase  - List Emails in Phase  - List Contacts  - Exit Project | PASS | 03/05/2018 | Ram Raja |  |
| 317 | Main Method | Test the user cannot access a nonexistent project. | Code Inspection | Ram Raja | N/A | Enter non-existent project numbers. I.e. negative numbers and non-existent positive numbers.  Numbers input:   1. “-1” 2. “-7” 3. “7” | Inability to access the projects requested.  “Command not recognised” | Passed for input of “-1”  Projects menu displayed for inputs of “-7”, “7”, “99”. | FAIL | 03/05/2018 | Aidan Reed | The Project menus were displayed when passing values -7 7 and 99 |
| Command not recognized for all out of bounds inputs | PASS | 03/05/2018 | Aidan Reed | The Project menus were not displayed at all after the out of bounds measures were put in place in BUG 309 Fixes |

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| Change ID | GIT Commit ID | Bug ID | Description of Change | Files Changed | Date Received | Date Changed | Initiator By (Who Changed) | Change Checked By | Notes |
| CHGE301 | B2283df | N/A | All methods inside the main class are set to private aswell as data member variables. To be able to perform email unit testing on each method the methods need to be made available without running the main class.   * AllProjects – made public * currentProjShowing – made public * listProjects – made public * addProject – made public * listEmails – made public * listPhases – made public * listContacts – made public * addEmail – made public * ChangeProjectPhase – made public | CompanyEmail System (emailMessage) | 01/05/2018 | 02/05/2018 | Aidan Reed | Ram Raja | Junit tests that were created and failing as a result of this should now start to work – Ram Raja. |
| CHGE302 | N/A | BUG301 | In method add project and add email there is a call to in.nextline that removes the user input and results. After looking at this further the line is required to prevent the program trying to add projects with no input as such for testing a \n needs to be added to the inputs | CompanyEmail System (emailMessage | 01/05/2018 | N/A | Aidan Reed | N/A | This change was not required |
| CHGE303 | [7c9152a](https://github.com/psyar8/FSE_CourseWork_4/commit/7c9152ab6708ee232bb5750661200fb54d648271) | BUG302 | Add an additional space into the string formatting of the List Projects Method | CompanyEmail System Line 112 | 03/05/2018 | 03/05/2018 | Christian Stubbs | Aidan Reed | After this change the tests now pass successfully with a change to the formatting – CS 03.05.2018 |
| CHGE304 | [7e70150](https://github.com/psyar8/FSE_CourseWork_4/commit/7e70150a7d8d36051cb796bd35aa0f176a942c8c) | BUG303 | User can create project with no subject. No checking is performed to see if the length of the title is less than 10. If so the default constructor for Company Project should be called. | CompanyEmail System  Line 120 | 03/05/2018 | 03/05/2018 | Christian Stubbs | Aidan Reed | After implementing the condition in add project the projects are created either with titles that are greater than 10 characters or with new project otherwise |
| CHGE305 | [6a2c8a8](https://github.com/psyar8/FSE_CourseWork_4/commit/6a2c8a863babd62cdb3152e6800e418f831557c8) | BUG304 | The for loop inside the List Phases method uses the less than operator this means that the method cuts off the first project phase and the last phase when calling the method. The comparison operator should be <=. | Line165 | 03/05/2018 | 03.05.2018 | Christian Stubbs | Aidan Reed | The original condition meant the first stage was never printed as the first phase id is 0 and also the last one never printed – this has now been resolved. – AR 03/05/2018 |
| CHGE306 | [1cc84dd](https://github.com/psyar8/FSE_CourseWork_4/commit/1cc84dd5439718ef965d820b8062bc7b2fdbc4bf) | BUG305 | Create a overloaded method for getPhaseByName that takes an integer and checks if the phase id passed is less than the current phase id if so it should return the phase name for that phase otherwise return the current phase – preventing been able to access past the end of the phase. | Company Project Class -119 | 03/05/2018 | 03/05/2018 | Aidan Reed | Christian Stubbs | The new function allows access to historical phases. This is only the first stage to fixing BUG305 as changes now need to be made in the ListPhase method – AR 03/05/2018 |
| CHGE307 | [37859f0](https://github.com/psyar8/FSE_CourseWork_4/commit/37859f092621e2195cef4bc2d9e80f9fd49fedda) | BUG305 | The ListPhase method should pass a parameter to the newly created getPhaseByName method in CHGE306 | CompanyEmail System Line 177 | 03/05/2018 | 03/05/2018 | Aidan Reed | Christian Stubbs | The for loop now produces the correct phase names when listing the project phases. – AR 03/05/2018 |
