Test Plan
Document for
COURSE GAME
DA-IICT

Prepared by Group #02

The Group

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1. Purpose

Test plan is the project plan for the testing work to be done. It is a test design specification, a collection of test cases and a set of test procedures. The main of purpose of this document is to specify the different testing strategies that will be implemented during the testing process of this project. It also includes test level specifications and set of test cases for all the modules that can be tested.

2. Audience

The audience of this document is the mentor and the project management team. This document is also written for the extended test team. The test lead, testers, and any outsourced testers should be able to utilize this document to understand the scope of work that must be accomplished by the test team. The document is intended to accomplish its purpose only for the intended audiences.

3. User Acceptance Testing – Sprint Wise

3.1 Sprint 1 – User management

3.1.1 Content Management System – Variables and possible values

Variables	Regular	Empty	Min allowed	Max allowed	Max +1	Invalid	Allowed
First Name	Jaspreet	Blank	2	15	16	Alphanumeric/ Numeric	Only Characters
Last Name	Chhabra	Blank	3	15	16	Alphanumeric/ Numeric	Only Characters
User Type	Faculty						
E-mail	jaspreetchhabra@ gmail.com	Blank	10	50	51	No @ sign	Must contain at least one @ and . (dot)
Password	G1a2u3r4a5v6	Blank	8	15	16	Only characters or only numbers	Alphanumeric
Contact	9426368257	Blank	10	13	14	Character or alphanumeric	Only positive numbers
Specialization	Computer Science	Blank	5	50	51	Alphanumeric/ Numeric	Only Characters

University	DAIICT	Blank	2	50	51	Alphanumeric/ Numeric	Only characters
City/Town	Gandhinagar	Blank	3	30	31	Alphanumeric/ Numeric	Only Characters
Country	India	Blank	3	30	31	Alphanumeric/ Numeric	Only Characters
Faculty Type	**Option 1**	**Option 2**					
	Internal	External					
Programme	MSC IT	Blank	2	20	21	Alphanumeric/ Numeric	Only Characters

3.1.2 Content Management System – Test cases

Variables	Test Case 1	Test case 2	Test case 3	Test Case 4	Test Case 5	Test Case 6
First Name	Jaspreet	MS	Kumaripriy ankaa	Mansi	-	Dishant
Last Name	Chhabra	Rao	Shinghanias hahs	Shah	-	Patel
User Type	Faculty	Faculty	Faculty	Faculty	-	
E-mail	jaspreetchhabra@ gmail.com	ms@gmail.in	Nehakumari jani1994712 @yahoo.co. in	Mansishah.13ms @gmail.com	jaspreetchhab ra@gmail.co m	dgmail.com
Password	G1a2u3r4a5v6	Abc1234d	Nehakumari 872yu	Mansishah13ms	Jaspreet123	Dishant960
Contact	9426368257	9825975856	13	9856232569	-	9856321478
Specializati on	Computer Science	Maths	Microbiolog ististical	Statictics	-	Cosmetology
University	DAIICT	MSU	Symbiosis institute of technology	Nirma	-	Sigma
City/Town	Gandhinagar	Goa	Kanyakuma ri	Baroda	-	Mumbai
Country	India	Sri	South Africa	USA	-	Europe
Faculty Type	**Internal**	External			-	
Programme	MSC IT	BTech	BTechICT	MDes	-	MSCITArd
Expected output	Faculty Registered	Faculty Registered	Faculty Registered	Faculty Registered	Faculty Logged in	Error Invalid Email Address

Actual output					
Pass/Fail					

3.2.1 Course Game Application – variables and values

Variables	**Regular**	**Empty**	**Min allowed**	**Max allowed**	**Max +1**	**Invalid**	**Allowed**
First Name	Jaspreet	Blank	2	15	16	Alphanumeric/ Numeric	Only Characters
Last Name	Chhabra	Blank	3	15	16	Alphanumeric/ Numeric	Only Characters
User Type	Student						
E-mail	jaspreetchhabra@ gmail.com	Blank	10	50	51	No @ sign	Must contain at least one @ and . (dot)
Password	G1a2u3r4a5v6	Blank	8	15	16	Only characters or only numbers	Alphanumeric
Contact	9426368257	Blank	10	13	14	Character or alphanumeric	Only positive numbers
University	DAIICT	Blank	2	50	51	Alphanumeric/ Numeric	Only characters
ID	201512016	Blank	9	9	10	Alphanumeric/ Characters	Only Numbers
Programme	MSC IT	Blank	2	20	21	Alphanumeric/ Numeric	Only Characters
Year	Year is between Current Year to Current Year - 4						
Semester	**Option 1**	**Option2**	**Option 3**	**Option 4**	**Option 5**	**Option 6**	**Option 7**
	1	2	3	4	5	6	Open
City/Town	Gandhinagar	Blank	3	30	31	Alphanumeric/ Numeric	Only Characters
Country	India	Blank	3	30	31	Alphanumeric/ Numeric	Only Characters

