Contacts App

We are going to create a Contacts App which a user can use to store their contacts.

Create a class ContactsManager

- Create a private field contacts
    - Contains a list of Contact objects, empty when initialized
    - Accessible by a read-only property
- Methods to add and delete a contact
    - Contact information of the new contact is asked to the user!
    - A contact with the same name can only be added once, otherwise error
    - Only existing contacts can be deleted
- Method to find a contact
    - Based on name, email or phone number (user input)
    - Displays a list of corresponding contacts
- Method to display all of the contacts
    - Parameter that indicates the sorting method (ascending or descending and by name, email or number)
    - Default sorting is name ascending

Create a class Contact

- Name
    - Mandatory, should be a string of minimal 1 character
- Email
    - Mandatory
    - Validation done via regex on valid email
- Numbers
    - At least 1 Number is mandatory
    - List of Phone Numbers (objects)
    - Getter returns the list

Create an abstract class PhoneNumber, this class is used to store phone numbers of contacts

- Store the number using getters and setters
- Method to validate phone number

Create two classes: MobilePhone and FixedPhone

- They both inherit from PhoneNumber
- They implement each their own validation logic, based on a different regex
    - Fixed number: starts with 0 and has 9 digits in total
    - Mobile: starts in Belgium with 04 followed by 8 digits or is preceded by the landcode (f.e. 0032, +32)
- Store the type of the number (mobile or fixed) using a private field (should be accessible but not adaptable)