SE 3XA3: Test Report
ScrumBot

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Contents

List of Tables

List of Figures

Table 1: Revision History

Date	Developer(s)	Change
January 23, 2020	Arkin Modi	Copy template
April 5, 2020	Arkin Modi	Started work on multiple sections
April 6, 2020	Leon So, Arkin Modi	Worked on all sections of the Test Report
April 6, 2020	Arkin Modi	Created all matrices, and Code Coverage Section

This document contains all the results of the planned tests that were defined in the Test Plan.

1 Functional Requirements Evaluation

1. **FRT-BE1**
   Initial State: A Discord channel is active
   Input: ScrumBot is added into the channel
   Expected Output: ScrumBot welcome message
   Actual Output: ScrumBot welcome message
   Result: Pass

2. **FRT-BE2-1**
   Initial State: Empty project list
   Input: Create New project, with description
   Expected Output: New project created and added to list
   Actual Output: New project created and added to list
   Result: Pass

3. **FRT-BE2-2**
   Initial State: Empty project list
   Input: Create new project, without description
   Expected Output: New project created and added to list
   Actual Output: New project created and added to list
   Result: Pass

4. **FRT-BE3-1**
   Initial State: Project list containing one project with ID 0
   Input: Remove project by ID, ID is 0
   Expected Output: Project list empty, project with ID 0 is removed
   Actual Output: Project list empty, project with ID 0 is removed
   Result: Pass

5. **FRT-BE3-2**
   Initial State: Empty project list
   Input: Remove project by ID
   Expected Output: KeyError
   Actual Output: KeyError
   Result: Pass

6. **FRT-BE4-1**
   Initial State: Project with a sprint and no tasks
   Input: Add a task without details
   Expected Output: Task added to sprint
   Actual Output: Task added to sprint
   Result: Pass

7. **FRT-BE4-2**
   Initial State: Project with a sprint and no tasks
   Input: Add a task with details
   Expected Output: Task added to sprint
   Actual Output: Task added to sprint
   Result: Pass

8. **FRT-BE4-3**
   Initial State: Project with no sprints and no tasks
   Input: Add a task
   Expected Output: IndexError
   Actual Output: IndexError
   Result: Pass

9. **FRT-BE4-4**
   Initial State: Project with a sprint and tasks
   Input: Get all tasks by sprint IDs
   Expected Output: A list of tasks
   Actual Output: A list of tasks
   Result: Pass

10. **FRT-BE4-5**
    Initial State: Project with sprints and tasks, contains task with ID 0
    Input: Get a single task with ID 0
    Expected Output: Task with ID 0
    Actual Output: Task with ID 0
    Result: Pass

11. **FRT-BE4-6**
    Initial State: Project no sprints and no tasks
    Input: Get a single task with ID 0
    Expected Output: IndexError
    Actual Output: IndexError
    Result: Pass

12. **FRT-BE4-7**
    Initial State: Project no sprints and no tasks
    Input: Get a list of tasks
    Expected Output: IndexError
    Actual Output: IndexError
    Result: Pass

13. **FRT-BE4-8**
    Initial State: Project with a sprint and a task
    Input: Add feedback to a task by task ID
    Expected Output: Feedback added to task of last sprint

Actual Output: Feedback added to task of last sprint
Result: Pass

14. **FRT-BE4-9**
    Initial State: Project with no sprint and no task
    Input: Add feedback to a task by task ID
    Expected Output: Index Error
    Actual Output: Index Error
    Result: Pass

15. **FRT-BE4-10**
    Initial State: Project a sprint, a task, and a feedback
    Input: Get feedback from task using sprint ID and task ID
    Expected Output: Feedback of sprint with inputted sprint ID and task with inputted task ID
    Actual Output: Feedback of sprint with inputted sprint ID and task with inputted task ID
    Result: Pass

