# Exercises: Advanced Querying

This document defines the **exercise assignments** for the ["Databases Advanced – Hibernate" course @ Software University.](https://softuni.bg/trainings/1444/databases-advanced-hibernate-october-2016)

For the following tasks use the **bookshop\_system** database from the [previous exercise](https://softuni.bg/downloads/svn/DB-Fundamentals/DB-Advanced-Hibernate/Oct-2016/05.%20DB-Advanced-Hibernate-Hibernate-Relations/04.%20DB-Advanced-Hibernate-Hibernate-Code-First-Exercise-Bookshop.zip). Make sure it has proper connections between tables and its populated with any sample data.

## Books Titles by Age Restriction

Write a program that **prints titles of all books** where their **age restriction** matches the given input (minor, teen or adult). **Ignore casing** of the input.

### Example

|  |  |
| --- | --- |
| **Input** | **Output** |
| miNor | A che punto Ã¨ la note  After Many a Summer Dies the Swan  Ah  … |
| teEN | All Passion Spent  Wide Sea  Antic Hay  … |

## Golden Books

Write a program that prints **titles of the golden edition books** and have **less than 5000 copies**.

### Example

|  |
| --- |
| **Output** |
| Behold the Man  Bury My Heart at Wounded Knee  The Cricket on the Hearth  … |

## Books by Price

Write a program that **prints titles and price** **of books** with **price lower than 5** and **higher than 40**.

### Example

|  |
| --- |
| **Output** |
| A che punto Ã¨ la note - $45.78  All the King's Men - $45.60  An Evil Cradling - $3.30  Beyond the Mexique Bay - $45.45  … |

## Not Released Books

Write a program that **prints titles** of all books that are **NOT released** on given year.

### Example

|  |  |
| --- | --- |
| **Input** | **Output** |
| 2000 | Absalom  A che punto Ã¨ la note  After Many a Summer Dies the Swan  … |
| 1998 | A che punto Ã¨ la note  Ah  Wilderness!  … |

## Book Titles by Category

Write a program that **print titles of books** by given **list of categories**. The list of categories will be given in a single one separated with one or more spaces.

### Example

|  |  |
| --- | --- |
| **Input** | **Output** |
| fantasy thriller crime | Thrones  Dominations  Tiger! Tiger!  Number the Stars  Now Sleeps the Crimson Petal  When the Green Woods Laugh |

## Books Released Before Date

Write a program that **prints title, edition type and price** of books that are **released before given date** as an input from the console. The date will be **in format dd-MM-yyyy**.

### Example

|  |  |
| --- | --- |
| **Input** | **Output** |
| 12-04-1992 | All Passion Spent  Bury My Heart at Wounded Knee  A Catskill Eagle  … |
| 30-12-1989 | Bury My Heart at Wounded Knee  Consider the Lilies  The Curious Incident of the Dog in the Night-Time  … |

## Authors Search

Write a program that **prints names** of those authors whose **first name ends with given string**.

### Example

|  |  |
| --- | --- |
| **Input** | **Output** |
| e | George Powell  Jane Ortiz  Julie Washington  … |
| dy | Randy Morales  Randy Graham |

## Books Search

Write a program that **print** **titles of books** which **contains given string** (regardless of the casing).

### Example

|  |  |
| --- | --- |
| **Input** | **Output** |
| sK | A Catskill Eagle  The Daffodil Sky  The Skull Beneath the Skin |
| WOR | Great Work of Time  Terrible Swift Sword |

## Book Titles Search

Write a program that **prints titles of books** which are **written by authors** whose **last name start with given string**.

### Example

|  |  |
| --- | --- |
| **Input** | **Output** |
| R | A Time of Gifts (Amanda Rice)  To Sail Beyond the Sunset (Amanda Rice)  To Say Nothing of the Dog (Amanda Rice) |
| gr | What's Become of Waring (Randy Graham)  Vanity Fair (Randy Graham)  Dominations (Chris Graham)  Eyeless in Gaza (Brenda Griffin) |

## Count Books

Write a program that prints **number of books** whose **title is longer than a number** given as an input.

