```
import java.io.File;
import java.io.FileInputStream;
import java.io.FileNotFoundException;
import java.io.FileOutputStream;
import java.io.FileWriter;
import java.io.IOException;
import java.io.ObjectInputStream;
import java.io.ObjectOutputStream;
import java.io.PrintWriter;
import java.nio.file.Files;
import java.nio.file.Path;
import java.nio.file.Paths;
import java.util.ArrayList;
import java.util.Scanner;

/**
 * Creates the AddressBook class for Lab-13 and is console based
 *
 * @author will1310
 *
 */
public class AddressBook {
      private static ArrayList<Contact> contacts = new ArrayList<Contact>();

      /**
       * The main method that actually runs the console based program
       *
       * @param args
       */
      public static void main(String args[]) {
            Scanner in = new Scanner(System.in);
            load();
            Path newFile = Paths.get("AddressBook.bin");
            try {
                  if (Files.exists(newFile)) {
                        System.out.println("File already exists.");
                  } else {
                        Files.createFile(newFile);
                  }
            } catch (IOException e) {
                  e.printStackTrace();
            }
            int i = 0;
            while (i < 10) {
                  i = i * 0;
                  menu();
                  int choice = in.nextInt();
                  if (choice == 1) {
                        add();
                  } else if (choice == 2) {
                        remove();
                  } else if (choice == 3) {
                        save();
                  } else if (choice == 4) {
                        load();
                  } else if (choice == 5) {
                        displayAll();
                  } else if (choice == 6) {
                        search();
                  } else if (choice == 7) {
                        System.out.println("Have a good day");
                        in.close();
                        System.exit(0);
                  } else {
                        System.out.println("Not a valid choice try again");
                  }

            }

      }

      /**
       * Loads the menu of option in the console when called
       */
      private static void menu() {
            System.out.println("Address Book Operations: ");
            System.out.println("\t 1) Add");
            System.out.println("\t 2) Remove");
            System.out.println("\t 3) Save");
            System.out.println("\t 4) Load");
            System.out.println("\t 5) Display All");
            System.out.println("\t 6) Search");
            System.out.println("\t 7) Exit");
            System.out.println("Select an option (number): ");
      }

      /**
       * prompts the user for input of contact information then adds it to the
       * arrayList of contacts
       */
      private static boolean add() {
            String firstName, lastName, phoneNumber, email, address;
            Scanner in = new Scanner(System.in);
            System.out.println("Enter the First Name");
            firstName = in.nextLine();
            System.out.println("Enter the Last Name");
            lastName = in.nextLine();
            System.out.println("Enter the Phone Number");
            phoneNumber = in.nextLine();
            System.out.println("Enter the Email");
            email = in.nextLine();
            System.out.println("Enter the Address");
            address = in.nextLine();
            for (int i = 0; i < contacts.size(); i++) {
                  if (contacts.get(i).getPhoneNumber().equals(phoneNumber)) {
                        System.out.println("Contact already exitst with that
number");
                        return false;
                  }
            }
            Contact temp = new Contact(firstName, lastName, phoneNumber, email,
address);
            contacts.add(temp);
            return true;
      }

      /**
       * removes a contact that has a matching phone number to the users input
       */
      private static void remove() {
            Scanner in = new Scanner(System.in);
            System.out.println("What phone number would you like to remove");
            String number = in.nextLine();
            for (int i = 0; i < contacts.size(); i++) {
                  if (number.equals(contacts.get(i).getPhoneNumber())) {
                        contacts.remove(i);
                        System.out.println("Removed");
                        return;
                  }
            }
            System.out.println("A contact does not exist with that number");
      }

      /**
       * Saves the information in the Contacts arrayList to the AddressBook.bin
file
       */
      private static void save() {
            File output = new File("AddressBook.bin");
            ObjectOutputStream oos = null;

            try {
                  oos = new ObjectOutputStream(new FileOutputStream(output));
                  oos.writeObject(contacts);
            } catch (FileNotFoundException e) {
                  e.printStackTrace();
            } catch (IOException e) {
                  e.printStackTrace();
            } catch (Exception e) {
                  e.printStackTrace();
            } finally {
                  try {
                        oos.close();
                  } catch (Exception e) {
                        e.printStackTrace();
                  }
            }
            System.out.println("Saved to file AddressBook.bin");
      }

      /**
       * reads information from AddressBook.bin and places those contacts into the
       * contacts arrayList
       */
      private static void load() {
            contacts = new ArrayList<Contact>();
            ObjectInputStream ois = null;

            try {
                  ois = new ObjectInputStream(new
FileInputStream("AddressBook.bin"));
                  contacts = (ArrayList<Contact>) ois.readObject();
            } catch (FileNotFoundException e) {
                  e.printStackTrace();
            } catch (IOException e) {
                  e.printStackTrace();
            } catch (ClassNotFoundException e) {
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```
            e.printStackTrace();
        } catch (Exception e) {
            e.printStackTrace();
        } finally {
            try {
                ois.close();
            } catch (Exception e) {
                e.printStackTrace();
            }
        }
        System.out.println("File Loaded");
    }

    /**
     * Displays all the contacts currently in the contacts arrayList
     */
    private static void displayAll() {
        for (int i = 0; i < contacts.size(); i++) {
            System.out.println(i + 1 + ") " + contacts.get(i).toString());
        }
    }

    /**
     * Searches the to see if a contact contains a certain value and prints it
out
     * if it does, it is also case sensitive
     */
    private static void search() {
        Scanner in = new Scanner(System.in);
        System.out.println("Search for the following in contacts: ");
        String search = in.nextLine();
        for (int i = 0; i < contacts.size(); i++) {
            if (contacts.get(i).toString().contains(search)) {
                System.out.println(contacts.get(i).toString());
            }
        }
    }

    /**
     * This method loads from the BankAccounts.txt file using the standard
Scanner object
     * and stores each object in the ArrayList.
     */
    private static void loadText() {
        contacts = new ArrayList<Contact>();
        Scanner in = null;

        try {
            in = new Scanner(new File("AddressBook.bin"));
            while(in.hasNextLine()) {
                String temp = in.nextLine();
                contacts.add(new Contact());
            }
        } catch(FileNotFoundException e) {
            e.printStackTrace();
        } catch(Exception e) {
            e.printStackTrace();
        } finally {
            try {
```

```
                        in.close();
                  } catch(Exception f) {
                        f.printStackTrace();
                  }
            }
      }

}
```