

# Java Address Book Project

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In this project, you will be creating an address book that can store information about people.

## Overall Goals

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The application should be able to do the following:

- Present the user with a list of options to interact with the database and take in their input
- Allow the user to perform the following actions:
  - Add an entry
  - Remove an entry
  - Search for a specific entry
  - Print the contents of the address book
  - Delete the contents of the address book
  - Quit the program
- 

## Entry Structure

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Entries should be contained in a class. Each entry should contain the following properties: - First name - Last name - Phone number - Email address All variables should be private and only accessible via getter and setter methods.

You should override the toString() method so that the entries can be printed in an easy-to-read-manner.

You can create other methods as you see fit.

## Address Book Structure

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The address book should contain an ArrayList of Entry instances. This ArrayList can be accessed and modified using methods that accomplish the following:

- Adding entries
  - New entries should contain all of the properties required by an entry. The email address needs to be unique. Other properties do not need to be unique.
- Remove an entry
  - An entry can be removed by searching the database for an email address and then removing the entry with that unique email address.
- Search for an entry
  - Users can pick which methods they will search by (first name, last name, phone number, or email address). The program will then take in a search query and search the address book for an entry that contains the search as a substring (e.g. if a first name search is conducted with 'a,' all entries that have a first name starting with 'a' will be returned).
- Printing the address book
  - All of the entries will be printed out
- Deleting the book
  - The address book will be cleared
- Quit
  - The program will stop running

## Program Functionality

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### Starting the Program

Upon starting the program, it should ask the user what action they want to perform.

```
1) Add an entry

2) Remove an entry

3) Search for a specific entry

4) Print Address Book

5) Delete Book

6) Quit
```

Please choose what you'd like to do with the database:

The user must enter a number 1-6. If the user enters invalid input, print an error message and show the main menu again to take in a new input.

### Adding an Entry

If the user inputs 1, they should be asked to enter the details of an entry. This entry is then added to the address book.

- 1) Add an entry
- 2) Remove an entry
- 3) Search for a specific entry
- 4) Print Address Book
- 5) Delete Book
- 6) Quit

Please choose what you'd like to do with the database: 1

First Name: Test

Last Name: Test

Phone Number: 1111111111

Email Address: test@test.com

Added new entry!

After the entry has been added, show the main menu again to take in a new input.

You can assume the user input will not contain any spaces, tabs, or newline character. You can assume the user will format their information correctly (e.g. you do not need to check for the correct amount of numbers in a phone number, if a phone number is all numbers, or if an email contains an @ sign or period.)

## Remove an Entry

As the user to input an email to delete, and the delete that entry from the address book. Print out the entry that was deleted. If the entry was not found, notify the user. Then, show the main menu again to take in a new input.

Please choose what you'd like to do with the database: 2

Enter an entry's email to remove: test@test.com

Deleted the following entry:

\*\*\*\*\*

First Name: Test

Last Name: Test

Phone Number: 1111111111

Email: test@test.com

\*\*\*\*\*

## Search for a Specific Entry

Show a user the list of options to search by. Once they select their search paramter, prompt them to enter their search query. If their search option is invalid (e.g. not a number 1-4, alert them and bring back the main menu to take in a new input). If their search option is valid, search the database and print all matching entries. If there is nothing found, alert the user. Then, show the main menu again to take in a new input.

```
Please choose what you'd like to do with the database: 3
```

```
1) First Name
```

```
2) Last Name
```

```
3) Phone Number
```

```
4) Email Address
```

```
Chose a search type: 2
```

```
Enter your search: Te
```

```
*****
```

```
First Name: Test
```

```
Last Name: Test
```

```
Phone Number: 1111111111
```

```
Email: test@test.com
```

```
*****
```

## Print Address Book

Print all of the entries in the address book. If the address book is empty, notify the user. Then, show the main menu again to take in a new input.

```
Please choose what you'd like to do with the database: 4
```

```
*****
```

```
First Name: Test
```

```
Last Name: Test
```

```
Phone Number: 1111111111
```

```
Email: test@test.com
```

```
*****
```

```
*****
```

```
First Name: Test2
```

```
Last Name: Test2
```

```
Phone Number: Test2
```

```
Email: test2@test.com
```

```
*****
```

## Delete Book

Clear the address book and notify the user that is was cleared.

```
Please choose what you'd like to do with the database: 5
```

```
Address book cleared!
```

## Quit

Stop the application from running

## Sample Input/Output

The following section shows sample inputs and outputs in order. Your program should have the same output (the exact printing style does not need to be the same, but the results should be).

```
1) Add an Entry
```

```
2) Remove an Entry
```

```
3) Search for a Specific Entry
```

4) Print Address Book

5) Delete Book

6) Quit

Please choose what you'd like to do with the database: 1

First Name: Test

Last Name: Test

Phone Number: 1111111111

Email Address: test@test.com

Added new entry!