16. **FRT-BE4-11**
    Initial State: Project with no sprint, no task
    Input: Get feedback from task using sprint ID and task ID
    Expected Output: IndexError
    Acutal Output: IndexError
    Result: Pass

17. **FRT-BE5-1**
    Initial State: Project with a sprint and a task
    Input: Remove task by task ID
    Expected Output: Task removed from last sprint
    Actual Output: Task removed from last sprint
    Result: Pass

18. **FRT-BE5-2**
    Initial State: Project with no sprint
    Input: Remove task by task ID
    Expected Output: IndexError
    Actual Output: IndexError
    Result: Pass

19. **FRT-BE5-3**
    Initial State: Project with a sprint and no tasks
    Input: Remove task by task ID
    Expected Output: KeyError
    Actual Output: KeyError
    Result: Pass

20. **FRT-BE5-4**
    Initial State: Project with a sprint and a task with ID 0
    Input: Set details of task with ID 0
    Expected Output: Task with ID 0 updates with new details
    Actual Output: Task with ID 0 updates with new details
    Result: Pass

21. **FRT-BE5-5**
    Initial State: Project with no sprints
    Input: Set details of task with ID 0
    Expected Output: IndexError
    Actual Output: IndexError
    Result: Pass

22. **FRT-BE6-1**
    Initial State: Project with a sprint, a task and feedback
    Input: Remove feedback by sprint and task IDs
    Expected Output: Feedback removed
    Actual Output: Feedback removed
    Result: Pass

23. **FRT-BE6-2**
    Initial State: Project with no sprint
    Input: Remove feedback by sprint and task IDs
    Expected Output: IndexError
    Actual Output: IndexError
    Result: Pass

24. **FRT-BE7-1**
    Initial State: Project with no requirements
    Input: Add requirement
    Expected Output: Requirement added
    Actual Output: Requirement added
    Result: Pass

25. **FRT-BE7-2**
    Initial State: Project with requirements
    Input: Get a list of requirement
    Expected Output: A list of requirements
    Actual Output: A list of requirements
    Result: Pass

26. **FRT-BE7-3**
    Initial State: Project with requirements
    Input: Remove a requirement by requirement ID
    Expected Output: Requirement removed

Actual Output: Requirement removed
Result: Pass

27. **FRT-BE7-4**
Initial State: Project with no requirements
Input: Remove a requirement by requirement ID
Expected Output: IndexError
Actual Output: IndexError
Result: Pass

28. **FRT-BE8-1**
Initial State: Project with no meetings
Input: Add a meeting with a description
Expected Output: Meeting added
Actual Output: Meeting added
Result: Pass

29. **FRT-BE8-2**
Initial State: Project with no meetings
Input: Add a meeting with no description
Expected Output: Meeting added
Actual Output: Meeting added
Result: Pass

30. **FRT-BE8-3**
Initial State: Project with meetings
Input: Get a meeting by meeting ID
Expected Output: Meeting with specified ID
Actual Output: Meeting with specified ID
Result: Pass

31. **FRT-BE8-4**
Initial State: Project with meetings that contains meeting with ID 0
Input: Get meeting name with ID 0
Expected Output: Meeting name of meeting with ID 0
Actual Output: Meeting name of meeting with ID 0
Result: Pass

32. **FRT-BE8-5**
Initial State: Project with meetings that contains meeting with ID 0
Input: Get meeting description with ID 0
Expected Output: Meeting description of meeting with ID 0
Actual Output: Meeting description of meeting with ID 0
Result: Pass

33. **FRT-BE8-6**
Initial State: Project with meetings that contains meeting with ID 0 and has no

description
Input: Get meeting description with ID 0
Expected Output: Meeting description of meeting with ID 0
Actual Output: Meeting description of meeting with ID 0
Result: Pass

34. **FRT-BE8-7**
Initial State: Project with meetings that contains meeting with ID 0 and has a description
Input: Get meeting description with ID 0
Expected Output: "No description"
Actual Output: "No description"
Result: Pass