### Example

|  |  |  |
| --- | --- | --- |
| **Input** | **Output** | **Comments** |
| 12 | 178 | There are 178 books with longer title than 12 symbols |
| 40 | 2 | There are 2 books with longer title than 40 symbols |

## Total Book Copies

Write a program that prints the **total number of book copies** **by author**. Order the results **descending by total book copies**.

### Example

|  |
| --- |
| **Output** |
| Amanda Rice – 87819  Amy Porter – 29366  Christina Jordan – 18708  Earl Bennett – 12978  … |

## Find Profit

Write a program that print the **total profit of all books by category**. Profit for a book can be calculated by multiplying its **number of copies** with **price per single book**. Order the results **descending by total profit** for category and **ascending by category name**.

### Example

|  |
| --- |
| **Output** |
| Fantasy - $1100443.04  Crime - $796916.04  Thriller - $688182.75  … |

## Most Recent Books

Get the most recent books by categories. The **categories** should be ordered by **total** **book count**. Only take the **top 3** most recent books from each category - ordered by **date** (descending), then by **title** (ascending). Print the **category name**, **total book count** and for each **book** - its **title** and **release date**. Get only those categories that **have total book count more than 35**.

**Note**: Books may appear in several categories.

### Example

|  |
| --- |
| **Output** |
| --Mystery: 58 books  Brandy of the Damned (2015)  The Parliament of Man (2014)  Look Homeward (2014)  --Science Fiction: 50 books  Alien CornA (play) (2014)  How Sleep the Brave (2014)  Look Homeward (2014)  --Crime: 45 books  Look Homeward (2014)  The Doors of Perception (2013)  A Monstrous Regiment of Women (2013)  --Romance: 38 books  Alien CornA (play) (2014)  Look Homeward (2014)  The Wealth of Nations (2013)  --Fiction: 37 books  Great Work of Time (2014)  A Many-Splendoured Thing (2012)  The Last Temptation (2012) |

## Reduced Book

Write a program that would **print information** (**title**, **edition type**, **age** **restriction** and **price**) for book **by given title**. When retrieving the book information **select only those fields** and **do NOT include any other information** in the returned result.

### Example

|  |  |
| --- | --- |
| **Input** | **Output** |
| Тhrones | Thrones PROMO MINOR 21.41 |
| Things Fall Apart | Things Fall Apart GOLD ADULT 40.02 |

### Hints

You must **create a projection** of the book class omitting not required fields.

1. Create **interface ReducedBook** with properties for **title**, **edition type**, **age restriction** and **price**.
2. In the books repository create **query method** that would return **ReducedBook** by given title
3. Use that method in the **BookService class**
4. Use the **BookService** to retrieve instance of that object and print its information

## \* Increase Book Copies

Write a program that **increases the copies of all books** **released after given date** **with given number**. Print the total amount of book copies that were added.

### Input

* On the **first line** – date in format **dd-MMM-yyyy.** If a book is released after that date (exclusive) increase her book copies with the provided number from the second line of input
* On the **second line** – number of **book copies** each book should be increased

### Output

* **Total number of books** that was added to the database

### Example

|  |  |  |
| --- | --- | --- |
| **Input** | **Output** | **Comments** |
| 12 Oct 2005  100 | 6100 | 61 books are released after 12 Oct 2005 so total of 6100 book copies were added |
| 06 Jun 2013  44 | 572 | 13 books are released after 6 Jun 2013 so total of 572 book copies were added |

## \* Remove Books

Write a program that **removes from the database** those **books** whose **copies are lower than given number**. Print on the console the **number of books that were deleted** from the database.

### Example

|  |  |
| --- | --- |
| **Input** | **Output** |
| 300 | 4 books were deleted |
| 4200 | 34 books were deleted |

## \* Stored Procedure

Using HeidiSQL (or other similar tool) **create stored procedure** that receives **authors first and last name** and returns the **total number of books that author has written**. Then write a **program** that **receives author name** from the console and prints the **total number of books** that author has written by **using the stored procedure** you’ve just created.

### Example

|  |  |
| --- | --- |
| **Input** | **Output** |
| Amanda Rice | Amanda Rice has written 4 books |
| Christina Jordan | Christina Jordan has written 1 book |
| Wanda Morales | Wanda Morales has not written any books yet |