3.2.2 Course Game Application – Test Cases

Variables	Test case 1	Test case 2	Test Case 3		Test Case 4
First Name	Hardik	HR	Hardik Thakkar		abcdefghi
Last Name	Thakkar	HRT	Hardik Thakkar		abcdefghijk
User Type	Student				
E-mail	hrt7809@gmail.com	Hardik Thakkar	Student login for game		Must contain at least one @ and . (dot)
Password	G1a2u3r4a5v6	Hrt51591	Hardik123456		Alphanumeric
Contact	9409051591	9409051591	+91 7383307172		Only positive numbers
University	DAIICT	DA	Dhirubhai ambani college		Only characters
ID	201512084	201512084	201512084		Only Numbers
Programme	MSC IT	IT	MSCIT IN DA		Only Characters
Year					
Semester	1	3	6	Open	
City/Town	Gandhinagar	Goa	Ahemedabad		
Country	India	3	30		
Expected output	Student registered	Student registered	Student registered		
Actual output					
Pass/Fail					

3.2 Sprint 2 – Course Management

3.2.1 Variables and values

Variables	Regular	Empty	Min allowed	Max allowed	Max +1	Invalid	Allowed
New Course	Action Selection						
Course Name	Data Structures	Blank	3	30	31	Numeric	Characters/ Alphanumeric / Special Characters
Semester	**Option 1**	**Option2**	**Option 3**	**Option 4**	**Option 5**		
	1	2	3	4	Open		
Year	Year is between Current Year to Current Year - 4						

Programme	MSC IT	Blank	2	20	21	Alphanumeric/ Numeric	Only Characters
Description	DS forms the basis of real life applications	Blank	5	125	126		Characters, Numeric, Special Characters
Select Course	Action Selection (Select course from the list of Courses)						
Update Course	Action Selection						
Deactivate Course	Action Selection						

3.2.2 Test Cases

Variables	Test Case 1	Test Case 2	Test Case 3	Test Case 4	Test Case 5	Test Case 6
New Course	Select	Select	Select	Select	--	--
Select Course	--	--	--	--	Select	Select
Update Course	--	--	--	--	Update	--
Deactivate Course	--	--	**--**	--	--	Deactive
Course Name	Data Structures	Algo	Object oriented programming and data structure	Database Management	Maths2	Maths2
Semester	Option 1	Option 3	Option 4	Option 5	Option 2	--
	1	3	4	Open	2	--
Year	2015	2016	2014		2013	
Programme	MSC IT	DS	Master of Science in Information Technology	A	Btech	--
Description	DS forms the basis of real life applications	Data Structure like stack queue	Includes many courses like Ds,oopds	Includes many courses like Ds,oopds,mat	Includes many courses like Ds,oopds,mat	--

				,maths,cs ,dss,sen etc	hs,cs,dss,sen etc	hs,cs,dss,sen ,maths_2 etc	
Expected output	Course Added	Course Added	Course Added	Error Invalid Programme name	Course Added	Course Deactivated
Actual output						
Pass/Fail						

3.3 Sprint 3 – Game Management, Manage Material and Manage Announcements

3.3.1   Variables and value

Variables	Regular	Empty	Min allowed	Max allowed	Max +1	Invalid	Allowed
Add unit	Action Selection						
Update unit	Action Selection						
Unit Name	Stack	Blank	3	15	16	Alphanumeric/ Numeric	Only Characters
Start Time	Standard Indian time in IST format					Date and Time less than the current date and time	
End Time	Standard Indian time in IST format						
Description	Stack is FIFO DS	Blank	5	125	126		Characters, Numeric, Special Characters
Save Unit	Action Selection						
Add Game	Action Selection						
Update Game	Action Selection						
Select Game	Action Selection						
Game Title	Reverse a String	Blank	5	50	51	Numeric	Characters/ Alphanumeric
Game Description	Reverse a String using stack	Blank	5	125	126		Characters, Numeric, Special Characters
Game Start Time	Standard Indian time in IST format					Date and Time less than the	