35. **FRT-BE8-8**
Initial State: Project with no meetings
Input: Get meeting name with ID 0
Expected Output: KeyError
Actual Output: KeyError
Result: Pass

36. **FRT-BE8-8**
Initial State: Project with no meetings
Input: Get meeting description with ID 0
Expected Output: KeyError
Actual Output: KeyError
Result: Pass

37. **FRT-BE8-9**
Initial State: Project with no meetings
Input: Add a meeting of every meeting type (4 meetings in total)
Expected Output: Added meeting
Actual Output: Added meeting
Result: Pass

38. **FRT-BE8-10**
Initial State: Project with no meetings
Input: Add a meeting of an invalid meeting type
Expected Output: TypeError
Actual Output: TypeError
Result: Pass

39. **FRT-BE9-1**
Initial State: Project with meetings and contains meeting with ID 0
Input: Remove meeting with ID 0
Expected Output: Meeting with ID 0 removed

Actual Output: Meeting with ID 0 removed
Result: Pass

40. **FRT-BE9-2**
Initial State: Project with meetings and contains no meetings with ID 0
Input: Remove meeting with ID 0
Expected Output: KeyError
Actual Output: KeyError
Result: Pass

41. **FRT-BE10-1**
Initial State: Project with four meetings, each meeting of a different type
Input: Get a list of all meetings
Expected Output: A list of all meetings
Actual Output: A list of all meetings
Result: Pass

2 Nonfunctional Requirements Evaluation

1. **NFRT-LF-1**
Initial State: ScrumBot active in Discord channel
Input: Set of all ScrumBot commands entered
Expected Output: ScrumBot outputs text formatted according to the text format of ScrumBot
Actual Output: ScrumBot outputs text formatted according to the text format of ScrumBot
Result: Pass

2. **NFRT-LF-2**
Result: 100% Yes
Full survey results can be found at https://tinyurl.com/soagezg

3. **NFRT-LF-3**
Initial State: ScrumBot active in Discord channel
Input: One of each role available is added
Expected Output: ScrumBot adds the roles and permissions to the assigned users. The role names should be colour coded.
Actual Output: ScrumBot adds the roles and permissions to the assigned users. The role names colour coded.
Result: Pass

4. **NFRT-UH-1**
Survey results can be found at https://tinyurl.com/soagezg

5. **NFRT-UH-2**
Initial State: ScrumBot active in Discord channel

Input: Help command entered
Expected Output: ScrumBot should output help menu
Actual Output: ScrumBot outputs help menu
Result: Pass

6. **NFRT-P-1**

Initial State: ScrumBot active in Discord channel
Input: Command entered, with timing function enabled
Expected Output: Elapsed Time < 2 seconds
Actual Output: Elapsed Time < 2 seconds
Result: Pass

7. **NFRT-OE-1**

Initial State: New Discord channel without ScrumBot
Input/Condition: Add ScrumBot to the Discord channel
Expected Output: ScrumBot should be active in the Discord channel once added
Actual Output: Scrumbot is active in the Discord channel
Result: Pass

8. **NFRT-OE-2**

Initial State: ScrumBot not yet installed on Discord server
Input/Condition: Establish connection between Scrumbot and Discord
Expect Result: Scrumbot should connect to Discord
Actual Result: Scrumbot connected to Discord
Result: Pass

9. **NFRT-MS-1**

Initial State: N/A
Input/Condition: N/A
Expected Output: The code is well documented with comments
Actual Result: The code is well documented with comments
Result: Pass

10. **NFRT-MS-2**

Initial State: No Doxygen documents generated yet
Input/Condition: Generate Doxygen HTML and pdf
Expected Output: The Doxygen documentation is successfully compiled and generated
Actual Output: The Doxygen documentation is successfully compiled and generated
Result: Pass