| CHGE308 | [4cf18f3](https://github.com/psyar8/FSE_CourseWork_4/commit/4cf18f389542807e87793caabdd714ea66366b47)  670fca8 | BUG308 | Set the default state for current Project variable to -1 as it isn’t attainable by what the user needs to access – then update the conitionals for menus to only display when the variable is -1. When X is selected inside a project it should se it back to -1 | CompanyEmail System Line  Main Method | 03/05/2018 | 03/05/2018 | Aidan Reed | Ram Raja | The system still works as intended but now allows a user to enter 1 and select the first element instead of been displayed with a menu again. In future versions the menu should be it’s own method with simpler logic RR 03/05/2108 |
| CHGE309 |  | BUG009 | Add bounds when selecting a project. The value input must be greater than 0 and less than/equal to the number of existing projects in the ArrayList. | CompanyEmailSystem (Main Method) | 03/05/2018 | 03/05/2018 | Ram Raja | Aidan Reed |  |

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| Problem ID | Problem Description | Line of code - | Test ID  (if created) | Change ID | Proposed Fix | Priority  High, Med, Low | Date Problem identified | Fixed? (Yes/ No) | Date Problem fixed | Who identified/fixed the test? | Who Fixed it | Does the bugged code relate to other functions? | Notes |
| BUG301 | Error when adding new project to the system. Receives No Line found. There is a method call nextLine on the scanner object passed into the Add Project method which is removing the input and infact needs to be entered twice | 110-111 | 304-310 | CHGE302 | Remove the nextLine method call on line 110 | Med | 01/05/2018 | YES | 03/05/2018 | Aidan Reed | N/A | No – other functions call this method | No fix was required a new line needed to be added to th test inputs before hand. |
| BUG302 | The format of the list projects function is slightly off – should output Title – number email instead of Title – numberemail | 112 | 305 | CHGE303 | Add an additional Space into the formatting of string | Low | 01/05/2018 | YES | 03.05.2018 | Aidan Reed | Christian Stubbs | N/A | See GIT and CHANGE ID for more details but a space was added to formatting |
| BUG303 | When a project is created an no title is provided the project should be called New Project- currently system produces empty subject | Line 120 | 308 | CHGE304 | Add a check for the length of the title provided in add projects function | Med | 03/05/2018 | YES | 03.05.2018 | Aidan Reed | Christian Stubbs | N/A | After implementing the proposed fix the system now adds projects correctly |
| BUG304 | When calling list phases function from a project in it’s initial stage it does not display the current phase and it’s email count it just displays the menu options again. | Line 165 | 312 | CHGE305 | Change for loop condition from < to <= | Med | 03/05/2018 | YES | 03.05.2018 | Aidan Reed | Christian Stubbs | N/A |  |
| BUG305 | When Calling List phases function when a project has gone through all the stages it should list each stage and the email count. The email count is correct but the phase name for each stage is the same for all stages meaning it reflects the current phase i.e.   1. Completed – 1 Emails 2. Completed – 2 Emails 3. Completed – 3 Emails | Line 177 |  | CHGE306  CHGE307 | Create an overloaded function for getPhaseByName in EmailProjects Class – That should output the phase name | Med | 03/05/2018 | YES | 03/05/2018 | Aidan Reed | Aidan Reed | N/A | After implementing the changes proposed in CHGE306 and CHGE307 the system now behaves as expected and produces the correct phase – AR 03/05/2018 |
| BUG308 | User is unable to access the first project, as well as methods in the correct order as “-1” is always being applied to the user’s inputted project selection.  This also creates ambiguity when selecting other projects, as selecting project 3 could take the user to project 2, etc. | 72 | 318 | CHGE308 | ~~Remove “-1” from value input/read by system when selecting project.~~  ~~Change: “currentProjShowing = Integer.parseInt(s)-1;”~~  ~~To: “currentProjShowing = Integer.parseInt(s);”~~  Change the not in project state from 0 to -1 and change some of the conditionals | High | 03/05/2018 | Yes | 03/05/2018 | Ram Raja | Aidan Reed | N/A |  |
| BUG 309 | User is shown project menu when inputting non-existent project values. | 71 | 317 | CHGE309 | Add bounds to project selection. User should only be able to select a project with a value greater than 0 in the ArrayList, and a value less than or equal to the size of the ArrayList.  Change: “else if (Integer.parseInt(s) != -1 );”  To: “else if (Integer.parseInt(s) > 0 && Integer.parseInt(s) <= AllProjects.size());” | Med | 03/05/2018 | Yes | 03/05/2018 | Ram Raja | Ram Raja | No |  |