						current date and time	
Game End Time	Standard Indian time in IST format						
Difficulty level	Option 1	Option 2	Option 3				
	Low	Medium	Difficult				
Points	10	Blank	1	100	101	Characters / Alphanumeric	Positive Numbers
Maximum Attempts	2	Blank	1	5	6	Characters / Alphanumeric	Positive Numbers
Save Game	Action Selection						
Add material	Action Selection						
Update Material	Action Selection						
Title	Stack	Blank	2	50	51	Alphanumeric/ Numeric	Only characters
Description	This document will give you an overview of the stack data type	Blank	5	125	126		Characters, Alphanumeric ,Numeric
Material Start Time	Standard Indian time in IST format					Date and Time less than the current date and time	
Material End Time	Standard Indian time in IST format						
File type	pdf	Blank	1	10	11	Numeric	Characters/ Alphanumeric
Save Material	Action Selection						
Add Announcements	Action Selection						
Title	Stack Game	Blank	2	20	21		Characters /Alphanumeric/ Numeric
Description	Stack game added	Blank	5	255	256		Characters /Alphanumeric/ Numeric
Batch	Option 1			Option 2			
	Select Batch			open			
Time	Current time						
Notify	Action Selection						

3.3.2 Test Cases

Variables	Test Case 1	Test Case 2	Test Case 3	Test Case 4	Test Case 5
Add unit	Add	--	Add	Add	Add
Update unit	--	Update unit	--	--	--
Unit Name	Stack	Tree	Sorting array	Sorting game 1	Queue
Start Time	17:59:50 Thursday, 10 November 2016	17:59:50 Thursday, 10 November 2016	17:59:50 Thursday, 10 November 2016	16:59:50 Thursday, 10 November 2016	17:59:50 Thursday, 10 November 2016
End Time	17:59:50 Thursday, 17 November 2016	17:59:50 Thursday, 17 November 2016	17:59:50 Thursday, 17 November 2016	17:59:50 Thursday, 17 November 2016	17:59:50 Thursday, 17 November 2016
Description	Stack is FIFO DS	Red and black tree	Sort array in ascending order without using sort method	Sort array in ascending order without using sort methodk	Queue is LIFO DS_ 1. Using linklist
Save Unit	Save	Save	Save	Save	Save
Add Game	Add Game	--	Add game	Add Game	Add Game
Update Game	-	Update Game	--	--	--
Select Game	Select	Select	Select	Select	Select
Game Title	Reverse a String	Insert 5 nodes	Pop element one by one	Find the smallest element	Add elements to the Queue
Game Description	Reverse a String using stack	Insert 5 nodes	Pop element one by one	Find the smallest element	Add 5 elements to the Queue.
Game Start Time	17:59:50 Thursday, 10 November 2016	17:59:50 Thursday, 13 November 2016	17:59:50 Thursday, 14 November 2016	17:59:50 Thursday, 16 November 2016	17:59:50 Wed, 9 November 2016
Game End Time	17:59:50 Thursday, 17 November 2016	17:59:50 Thursday, 20 November 2016	17:59:50 Thursday, 25 November 2016	17:59:50 Thursday, 17 November 2016	17:59:50 Thursday, 17 November 2016
Difficulty level	Option 1	Option 2	Option 3	Option 2	Option 3
	Low	Medium	Difficult	Medium	Difficult
Points	10	1	100	56k	57
Maximum Attempts	2	1	5	Characters / Alphanumeric	Positive Numbers
Save Game	Save Game	Save Game	Save Game	Save Game	Save Game
Add material	Add material	--	Add material	Add material	Add material

Update Material	--	Update Materia	--	--	--
Title	Stack	Qu	Stack and queue	tree	Avl tree
Description	This document will give you an overview of the stack data type	Queue desc	This document will give you an overview of the stack and queue data type	This document will give you an overview of the tree	This document will give you an overview of the avl tree adding, deleting.
Material Start Time	17:59:50 Thursday, 10 November 2016	17:59:50 Thursday, 10 November 2016	17:59:50Wednesday, 9 November 2016	17:59:50 Thursday, 10 November 2016	17:59:50 Thursday, 10 November 2016
Material End Time	17:59:50 Thursday, 17 November 2016	17:59:50 Thursday, 17 November 2016	17:59:50 Thursday, 17 November 2016	17:59:50 Thursday, 17 November 2016	17:59:50 Thursday, 17 November 2016
File type	pdf	R	Docx	8	xls
Save Material	Save Material	Save Material	Save Material	Save Material	Save Material
Add Announcements	Add announcements	Add announcements	Add announcements	Add announcements	Add announcements
Title	Stack Game	Sk	Results	Lectures	Quiz
Description	Stack game added	Gives	Result of second semester examination will be given tomorrow in class.	There is no lecture tomorrow.	Quiz5 will be conducted soon.
Batch	Option 1	Option 2	Option 2	Option 2	Option 1
	Select Batch	open	open	open	Select Batch
Time	17:59:50 Thursday, 10 November 2016	17:59:50 Thursday, 10 November 2016	17:59:50 Thursday, 10 November 2016	17:59:50 Thursday, 10 November 2016	17:59:50 Thursday, 10 November 2016
Notify	Select	Select	Select	Select	Select
Expected output	Unit,game,Material,announcement added	Unit,game,Material,announcement updated	Unit,game,Material,announcement added	Unit,game,Material,announcement added	Unit,game,Material,announcement added
Actual output					
Pass/Fail					

