

Sheet 4: Composition, Array of object

1. AzharMail: is a program for internal e-mail between Azharian persons, the class hierarchy as following:
 - 1.1. **AzharMail** class : which contain
 - a) **users** (list of **UserContact**): Hashtable with **key** user-mail and **object** is UserContact
 - b) Constructor (): initialize object with 5 users(you and 4 from your friends)
 - c) sendMessage(user_email1, user_email2, message): which will:
 - search for user 1 by his e-mail and add message to his sentBox,
 - search for user 2 by his e-mail and add message to his InBox,
 - d) main method which perform the following:
 - create object from **AzharMail**
 - create a new message object & send it from one user(1) to another user (2)
 - repeat the previous step 5 times as following:
 - ✓ from user 1-to 3
 - ✓ from user 1-to 4
 - ✓ from user 5-to 1
 - ✓ from user 2-to 1
 - ✓ from user 2-to 3
 - Display InBox of user 1
 - Display SentBox of user 1
 - Display InBox of user 3
 - Display the content of message sent from user 2 to user 3
 - 1.2. **UserContact** class: which contain
 - a) user name: String
 - b) user e-mail address : String
 - c) InBox (list of incoming Messages): Vector of Message

- d) SentBox : list of outgoing Messages: Vector of Message
- e) Constructor (username, e-mail)
- f) receiveMessage(message): take message and add it to InBox
- g) sendMessage(message): take message and add it to SentBox
- h) DisplayInBox(): display list of message as following:
 - From user name - subject
- i) DisplaySentBox(): display list of message as following:
 - To user name - subject

1.3. **Message** class: which is either sent or received message which has the following:

- a) From (e-mail of sender user): String
- b) To (e-mail of recipient user) : String
- c) Subject (the subject of message max 100 characters):String
- d) Body (the body of message which can accept unlimited no. of string each will contains one line): Vector of String
- e) Constructor (from, to, subject): which set from, to , and subject
- f) setFrom(from-mail)
- g) setTo(to-mail)
- h) setSubject(subject): accept only 100 characters in subject
- i) getFrom(): return String
- j) getTo(): return String
- k) getSubject(): return String
- l) addBodyline(String line): add new line to body
- m) DisplayBody(): which display all lines of body

2. Homework (to be delivered as report)

2.1. for the project you selected please start implement it as following:

a) update your project classes with the following:

- build relation of "has-a" between classes with utilize the array, Vector, and Hashtable
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