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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. Name
2. 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

***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.

***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 contact
2. Displays Messages
3. Send Messages
4. Search Messages
5. See unseen Messages

*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 Name and Its Number

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.