4. Black Box Testing

4.1 User Management

4.1.1   Equivalence Class

No	Variable	Valid/Invalid	Equivalence Class
1	First Name	Valid	**1.1** Length is between 2 to 15 characters **1.2** Only Characters
2	First Name	Invalid	**2.1** Length is less than 2 **2.2** length is greater than 15 **2.3** Alphanumeric or numeric Characters
3	Last Name	Valid	**3.1** Length is between 2 to 15 characters **3.2** Only Characters
4	Last Name	Invalid	**4.1** Length less than 2 **4.2** length greater than 15 **4.3** Alphanumeric or numeric Characters
5	User type	Valid	**5.1** Faculty
6	User Type	Invalid	**6.1** Blank OR Student
7	E-mail	Valid	**7.1** Contains '.', @ **7.2** length is between 10-50 characters
8	E-mail	Invalid	**8.1** Doesn't Contain '.', @ **8.2** length is less than 10 characters **8.3** Length is greater than 50 Characters
9	Password	Valid	**9.1** Contains, 0-9, A-Z, a-z, special characters **9.2** Length is between 9-15 characters
10	Password	Invalid	**10.1** Doesn't contains, 0-9, A-Z, a-z, special characters **10.2** Length is less than 9 characters **10.3** Length is greater than 9 characters
11	Contact	Valid	**11.1** Length is between 10-13 Digits **11.2** Only positive numbers
12	Contact	Invalid	**12.1** Length is less than 10 Digits **12.2** Length is greater than 10 Digits **12.3** No positive numbers
13	Specialization	Valid	**13.1** Length is between 5 to 50 characters **13.2** Only Characters
14	Specialization	Invalid	**14.1** Length is less than 5 **14.2** length is greater than 50 **14.3** Alphanumeric or numeric Characters
15	University	Valid	**15.1** Length is between 5 to 50 characters **15.2** Only Characters
16	University	Invalid	**16.1** Length is less than 5 **16.2** Length is greater than 50 **16.3** Alphanumeric or numeric Characters
17	City/Town	Valid	**17.1** Length is between 3 to 30 characters **17.2** Only Characters
18	City/Town	Invalid	**18.1** Length is less than 3

| | | | **18.2** length is greater than 30 |
			18.3 Alphanumeric or numeric Characters
19	Country	Valid	**19.1** Length is between 3 to 30 characters
			19.2 Only Characters
20	Country	Invalid	**20.1** Length is less than 3
			20.2 length is greater than 30
			20.3 Alphanumeric or numeric Characters
21	Faculty Type	Valid	**21.1** Internal OR External
22	Faculty type	Invalid	**22.1** NONE
23	Programme	Valid	**23.1** Length is between 2 to 20 characters
			23.2 Only Characters and special characters
24	Programme	Invalid	**24.1** Length is less than 2
			24.2 length is greater than 20
			24.3 Alphanumeric or numeric Characters or white space

4.1.2 Test Cases

NO	Test data	Expected Output	Classes Covered
1	Hardisk	Valid	1.1, 1.2
2	Hardisk1	Invalid	1.1, 2.3
3	a	Invalid	2.1
4	abc**	Invalid	1.1,1.2
5	Bohra	Valid	3.1, 3.2
6	b1ohra	Invalid	1.1,2.3
7	b2	Invalid	2.1, 2.3
8	Bhattacharya Singh	Invalid	2.2
9	Faculty	Valid	5.1
10	Student	Invalid	6.1
11	(blank)	Invlaid	6.1
12	a@s.cm	Invalid	7.1, 8.2
13	hardisk@gmailcom	Invalid	7.2, 8.1
14	hardisk@gmail.com	Valid	7.1, 7.2
15	hardiskbohraiamthekingmindit@yahoo.com	Invalid	7.1, 8.3
16	Hardisk123	Valid	9.1, 9.2
17	hardisk123	Invalid	9.2, 10.1
18	hardisk	Invalid	10.1, 10.2
19	hardiskbohra	Invalid	9.2, 10.1
20	Hardiskbohra123	Invalid	9.1, 10.3
21	8306794646	Valid	11.1, 11.2
22	830579464r	Invalid	11.1, 12.3
23	+91830679464	Invalid	11.1, 12.3
24	80367946464646	Invalid	11.2, 12.2
25	Data Structure	Valid	13.1, 13.2