11. **NFRT-MS-3**

Developer Survey Result: Average 8.12 (out of 10)
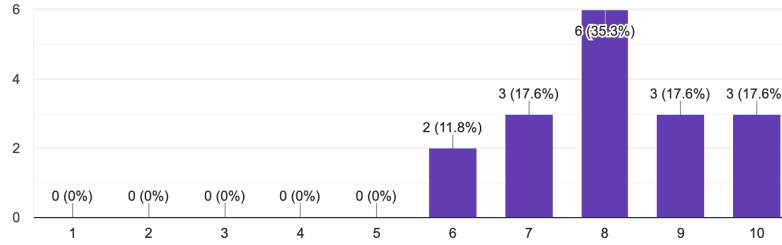
Figure 1: Developer Survey Results

12. **NFRT-MS-4**
    Initial State: ScrumBot is active on the Discord channel
    Input/Condition: User opens help menu
    Expected Result: Help menu is displayed in the Discord chat
    Actual Result: Help menu is displayed in the Discord chat
    Result: Pass

13. **NFRT-MS-5**
    Initial State: N/A
    Input/Condition: N/A
    Expected Result: System is modularized into classes
    Actual Result: System is modularized into classes
    Result: Pass

14. **NFRT-S-1**
    Initial State: N/A
    Input/Condition: N/A
    Expected Result: All connections between the system and the APIs use HTTPS requests
    Actual Result: All connections between the system and the APIs use HTTPS requests
    Result: Pass

3   Unit Testing

Unit tests were run for the application using the Pytest framework. Statement coverage was analyzed by a plugin called pytest-cov.

4   Changes Due to Testing

There were some changes made due to failing test cases. These changes primarily consisted of typos and minor common programming mistakes (i.e. forgetting to return).

5 Automated Testing

Automated tests was carried out by the Pytest framework.

6 Trace to Requirements

All requirement IDs were taken from the Software Requirements Specification (SRS) document.

Table 2: Traceability Matrix: Functional Requirement

Test IDs	BE1	BE2	BE3	BE4	BE5	BE6	BE7	BE8	BE9	BE10	BE11
FRT-BE1	X										
FRT-BE2-1		X									
FRT-BE2-2		X									
FRT-BE3-1			X								
FRT-BE3-2			X								
FRT-BE4-1				X							
FRT-BE4-2				X							
FRT-BE4-3				X							
FRT-BE4-4				X							X
FRT-BE4-5				X							
FRT-BE4-6				X							
FRT-BE4-7				X							
FRT-BE4-8				X							
FRT-BE4-9				X							
FRT-BE4-10				X							
FRT-BE4-11				X							
FRT-BE5-1					X						
FRT-BE5-2					X						
FRT-BE5-3					X						
FRT-BE5-4					X						
FRT-BE5-5					X						
FRT-BE6-1						X					
FRT-BE6-2						X					
FRT-BE7-1							X				
FRT-BE7-2							X				
FRT-BE7-3							X				
FRT-BE7-4							X				
FRT-BE8-1								X			
FRT-BE8-2								X			
FRT-BE8-3								X			
FRT-BE8-4								X			
FRT-BE8-5								X			
FRT-BE8-6								X			
FRT-BE8-7								X			
FRT-BE8-8								X			
FRT-BE8-9								X			
FRT-BE8-10								X			
FRT-BE9-1									X		
FRT-BE9-2									X		
FRT-BE10-1										X	

Table 3: Traceability Matrix: Non-Functional Requirement

Test IDs	Requirement IDs																					
	LF1	LF2	LF3	UH1	UH2	UH3	UH4	P1	P4	OE1	OE3	OE5	OE6	OE7	MS1	MS2	MS3	MS4	S1	C1	L1	HS1
NFRT-LF-1	X																					
NFRT-LF-2		X	X																			
NFRT-LF-3		X																				
NFRT-UH-1				X	X																	
NFRT-UH-2							X															
NFRT-P-1								X														
NFRT-OE-1										X												
NFRT-OE-2											X											
NFRT-MS-1												X										
NFRT-MS-2													X									
NFRT-MS-3														X								
NFRT-MS-4															X							
NFRT-MS-5																X						
NFRT-S-1																	X					

7 Trace to Modules

All module IDs were taken from the Module Guide document.

