DISTRIBUTED CLASS MANAGEMENT SYSTEM DESIGN DOCUMENTATION

version 1.0

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1. System Architecture

This section will illustrate the architecture of this system via UML class diagram.

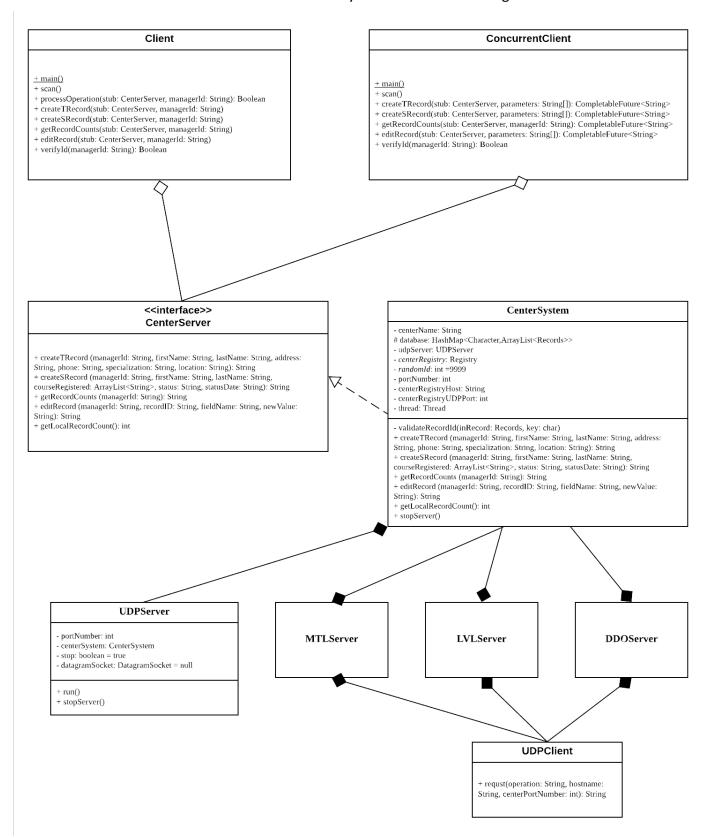


figure 1. Class diagram 1

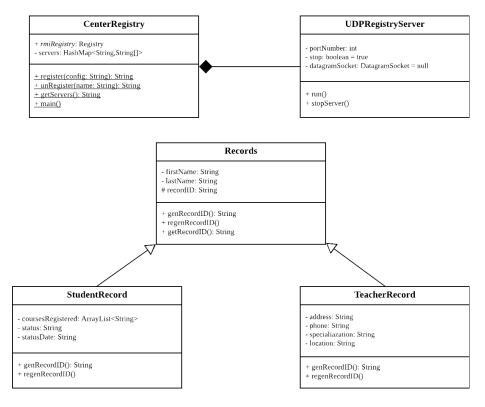


figure 2. Class diagram 2

2. Test Scenario

This section will describe some test scenarios that cover all the basic operations of this system, which include: i) creation and termination of RMI registry; ii) creation and termination of one single server; iii) creation and termination of any of two servers; iv) creation and termination of all of the three servers; v) executing client and creating teacher records; vi) executing client and creating student records; vii) executing concurrent-client and to accomplish operations based on an exist file.

DCMS Test Scenario # TS001						
Version	#:	1.0		Test Scenario ID:	TS001	
Objectiv	e:	Can successfully cre	ate a RMI	Registry and close it b	y pressing stop.	
Assumptions/ Constraints:						
Test Ste	ps:					
Step #	1	Description	Expected Result		Actual Result	
1	Execute CenterRegistry to create a RMI registry for the servers.		registry a	fully create a RMI and print related on logs in console.	As expected.	
2 Stop CenterRegistry to close the services.			created RMI registry related information onsole.	As expected.		
DCMS Test Scenario # TS002						