26	DATA	Invalid	13.2, 14.1
27	Data Structure2	Invalid	13.1, 14.3
28	data_structure_and_analysis	Invalid	13.1, 14.3
29	Gujarat University	Valid	15.1, 15.2
30	GU	Invalid	15.2, 16.1
31	Gujarat2	Invalid	15.1, 16.3
32	Shahibaug	Valid	17.1, 17.2
33	sahibaug3	Invalid	17.1, 18.3
34	dec	Valid	17.1, 17.2
35	a	Invalid	17.2, 18.1
36	India	Valid	19.1, 19.2
37	India5	Invalid	19.1, 20.3
38	Pak	Valid	19.1, 19.2
39	US	Invalid	19.2, 20.1
40	External	Valid	21.1
41	Internal	Valid	21.1
42	(blank)	Invalid	22.1
43	M.Sc.I.T.	Valid	23.1, 23.2
44	CA	Valid	23.1, 23.2
45	B Tech	Invalid	23.1, 24.3

4.1.3   Boundary Value Analysis

Validation Criteria (Length)	Results		
	Invalid	**Valid**	**Invalid**
1. First Name	<2	2-15	>15
2. Last Name	<2	2-15	>15
3. E-mail	<10	10-50	>50
4. Password	<8	8-15	>15
5. Contact	<10	10-13	>13
6. Specialization	<5	5-50	>50
7. University	<2	2-50	>50
8. City/Town	<3	3-30	>30
9. Country	<3	3-30	>30
10. Programmer	<2	2-20	>20

4.1.4   Test Cases

NO	BVN for No	Validation Criteria	Input	Expected Output
1	1	length<2	a	Invalid
2	1	length>15	abcgdhtgfethsjkifg	Invalid
3	1	length=2	Di	Valid
4	1	length=15	kaniyakumarikum	Valid

5	1	length between 2-15	Jaspreet	Valid
6	2	length<2	a	Invalid
7	2	length>15	abcgdhtgfethsjkifg	Invalid
8	2	length=2	Di	Valid
9	2	length=15	kaniyakumarikum	Valid
10	2	length between 2-15	Bohra	Valid
11	3	length<10	aaaaa	Invalid
12	3	length>50	abcdefghijklmnopqrstuvwxyzabcdefghijklmnopqrstuvwxyz	Invalid
13	3	length=10	chintansan	Valid
14	3	length=50	abcdefghijklmnopqrstuvwxyzabcdefghijklmnopqrstuvwx	Valid
15	3	length between 10-50	s.tiwari@gmail.com	Valid
16	4	length<8	chintan	Invalid
17	4	length>15	jaspreet_chhabra	Invalid
18	4	length=8	sanghavi	Valid
19	4	length=15	chintansanghavi	Valid
20	4	length between 8-15	s.tiwari@gmail.com	Valid
21	5	length<10	123456789	Invalid
22	5	length>13	12345678901234	Invalid
23	5	length=10	8306794646	Valid
24	5	length=13	+919173050455	Valid
25	5	length between 10-13	+18980171711	Valid
26	6	length<5	data	Invalid
27	6	length>50	algorithm, data structure, mathematics, operating systems	Invalid
28	6	length=5	algos	Valid
29	6	length=50	algorithm, data structure, mathematics, operating sys	Valid
30	6	length between 5-50	algorithms	Valid
31	7	length<2	m	Invalid

32	7	length>50	k s school of business managment, near b k school of business managment, ahmedabad.	Invalid
33	7	length=2	ks	Valid
34	7	length=50	k s school of business managment, near b k school..	Valid
35	7	length between 2-50	k s school of business managment	Valid
36	8	length<3	ah	Invalid
37	8	length>30	paldi, ahmedabad, gujarat, india	Invalid
38	8	length=3	pal	Valid
39	8	length=30	paldi, ahmedabad, gujarat, ind	Valid
40	8	length between 3-30	k s school of business managment	Valid
41	9	length<3	in	Invalid
42	9	length>30	india, hidustan, bharat, independant day	Invalid
43	9	length=3	ind	Valid
44	9	length=30	india, hidustan, bharat, deshme	Valid
45	9	length between 3-30	india	Valid
46	10	length<2	a	Invalid
47	10	length>20	developer tester and analysis	Invalid
48	10	length=2	se	Valid
49	10	length=20	developer tester and	Valid
50	10	length between 2-20	developer	Valid