1) Add an Entry

2) Remove an Entry

3) Search for a Specific Entry

4) Print Address Book

5) Delete Book

6) Quit

Please choose what you'd like to do with the database: 1

First Name: Test2

Last Name: Test2

Phone Number: 2222222222

Email Address: test2@test2.com

Added new entry!

1) Add an Entry

2) Remove an Entry

3) Search for a Specific Entry

4) Print Address Book

5) Delete Book

6) Quit

Please choose what you'd like to do with the database: 3

1) First Name

2) Last Name

3) Phone Number

4) Email Address

Chose a search type: 1

Enter your search: T

\*\*\*\*\*

First Name: Test

Last Name: Test

Phone Number: 1111111111

Email: test@test.com

\*\*\*\*\*

\*\*\*\*\*

First Name: Test2

Last Name: Test2

Phone Number: 2222222222

Email: test2@test2.com

\*\*\*\*\*

1) Add an Entry

2) Remove an Entry

3) Search for a Specific Entry

4) Print Address Book

5) Delete Book

6) Quit

Please choose what you'd like to do with the database: 1

First Name: asdf

Last Name: asdf

Phone Number: 3213213211

Email Address: asdf@asdf.com

Added new entry!

1) Add an Entry

2) Remove an Entry

3) Search for a Specific Entry

4) Print Address Book

5) Delete Book

6) Quit

Please choose what you'd like to do with the database: 3

1) First Name

2) Last Name

3) Phone Number

4) Email Address

Chose a search type: a

Invalid search option.

1) Add an Entry

2) Remove an Entry

3) Search for a Specific Entry

4) Print Address Book

5) Delete Book

6) Quit

Please choose what you'd like to do with the database: 2

Enter an entry's email to remove: doesnotexist@test.com

Entry not found!

1) Add an Entry

2) Remove an Entry

3) Search for a Specific Entry

4) Print Address Book

5) Delete Book

6) Quit

Please choose what you'd like to do with the database: 2

Enter an entry's email to remove: test@test.com

Deleted the following entry:

\*\*\*\*\*

First Name: Test

Last Name: Test

Phone Number: 1111111111

Email: test@test.com

\*\*\*\*\*

1) Add an Entry

2) Remove an Entry

3) Search for a Specific Entry

4) Print Address Book

5) Delete Book

6) Quit

Please choose what you'd like to do with the database: 4

\*\*\*\*\*

First Name: Test2

Last Name: Test2

Phone Number: 2222222222

Email: test2@test2.com

\*\*\*\*\*

\*\*\*\*\*

First Name: asdf  
Last Name: asdf  
Phone Number: 3213213211  
Email: asdf@asdf.com  
\*\*\*\*\*

- 1) Add an Entry
- 2) Remove an Entry
- 3) Search for a Specific Entry
- 4) Print Address Book
- 5) Delete Book
- 6) Quit

Please choose what you'd like to do with the database: 2

Enter an entry's email to remove: asdf@asdf.com

Deleted the following entry:

\*\*\*\*\*  
First Name: asdf  
Last Name: asdf  
Phone Number: 3213213211  
Email: asdf@asdf.com  
\*\*\*\*\*

- 1) Add an Entry
- 2) Remove an Entry
- 3) Search for a Specific Entry
- 4) Print Address Book
- 5) Delete Book
- 6) Quit

Please choose what you'd like to do with the database: 4

\*\*\*\*\*  
First Name: Test2  
Last Name: Test2  
Phone Number: 2222222222  
Email: test2@test2.com  
\*\*\*\*\*

- 1) Add an Entry
- 2) Remove an Entry
- 3) Search for a Specific Entry
- 4) Print Address Book
- 5) Delete Book
- 6) Quit

Please choose what you'd like to do with the database: 3

1) First Name

2) Last Name

3) Phone Number

4) Email Address

Chose a search type: 2

Enter your search: G

No results found!

1) Add an Entry

2) Remove an Entry

3) Search for a Specific Entry

4) Print Address Book

5) Delete Book

6) Quit

Please choose what you'd like to do with the database: 2

Enter an entry's email to remove: test2@test2.com

Deleted the following entry:

\*\*\*\*\*

First Name: Test2

Last Name: Test2

Phone Number: 2222222222

Email: test2@test2.com

\*\*\*\*\*

1) Add an Entry

2) Remove an Entry

3) Search for a Specific Entry

4) Print Address Book

5) Delete Book

6) Quit

Please choose what you'd like to do with the database: 4

Address Book is empty!

1) Add an Entry

2) Remove an Entry

3) Search for a Specific Entry

4) Print Address Book

5) Delete Book

6) Quit



Please choose what you'd like to do with the database: 6

## Optional

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If you have extra time, try to implement the following features!

- Make input parameter checks stricter (check for valid phone number format, valid email format)
- Save address book to a file
- Load address book from a file