

Author Class:

```
public class Author {
    private String firstName;
    private String lastName;

    public Author() {
        firstName = " ";
        lastName = " ";
    }

    public Author(String firstName, String lastName) {
        this.firstName = firstName;
        this.lastName = lastName;
    }

    public String getfirstName() {
        return firstName;
    }

    public String getlastName() {
        return lastName;
    }

    public void setfirstName(String fN) {
        this.firstName = fN;
    }

    public void setlastName(String lN) {
        this.lastName = lN;
    }

    @Override
    public String toString() {
        return firstName + " " + lastName;
    }
}
```

Book Class:

```
public class Book {

    private Author author;
    private String title;
    private int year;
    private String publisher;
    private String genre;
    private double rating;
    private double price;

    public Book() {
        title = " ";
        year = 0;
        publisher = " ";
        genre = " ";
        rating = 0.0;
        price = 0.0;
    }

    public Book(Author userAuthor, String userTitle, int userYear, String userPublisher, String userGenre, double userRating,
double userPrice) {
        this.author = userAuthor;
        this.title = userTitle;
        this.year = userYear;
        this.publisher = userPublisher;
        this.genre = userGenre;
        this.rating = userRating;
        this.price = userPrice;
    }

    public Author getAuthor() {
        return author;
    }

    public void setAuthor(Author author) {
        this.author = author;
    }

    public String getTitle() {
        return title;
    }

    public void setTitle(String title) {
        this.title = title;
    }

    public int getYear() {
        return year;
    }

    public void setYear(int year) {
        this.year = year;
    }

    public String getPublisher() {
        return publisher;
    }

    public void setPublisher(String publisher) {
```

```

        this.publisher = publisher;
    }

    public String getGenre() {
        return genre;
    }

    public void setGenre(String genre) {
        this.genre = genre;
    }

    public double getRating() {
        return rating;
    }

    public void setRating(double rating) {
        this.rating = rating;
    }

    public double getPrice() {
        return price;
    }

    public void setPrice(double price) {
        this.price = price;
    }

    @Override
    public String toString() {
        return "Book [author=" + author + ", title=" + title + ", year=" + year + ", publisher=" + publisher
            + ", genre=" + genre + ", rating=" + rating + ", price=" + price + "]";
    }
}

```

BookDatabase Class

```
import java.util.ArrayList;
public class BookDatabase {

    private ArrayList<Book> bookList;

    public BookDatabase() {
        bookList = new ArrayList<Book>();
    }

    public BookDatabase(ArrayList<Book> list) {
        this.bookList = list;
    }

    public ArrayList<Book> getList() {
        return bookList;
    }

    public void setList(ArrayList<Book> list) {
        this.bookList = list;
    }

    public void addBook(Book book) {
        bookList.add(book);
    }

    public void removeBook(Book book) {
        bookList.remove(book);
    }

    public ArrayList<Book> searchByAuthor(Author userAuthor) {
        ArrayList<Book> booksAuthor = new ArrayList<Book>();

        for(Book userBook : bookList){
            if (userBook.getAuthor().getfirstName() == userBook.getAuthor().getfirstName()
                && userBook.getAuthor().getlastName() == userAuthor.getlastName()){
                booksAuthor.add(userBook);
            }
        }
        return bookList;
    }

    public ArrayList<Book> searchByYear(int userStartYear, int userEndYear){
        ArrayList<Book> booksByYears = new ArrayList<Book>();
        for (Book userBook : bookList) {
            if (userStartYear <= userBook.getYear() && userBook.getYear() <= userEndYear) {
                booksByYears.add(userBook);
            }
        }
        return booksByYears;
    }

    public ArrayList<Book> searchByGenre(String genre){
        ArrayList<Book> booksWithGenre = new ArrayList<Book>();
        for (Book book : bookList) {
            if (book.getGenre() == genre) {
                booksWithGenre.add(book);
            }
        }
        return booksWithGenre;
    }
}
```

```
}
```

```
@Override
```

```
public String toString() {  
    return bookList;
```

```
}
```

```
}
```

Client Class:

```
import java.io.FileInputStream;
import java.io.FileNotFoundException;
import java.util.ArrayList;
import java.util.Arrays;
import java.util.NoSuchElementException;
import java.util.Scanner;
import java.io.*;

public class Client {

    public static void main(String[] args) throws FileNotFoundException {
        String file = "C:\\Users\\bgbry\\Downloads\\dataset (5).csv";
        BufferedReader reader = null;

        FileInputStream fis = new FileInputStream("\\C:\\Users\\bgbry\\Downloads\\dataset (3).csv\\");
        Scanner scan = new Scanner(fis);

        ArrayList<Book> booklist = new ArrayList<Book>();
        BookDatabase bd = new BookDatabase();

        try {
            while (scan.hasNextLine()) {
                Author userAuthor = new Author();
                Book userBook = new Book();
                scan.nextLine();
                String line = scan.nextLine();

                String[] lineSplit = line.split(",");

                //Assigns the selected author to the corresponding book
                String author = lineSplit[1];
                userAuthor.setfirstName(author);
                author = lineSplit[3];
                userAuthor.setlastName(author);
                userBook.setAuthor(userAuthor);

                //Sets title of book
                String title = lineSplit[5];
                userBook.setTitle(title);

                int year = Integer.parseInt(lineSplit[7]);
                userBook.setYear(year);

                //Sets publisher of book
                String pub = lineSplit[9];
                userBook.setPublisher(pub);

                //Sets genre of book
                String genre = lineSplit[11];
                userBook.setGenre(genre);

                //Sets rating of book
                double rating = Double.parseDouble(lineSplit[13]);
                userBook.setRating(rating);
            }
        }
    }
}
```

```

//Set price
String p = lineSplit[15];
p = p.substring(1);
double price = Double.parseDouble(p);
userBook.setPrice(price);

//Set book database array and add book to the same array
bd.setList(booklist);
bd.addBook(userBook);

}}
catch(NoSuchElementException e) {
    System.out.println(" ");
}
scan.close();

Scanner scnr = new Scanner(System.in);

System.out.println("How do you want to search for the book?");
System.out.println("Choose between author, genre or year!");

//Scans user input to pick between author, genre or year.
String userInput = scnr.nextLine();
System.out.println();

//If user enters author the program searches in the database to find the same name entered and prints.
if (userInput.contains("author") || userInput.contains("Author")) {
    System.out.println("Enter first name");
    String firstName = scnr.nextLine();

    System.out.println("Enter last name");
    String lastName = scnr.nextLine();
    scnr.close();

    Author searchAuthor = new Author(firstName, lastName);

    bd.searchByAuthor(searchAuthor);
    System.out.println(bd.searchByAuthor(searchAuthor));
}

//If user enters genre the program searches in the database to find the same genre and prints.
else if (userInput.contains("genre") || userInput.contains("Genre")) {
    System.out.println("Type genre");
    String genre = scnr.next();
    scnr.close();
    System.out.println(bd.searchByGenre(genre));
}

//If user enters year the program searches by year in the database to display books in the selected time frame and prints.
else if (userInput.contains("year") || userInput.contains("Year")) {
    System.out.println("Type start year");
    int strt_yr = scnr.nextInt();

    System.out.println("Type end year");
    int end_yr = scnr.nextInt();
    scnr.close();

    System.out.println(bd.searchByYear(strt_yr, end_yr));
}

```

```
    }  
    else{  
        System.out.println("Please try again! Make sure you enter correctly.");  
    }  
}  
}
```