4.2 Course Management

4.2.1   Equivalence Class

No	Variable	Valid/Invalid	Equivalence Class
1	Course Name	Valid	**1.3** Length is between 3 to 30 characters **1.4** Only Characters
2	Course Name	Invalid	**2.1** Length is less than 3 **2.2** length is greater than 30 **2.3** Alphanumeric or numeric Characters
3	Semester	Valid	**3.1** 1, 2, 3, 4 Or open

4	Semester	Invalid	**4.2** Blank
5	Year	Valid	**5.1** Year is between Current Year to Current Year - 4
6	Year	Invalid	**6.1** Blank
7	Programme	Valid	**7.1** Length is between 2 to 20 characters **7.2** Only Characters and special characters
8	Programme	Invalid	**8.1** Length is less than 2 **8.2** length is greater than 20 **8.3** Alphanumeric or numeric Characters
9	Description	Valid	**9.1** Length is between 5 to 125 characters **9.2** Contains, 0-9, A-Z, a-z, special characters
10	Description	Invalid	**10.1** Blank

4.2.2 Test Cases

NO	Test data	Expected Output	Classes Covered
1	Data Structure	Valid	1.3, 1.4
2	Data1	Invalid	1.3, 2.3
3	1	Valid	3.1
4	sem1	Invalid	4.2
5	open	Valid	3.1
6	(blank)	Invalid	6.1
7	B.Tech	Valid	7.1, 7.2
8	The description is here.	Valid	9.1, 9.2
9	(blank)	Invalid	10.1

4.2.3 Boundary Value Analysis

Validation Criteria (Length)	Range		
	Invalid	**Valid**	**Invalid**
1. Course Name	<3	3-30	>30
2. Programme	<2	2-20	>20
3. Description	<5	5-125	>125

4.2.4   Test Cases

NO	BVN for No	Validation Criteria	Input	Expected Output
1	1	length<3	DS	Invalid
2	1	length>30	abcgdhtgfethsjkifgkdjsdsjdjsd	Invalid
3	1	length=3	DES	Valid
4	1	length=30	Data structure and analysis	Valid
5	1	length between 3-30	Software analysis	Valid
6	2	length<2	a	Invalid
7	2	length>20	Masters in Software Engineering	Invalid
8	2	length=2	Di	Valid
9	2	length=20	Masters of Techno	Valid
10	2	length between 2-20	B.Tech	Valid
11	3	length<5	abc	Invalid
12	3	length>125	This course is based upon some set of theory and some set of standards, so that we can learn some set of new things we can learn some set of new things we can learn some set of new things we can learn some set of new things.	Invalid
13	3	length=2	Di	Valid
14	3	length=125	This course is based upon some set of theory and some set of standards, so that we can learn some set of new things.	Valid
15	3	length between 5-125	No Description.	Valid

4.3 Game Management

Unit Management

4.3.1   Equivalence Class

No	Variable	Valid/Invalid	Equivalence Class
1	Unit Name	Valid	**1.1** length is between 3 to 15 characters **1.2** characters, special characters and alphanumeric
2	Unit Name	Invalid	**2.1** length is less than 3 **2.2** length is more than 10 **2.3** only numbers
3	Start time	Valid	**3.1** date and time in indian standard format
4	Start time	Invalid	**4.1** date and time less than current time **4.2** blank
5	end time	Valid	**5.1** date and time in indian standard format
6	end time	Invalid	**6.1** blank
7	description	Valid	**7.1** length is between 5 to 125 characters **7.2** contains 0-9, A-Z, az, special characters
8	description	Invalid	**8.1** blank

4.3.2   Test Cases

NO	Test data	Expected Output	Classes Covered
1	Stack and Queue	Valid	1.1, 1.2
2	ss	Invalid	2.1
3	05-02-2017 10:05:11 AM	Valid	3.1
4	(blank)	Invalid	4.2
5	05-02-2017 10:05:11 AM	Valid	5.1

6	(blank)		Invalid	6.1
7	The stack and queue unit contains the games which can help the student to understand the detailed concepts of stack.		Valid	7.1, 7.2

4.3.3 Boundary Value Analysis

Validation Criteria (Length)	Range		
	Invalid	Valid	Invalid
Unit Name	<3	3-15	>15
Description	<5	5-125	>125