Table 4: Traceability Matrix: Functional Requirement

Test IDs	Module IDs						
	M1	M2	M5	M7	M8	M10	M11
FRT-BE1	X	X					
FRT-BE2-1	X					X	
FRT-BE2-2	X					X	
FRT-BE3-1	X					X	
FRT-BE3-2	X					X	
FRT-BE4-1	X			X	X	X	
FRT-BE4-2	X			X	X	X	
FRT-BE4-3	X			X	X	X	
FRT-BE4-4	X			X	X	X	
FRT-BE4-5	X			X	X	X	
FRT-BE4-6	X			X	X	X	
FRT-BE4-7	X			X	X	X	
FRT-BE4-8	X			X	X	X	
FRT-BE4-9	X			X	X	X	
FRT-BE4-10	X			X	X	X	
FRT-BE4-11	X			X	X	X	
FRT-BE5-1	X			X	X	X	
FRT-BE5-2	X			X	X	X	
FRT-BE5-3	X			X	X	X	
FRT-BE5-4	X			X	X	X	
FRT-BE5-5	X			X	X	X	
FRT-BE6-1	X			X	X	X	
FRT-BE6-2	X			X	X	X	
FRT-BE7-1	X					X	
FRT-BE7-2	X					X	
FRT-BE7-3	X					X	
FRT-BE7-4	X					X	
FRT-BE8-1	X		X			X	
FRT-BE8-2	X		X			X	
FRT-BE8-3	X		X			X	
FRT-BE8-4	X		X			X	
FRT-BE8-5	X		X			X	
FRT-BE8-6	X		X			X	
FRT-BE8-7	X		X			X	
FRT-BE8-8	X		X			X	
FRT-BE8-9	X		X			X	
FRT-BE8-10	X		X			X	
FRT-BE9-1	X		X			X	
FRT-BE9-2	X		X			X	
FRT-BE10-1	X		X			X	

Table 5: Traceability Matrix: Non-Functional Requirement

Test IDs	Module IDs						
	M1	M2	M5	M7	M8	M10	M11
NFRT-LF-1	X	X	X	X	X	X	X
NFRT-LF-2							
NFRT-LF-3	X	X					
NFRT-UH-1							
NFRT-UH-2	X	X					
NFRT-P-1	X	X	X	X	X	X	X
NFRT-OE-1	X						
NFRT-OE-2	X	X					
NFRT-MS-1	X	X	X	X	X	X	X
NFRT-MS-2							
NFRT-MS-3		X	X	X	X	X	X
NFRT-MS-4	X	X					
NFRT-MS-5		X	X	X	X	X	X
NFRT-S-1	X	X					

8 Code Coverage Metrics

Statement Coverage was calculated by the pytest-cov plugin. 66% Statement Coverage was achieved. Statements that were not checked during testing were either used for testing or were features that were not within the scope of the requirements.

Coverage report: 66%

Module ↓	statements	missing	excluded	coverage
src/dict.py	21	3	0	86%
src/fileio.py	147	147	0	0%
src/meeting.py	23	1	0	96%
src/meetingList.py	4	0	0	100%
src/meetingTypes.py	18	0	0	100%
src/project.py	139	27	0	81%
src/projectList.py	3	0	0	100%
src/scrumbot.py	20	20	0	0%
src/sprint.py	62	12	0	81%
src/task.py	26	0	0	100%
src/taskList.py	4	0	0	100%
src/test.py	172	0	0	100%
src/timer.py	8	8	0	0%
Total	**647**	**218**	**0**	**66%**

coverage.py v5.0.4, created at 2020-04-06 21:19

Figure 2: Statement Coverage Report