		Γ		Г	ı	
Version #: 1.0			Test Scenario ID:	TS002	2	
Objective: Can successfully start		rt MTL ser	t MTL server based on the created RMI registry.			
Assump Constrai		The RMI registry has	been crea	ated successfully.		
Test Ste	ps:					
Step#	l	Description		Expected Result		Actual Result
1		CenterRegistry to RMI registry for the		fully create a RMI regis related information log		As expected.
2		MTLServer to start r for MTL.	print suc MTLServ informati	fully start the MTL serv ceed log in console of /er and the register on of MTL server in co rRegistry.		As expected.
3	Stop MTL	server.		L server and print relat on logs in console.	ed	As expected.
4	Stop Cen the service	terRegistry to close		created RMI registry a ted information logs in		As expected.
DCMS	Test S	cenario # TS00	3			
Version	#:	1.0	Test Scenario ID: TS00		TS003	3
Objectiv	e:	Can successfully sta	art LVL server based on the created RMI registry.			
Assump Constrai		The RMI registry has	been crea	ated successfully.		
Test Ste	ps:					
Step#		Description		Expected Result		Actual Result
1		CenterRegistry to RMI registry for the		fully create a RMI regis related information log		As expected.
Execute LVLServer to start the server for LVL.		Successfully start the LVL server and print succeed log in console of LVLServer and the register information of LVL server in console of CenterRegistry.		As expected.		
3 Stop LVL server.		Stop LVL server and print related information logs in console.		ed	As expected.	
Stop CenterRegistry to close the services.		Stop the created RMI registry and print related information logs in console.			As expected.	
DCMS	Test S	cenario # TS00)4			
Version	#:	1.0		Test Scenario ID:	TS004	1
Objectiv	e:	Can successfully sta server started.	rt LVL ser	ver based on the creat	ed RMI ı	egistry and with MTL

Assump Constra		The RMI registry has successfully.	s been cre	ated successfully, and	the MT	L server has started	
Test Ste	ps:						
Step#		Description		Expected Result		Actual Result	
1		CenterRegistry to RMI registry for the		fully create a RMI regis related information looุ		As expected.	
2		MTLServer to start r for MTL.	print suc MTLServ informati	fully start the MTL serv ceed log in console of ver and the register on of MTL server in co rRegistry.		As expected.	
3		LVLServer to start r for LVL.	print suc LVLServ informati	fully start the LVL servenceed log in console of er and the register on of LVL server in corr Registry.		As expected.	
4	Stop serv	vers.		L server and LVL server related information logs		As expected.	
5	Stop Cen the service	terRegistry to close ces.		created RMI registry a ted information logs in		As expected.	
DCMS	Test S	cenario # TS00)5				
Version	#:	1.0		Test Scenario ID:	TS00	5	
Objectiv	e:	Can successfully sta server started.	rt DDO se	rver based on the crea	ted RM	I registry and with LVL	
Assump Constrai		The RMI registry has successfully.	nas been created successfully, and the LVL server has started				
Test Ste	ps:						
Step#		Description		Expected Result		Actual Result	
1		CenterRegistry to RMI registry for the	Successfully create a RMI registry and print related information logs in console.		As expected.		
2	Execute DDOServer to start the server for DDO.		Successfully start the DDO server and print succeed log in console of DDOServer and the register information of DDO server in console of CenterRegistry.		As expected.		
3	Execute LVLServer to start the server for LVL.		Successfully start the LVL server and print succeed log in console of LVLServer and the register information of MTL server in console of CenterRegistry.		As expected.		
4	4 Stop servers.		Stop DDO server and LVL server with printing related information logs in console.		As expected.		
5	Stop Cen the service	terRegistry to close ces.	Stop the created RMI registry and print related information logs in console.		As expected.		

DCMS Test Scenario # TS006							
Version		1.0		Test Scenario ID:	TS00	06	
Objectiv	e:		Can successfully start MTL server based on the created RMI registry and with LVL server started and DDO server started.				
Assump Constra		The RMI registry has server have started s		ated successfully, and ly.	the LV	L server and the DDO	
Test Ste	ps:						
Step#		Description		Expected Result		Actual Result	
1		CenterRegistry to RMI registry for the		fully create a RMI regis related information log		As expected.	
2		LVLServer to start r for LVL.	and print LVLServ informati	fully start the LVL servers succeed log in consoler and the register on of MTL server in of CenterRegistry.		As expected.	
3	Execute MTLServer to start the server for MTL.		Success and print MTLServ informati	fully start the MTL serves succeed log in console wer and the register on of MTL server in of CenterRegistry.		As expected.	
4	Execute DDOServer to start the server for DDO.		Successfully start the DDO server and print succeed log in console of DDOServer and the register information of DDO server in console of CenterRegistry.		As expected.		
5	Stop serv	vers.	Stop DDO server, MTL server and LVL server with printing related information logs in console.		As expected.		
6	Stop Cen the service	terRegistry to close ces.	Stop the created RMI registry and print related information logs in console.		As expected.		
DCMS	Test S	cenario # TS00	7				
Version	#:	1.0		Test Scenario ID:	TS00)7	
Objectiv	e:	Can successfully sta server started and D			ed RM	I registry and with LVL	
Assumptions/ Constraints: The RMI registry has server have started				ated successfully, and ly.	the LV	L server and the DDO	
Test Steps:							
Step#	Description			Expected Result		Actual Result	
1	Execute CenterRegistry to		Successfully create a RMI registry and print related information logs in console. As expected.		As expected.		
2	Execute I the serve	LVLServer to start r for LVL.	Successfully start the LVL server and print succeed log in console of LVLServer and the register information of MTL server in console of CenterRegistry. As expected.		As expected.		

