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***Section: B***

***Course: OOP***

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***Major Classes :***

I have entered 5 major classes including :

Person class

Message class

Contact class

MessagingApp class

Main Class

***Person Class :***

In Person class the attributes include :

1. Ip number
2. Port Number

I have set setter and getters for these attributes and A constructor to initialize name and num of a person.

***Message Class:***

In message class I have added the following attributes:

1. senderName
2. receiverName
3. messageContent
4. timeStamp (Of localDateTime.now)
5. isSeen
6. messageId

I have set some of the basic seters and getters of the following attributes to perform encapsulation and composition in other classes

In the Message constructor I had asked only three arguments from the user (Sender name , Receiver Name, Message Content)

The other message Id is static and initially is 0 and increase due to increasing of the messages and it is uniquely assigned to every messages.

***Contact Class:***

In Contact class I have declared an array of person type variable highlighting the major concept of composition

In this class I have defined the constructor Contact to initialize some of the users in a person array for some testing purpose and it turned out great.

I have also added methods name add persons to add a contact in the messaging app

I have also added method name display contacts to see the number of the contacts added in the app.

***MessagingApp Class:***

This is major class in which almost all classes had linked in it.

In this class I had first declared the attributes from the concept of composition .

1. Message[][] messages = new Message[100][100];
2. Contact contacts;

I had declared 2d array in the messages type so the rows could show the number of the contacts and the columns could show the numbers of messages each contact had.

I had declared a constructor to set some initial values to the specific contact to specific messages for some testing purposes.

The methods are :-

* Send Messages
* Display Messages
* Search Messages
* See unseen messages
* Server Host
* Client Host
* Client (String ip , int port)
* Server (int port)

***How I find A specific Message in a 2D array :***

First, I run a loop for rows (Contacts) and check if the specified name of the contact in present in my list.

Then I run a second loop of columns (Messages) and check if my desired message[i][j] is found and than I perform my desired function whether to search within the message , Display all Messages , Or see All unseen messages.

***Addition of socket concept in the form of Server and client methods***

THE IP SHOULD BE ADDED FIRST BEFORE THE RUNNIG OF THE SERVER AND CLIENT METHODS.

***Server method:***

I have added a method name server(int port); which receives the port given by the user and check the authenticity of the port number by my user defined method name getIpOfClient(port);whether it is already added or need to be added.

In try case I had declared and run the socket objects for the Server side and waiting for client to connect.

If the client is connected we can send message , receive and store message on the network connected with other computer if the user enters “0”, the connection would be terminated.

***Client method:***

I have added a method name client(String ip ,int port); which receives the ip and port given by the user and check the authenticity of the port number by my user defined method name getIpOfClient(port);whether it is already added or need to be added.

In try case I had declared and run the socket objects for the Client side and waiting for connection with the server

If the client is with the server connected we can send message , receive and store message on the network connected with other computer if the user enters “0”, the connection would be terminated

***Main Class:***

In main class I had simply initialize the object for Messaging app as all the functions are called and passed through it.

I had declared a switch statement to performed the following tasks:

1. Add IP address
2. Display Ips addresses
3. Delete Ips addresses
4. Search Ips address
5. Host server
6. Host client
7. Displays Messages
8. Search Messages
9. See unseen Messages
10. Exit (outro method)

*The core flow and major concept of my program is described below:*

In main function the object for message App is created in which constructor the Contact object is created in which a person class is created to store A Person’s IP and Its Port.

I have created a class named OrdinaryCode just for static methods to include into(); and outro(); to make the app more friendly and fun to use.

Further more an 2d array of Message class is created in the Message App to accommodate both contacts as rows and messages as columns to produce a desired neat output.