4.3.4 Test Cases

NO	BVN for No	Validation Criteria	Input	Expected Output
1	1	length<3	DS	Invalid
2	1	length>15	abcgdhtgfethsjmn	Invalid
3	1	length=3	DES	Valid
4	1	length=15	Data structure DS	Valid
5	1	length between 3-15	Software analysis	Valid
6	2	length<5	avcg	Invalid
7	2	length>125	Masters in Software Engineering hjjrsghjjkbfgiuignjjygijodgbjhgibydhj igejhui jgffsdjy jyjrghhjgs	Invalid
8	2	length=5	hardk	Valid
9	2	length=125	Masters of Techno jbbgfjjbk vhgkjldzgyxfdnbbvuicgfknbvygfucxf, ngyud thakkarbhgfidfkbhhbgdjbhybg	Valid

| 10 | 2 | length between 5-125 | B.Tech mscit | Valid |

Game Management

4.3.5 Equivalence Class

No	Variable	Valid/Invalid	Equivalence Class
1	Game Title	Valid	**1.1** length is between 3 to 15 characters **1.2** characters, special characters and alphanumeric
2	Game Title	Invalid	**2.1** length is less than 3 **2.2** length is more than 10 **2.3** only numbers
3	Description	Valid	**3.1** length is between 5 to 125 characters **3.2** contains 0-9, A-Z, az, special characters
4	Description	Invalid	**4.1** blank
5	Start Time	Valid	**5.1** date and time in indian standard format
6	Start Time	Invalid	**6.1** date and time less than current time **6.2** blank
7	End Time	Valid	**7.1** date and time in indian standard format
8	End Time	Invalid	**8.1** date and time less than current time **8.2** blank
9	Difficulty Level	Valid	**9.1** Low, Medium and difficult
10	Difficulty Level	Invalid	**10.1** blank
11	Points	Valid	**11.1** should fall between 1-100 **11.1** positive numbers
12	Points	Invalid	**12.1** below 1 **12.2** above 100

13	Attempts	Valid	**13.1** should fall between 1-5 **13.1** positive numbers
14	Attempts	Invalid	**14.1** below 1 **14.2** above 5

4.3.6 Test Cases

NO	Test data	Expected Output	Classes Covered
1	Stack	Valid	1.1, 1.2
2	ss	Invalid	2.1
3	05-02-2017 10:05:11 AM	Valid	5.1
4	(blank)	Invalid	6.2
5	05-02-2017 10:05:11 AM	Valid	7.1
6	(blank)	Invalid	8.2
7	The description is out of dated.	Valid	3.1
8	Low	Valid	9.1
9	1011	Invalid	11.2, 12.1
10	4	Valid	13.1, 13.2

4.3.7 Boundary Value Analysis

Validation Criteria (Length)	**Range**		
	Invalid	**Valid**	**Invalid**
Game Name	**<3**	**3-15**	**>15**
Description	**<5**	**5-125**	**>125**

4.3.8 Test Cases

NO	BVN for No	Validation Criteria	Input	Expected Output
1	1	length<3	on	Invalid
2	1	length>15	let's start the game click start to play	Invalid
3	1	length=3	ply	Valid
4	1	length=15	lets play game	Valid
5	1	length between 3-15	please click on next	Valid
6	2	length<5	play	Invalid
7	2	length>125	now you are at third stage be careful and play next round hjjrsghjjkbfgiuignjjygijodgbjhgibydhj igejhui jgffsdjy jyjrghhjgs	Invalid
8	2	length=5	start	Valid
9	2	length=125	conitine to game vhgkjldzgyxfdnbbvuicgfknbvygfucxf, ngyud thakkarbhgfidfkbhhbgdjbhybg	Valid
10	2	length between 5-125	play the game for data structure	Valid

4.4 Manage Material

4.4.1 Equivalence Class

No	Variable	Valid/Invalid	Equivalence Class
1	Material Title	Valid	**1.1** Length is between 2 to 50 characters **1.2** Only Characters
2	Material Title	Invalid	**2.1** Length is less than 2 **2.2** length is greater than 50

			2.3 Alphanumeric or numeric Characters
3	Description	Valid	**3.1** length is between 5 to 125 characters **3.2** contains 0-9, A-Z, az, special characters
4	Description	Invalid	**4.1** blank
5	Start Time	Valid	**5.1** date and time in indian standard format
6	Start Time	Invalid	**6.1** date and time less than current time **6.2** blank
7	End Time	Valid	**7.1** date and time in indian standard format
8	End Time	Invalid	**8.1** date and time less than current time **8.2** blank
9	file-type	Valid	**9.1** length is between 1 to 10 characters **9.2** contains 0-9, A-Z, a-z, special characters
10	file-type	Invalid	**10.1** length is below 1 **10.2** length is above 10 **10.3** contains only numbers

