# Exercises: Advanced Querying

This document defines the **exercise assignments** for the ["Databases Advanced – Entity Framework" course @ Software University.](https://softuni.bg/trainings/1442/databases-advanced-entity-framework-october-2016)

## \* Optimizing Previous Homeworks

You can open your **previous homeworks** and **optimize** them **by using select** where it is possible in order to **take less data from the database.**

# Bookshop System

For the following tasks use the **BookhopSystem** 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 **selects** and **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 selects and 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 selects **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 **selects** and **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 **selects** and **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. **NOTE**: The results here may not be like the one above, because of the random attachment of an category to the book.

### 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 **selects** and **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 - Promo - 7.18  Bury My Heart at Wounded Knee - Gold - 3.86  A Catskill Eagle - Normal - 15.78  … |
| 30-12-1989 | Bury My Heart at Wounded Knee - Gold - 3.86  Consider the Lilies - Promo - 30.89  The Curious Incident of the Dog in the Night-Time - Normal - 23.41  … |

## Authors Search

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

### Example

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

## Books Search

Write a program that **selects and prints** **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 **selects** and **prints titles of books** which are **written by authors** whose **last name start with given string**. **NOTE**: The results here may not be like the one above, because of the random attachment of an author to the book.

### 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 **selects** and **prints** **number of books** whose **title is longer than a number** given as an input.

### Example

|  |  |  |
| --- | --- | --- |
| **Input** | **Output** | **Comments** |
| 12 | 174 | There are 174 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 **selects** and **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 **selects** and **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). **Select** and **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) |

## 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 SQL Server Management Studio **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.

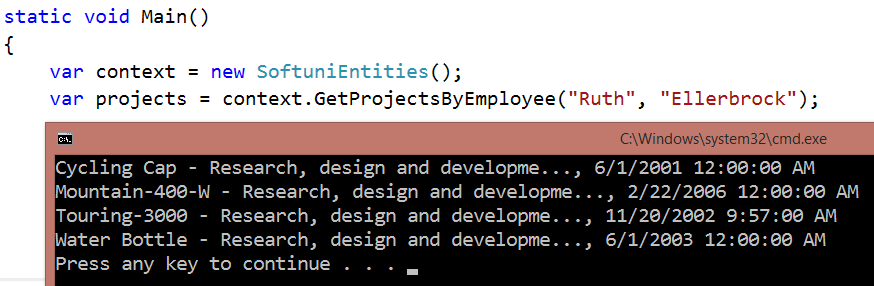
### Example

|  |  |
| --- | --- |
| **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 |

## Call a Stored Procedure

Your task is to create a stored procedure in the **SoftUni** database for finding **all projects** for given employee. The procedure should receive **first name** and **last name** as arguments.

Using EF implement a C# method that calls the stored procedure and returns the result projects' **name**, **description** and **start date**.



## Employees Maximum Salaries

Write a program to find the **max salary** for each **department**. Filter those which have max salaries not in the range 30000 and 70000.

### Example

|  |
| --- |
| **Output** |
| Tool Design - 29800.00 |
| … |

## Deposits Sum for Ollivander Family

Use the **Gringotts database**. Write a program that print all **deposit groups** and its **total deposit sum** but only for the wizards who has their magic wand crafted by Ollivander family.

### Output

|  |
| --- |
| **Output** |
| Human Pride - 188366.86 |
| … |

## Deposits Filter

Use the **Gringotts database**. Write a program that print all **deposit groups** and its **total deposit sum** but only for the wizards who has their magic wand crafted by Ollivander family. After this filter total deposit amounts lower than 150000. Order by total deposit amount in descending order.

### Example

|  |
| --- |
| **Output** |
| Troll Chest - 126585.18 |
| … |