3	Execute MTLServer to start the server for MTL.	Successfully start the MTL server and print succeed log in console of MTLServer and the register information of MTL server in console of CenterRegistry.	As expected.
4	Execute DDOServer to start the server for DDO.	Successfully start the DDO server and print succeed log in console of DDOServer and the register information of DDO server in console of CenterRegistry.	As expected.
5	Stop servers.	Stop DDO server, MTL server and LVL server with printing related information logs in console.	As expected.
6	Stop CenterRegistry to close the services.	Stop the created RMI registry and print related information logs in console.	As expected.

DCMS Test Scenario # TS008

Version #:	1.0	Test Scenario ID:	TS008		
Objective:	Create a teacher record and accomplish the valid operations for the record type.				
Assumptions/ Constraints:	The RMI registry has been created successfully, and servers have started successfully.				

Test Steps:

Step #	Description	Expected Result	Actual Result
1	Execute CenterRegistry to create a RMI registry for the servers.	Successfully create a RMI registry and print related information logs in console.	As expected.
2	Start one or some server(s).	Successfully start one or some server(s) for further operations.	As expected.
3	Execute Client.	Successfully start client for further operations.	As expected.
4	Enter a valid manager ID.	The operation menu will be printed in console.	As expected.
5	Enter "1" to create a teacher record.	Start to create a teacher record. Obey the prompt in console to finish the relevant fields. When finish creations of all the fields, there will be a prompt for the information of this record.	As expected.
6	Enter former manager ID for the operation after creating teacher records.	The operation menu will be printed in console.	As expected.
7	Enter "3" to view the record count.	It will prompt the record counts of each server.	As expected.

8	Enter "4" to edit the record.	It will prompt a portal to enter the record id and user can choose which field to be edit.	As expected.
9	Enter "5" to exit client.	Stop client.	As expected.
5	Stop servers.	Stop DDO server, MTL server and LVL server with printing related information logs in console.	As expected.
6	Stop CenterRegistry to close the services.	Stop the created RMI registry and print related information logs in console.	As expected.

DCMS Test Scenario # TS009

Version #:	1.0	Test Scenario ID:	TS009		
Objective:	Create a student record and accomplish the valid operations for the record type.				
Assumptions/ Constraints:	The RMI registry has been created successfully, and servers have started successfully.				

Test Steps:

Step #	Description	Expected Result	Actual Result
1	Execute CenterRegistry to create a RMI registry for the servers.	Successfully create a RMI registry and print related information logs in console.	As expected.
2	Start one or some server(s).	Successfully start one or some server(s) for further operations.	As expected.
3	Execute Client.	Successfully start client for further operations.	As expected.
4	Enter a valid manager ID.	The operation menu will be printed in console.	As expected.
5	Enter "2" to create a student record.	Start to create a student record. Obey the prompt in console to finish the relevant fields. When finish creations of all the fields, there will be a prompt for the information of this record.	As expected.
6	Enter former manager ID for the operation after creating student records.	The operation menu will be printed in console.	As expected.
7	Enter "3" to view the record count.	It will prompt the record counts of each server.	As expected.
8	Enter "4" to edit the record.	It will prompt a portal to enter the record id and user can choose which field to be edit.	As expected.

9	Enter "5" to exit client.	Stop client.	As expected.
5	Stop servers.	Stop DDO server, MTL server and LVL server with printing related information logs in console.	As expected.
6	Stop CenterRegistry to close the services.	Stop the created RMI registry and print related information logs in console.	As expected.

DCMS Test Scenario # TS010

Version #:	1.0	Test Scenario ID:	TS010	
Objective:	Create a group of records and accomplish the operation based on an exist file.			
Assumptions/ Constraints:	The RMI registry has been created successfully, and servers have started successfully.			

Test Steps:

Step #	Description	Expected Result	Actual Result		
1	Execute CenterRegistry to create a RMI registry for the servers.	Successfully create a RMI registry and print related information logs in console.	As expected.		
2	Start one or some server(s).	Successfully start one or some server(s) for further operations.	As expected.		
3	Execute ConcurrentClient.	Successfully start client, and accomplish operations including creating correct records and other valid operations based on the file read by the ConcurrentClient.	As expected.		
5	Stop servers.	Stop DDO server, MTL server and LVL server with printing related information logs in console.	As expected.		
6	Stop CenterRegistry to close the services.	Stop the created RMI registry and print related information logs in console.	As expected.		