**ICE Task 1 – Bubble Sort 01/08/2025**

The City Library wants to automate the process of managing book borrowing and calculating fines for overdue books. As a student, your task is to create a new Java project called **CityLibrary** which will consist of a **main class** and a **Borrower class**. The **Borrower class** should include the following variables:

* **-firstName**: String
* **-lastName**: String
* **-booksBorrowed**: int
* -**ratePerBook**: double
* **-fine**: double
* -**total**: double

The **Borrower class** should also include:

* A default constructor.
* One overloaded constructors:
  + Borrower(String, String, int, double) – This constructor assigns firstName, lastName, booksBorrowed, and ratePerBook with the received parameters.

Additionally, the **Borrower class** should have:

* **Mutator (setter)** for fine and **Getters** for the other data members.
* A method to calculate the payments (**total**) by multiplying **booksBorrowed** with **ratePerBook**. The method must add extra charge according to the table below:

|  |  |
| --- | --- |
| **Days** | **Extra Charge** |
| **1 - 5** | **0** |
| **6 - 10** | **Fine + 15% of the total** |
| **>10** | **Fine + 25% of the total** |

In the main class:

1. Get the information about the borrowers from the user, including the number of people who borrowed the books and the number of days they borrowed the books for.
2. Use a mutator to set a fine to R100.00
3. Create instances of the Borrower class.
4. Implement a method to sort the Borrower array by the payments using the bubble sort algorithm.
5. Return the sorted array of Borrower.
6. Implement a method to display the content of the sorted array of Borrower.