4.4.2 Test Cases

NO	Test data	Expected Output	Classes Covered
1	Stack	Valid	1.1, 1.2
2	s	Invalid	2.1
3	05-02-2017 10:05:11 AM	Valid	5.1
4	(blank)	Invalid	6.2
5	05-02-2017 10:05:11 AM	Valid	7.1
6	(blank)	Invalid	8.2
7	The description is out of dated.	Valid	3.1, 3.2

				Valid	9.1, 9.2
10	.png				

4.4.3 Boundary Value Analysis

Validation Criteria (Length)	Range		
	Invalid	Valid	Invalid
Material Title	<2	2-50	>50
Description	<5	5-125	>125
File Type	<1	1-10	>10

4.4.4 Test Cases

NO	BVN for No	Validation Criteria	Input	Expected Output
1	1	length<2	a	Invalid
2	1	length>50	this material for data structure and its useful for play the game	Invalid
3	1	length=2	Di	Valid
4	1	length=50	material management to add new material	Valid
5	1	length between 2-15	hardik thakkar	Valid
6	2	length<5	hrdk	Invalid
7	2	length>125	material management. to read the material download the updated file which one is useful for link list concept	Invalid
8	2	length=5	hardk	Valid
9	2	length=125	get the material from material management to understand the detail concept	Valid

10	2	length between 5-125	thakkar	Valid
11	3	length<1		Invalid
12	3	length>10	hardik thakkar	Invalid
13	3	length=1	h	Valid
14	3	length=10	manage material for task to done	Valid
15	3	length between 1-10	hrt7809@	Valid

4.5 Manage Announcements

4.5.1 Equivalence Class

No	Variable	Valid/Invalid	Equivalence Class
1	Title	Valid	**1.1** Length is between 2 to 50 characters **1.2** Only Characters
2	Title	Invalid	**2.1** Length is less than 2 **2.2** length is greater than 50 **2.3** Alphanumeric or numeric Characters
3	Description	Valid	**3.1** length is between 5 to 125 characters **3.2** contains 0-9, A-Z, az, special characters
4	Description	Invalid	**4.1** blank
5	Time	Valid	**5.1** date and time in indian standard format
6	Time	Invalid	**6.1** date and time less than current time **6.2** blank
7	Batch	Valid	**7.1** Select batch from option or open

8	Batch	Invalid	**8.1** blank

4.5.2 Test Cases

NO	Test data	Expected Output	Classes Covered
1	Lecture Announcement	Valid	1.1, 1.2
2	s	Invalid	1.2, 2.1
3	05-02-2017 10:05:11 AM	Valid	5.1
4	(blank)	Invalid	6.2
5	The description is out of dated.	Valid	3.1, 3.2
6	B.Tech	Valid	7.1

4.5.3 Boundary Value Analysis

Validation Criteria (Length)	Range		
	Invalid	**Valid**	**Invalid**
Title	**<2**	**2-50**	**>50**
Description	**<5**	**5-125**	**>125**

4.5.4 Test Cases

NO	BVN for No	Validation Criteria	Input	Expected Output
1	1	length<2	a	Invalid
2	1	length>50	this material for data structure and its useful for play the game	Invalid
3	1	length=2	Di	Valid
4	1	length=50	material management to add new material	Valid

5	1	length between 2-15	hardik thakkar	Valid
6	2	length<5	hrdk	Invalid
7	2	length>125	material management. to read the material download the updated file which one is useful for link list concept	Invalid
8	2	length=5	hardk	Valid
9	2	length=125	get the material from material management to understand the detail concept	Valid
10	2	length between 5-125	thakkar	Valid

5. Unit and Integration Testing

- Unit testing focuses on testing individual units/ components of a system.
- Integration testing is done by combining modules and generating test cases on it.
- In our system, nodejs is used as a backend language. Testing in nodejs would be done using **moca** and **chai.**
- **Moca** is a feature rich Javascript test framework running on nodejs.
- **Chai** is a BBD/TDD assertion library for nodejs.
- Apart from this, the unit testing for the game and the mobile application will be done using random testing where the test cases will be generated manually.
- For Integration testing of the system, again random testing is one of the preferred approaches.

6. System Testing

System testing would be conducted for testing the overall system. Here test cases generated during acceptance, black box , unit & integration testing would be executed and the changes would be reported thereby which ever changes needed will be done.