



**(2)** The FreeLib library lends books (max 30 days) and magazines (max 10 days) to registered borrowers. FreeLib also handles the purchase of new titles: popular titles are bought in multiple copies, and old books and magazines are removed when they are out of date or in poor condition. A borrower can borrow one book and one magazine at a time.

The borrower selects a book or a magazine: if it is available, he/she can borrow it. Otherwise, he/she can make a reservation, so that when that resource is returned or purchased by the library, that borrower is notified. The reservation is canceled when the borrower checks out the book/magazine or through an explicit canceling procedure by the librarian. At the end of the loan, the borrower has to return the book or the magazine. If the book or magazine is returned late, the amount of the delay is computed and stored for that borrower.

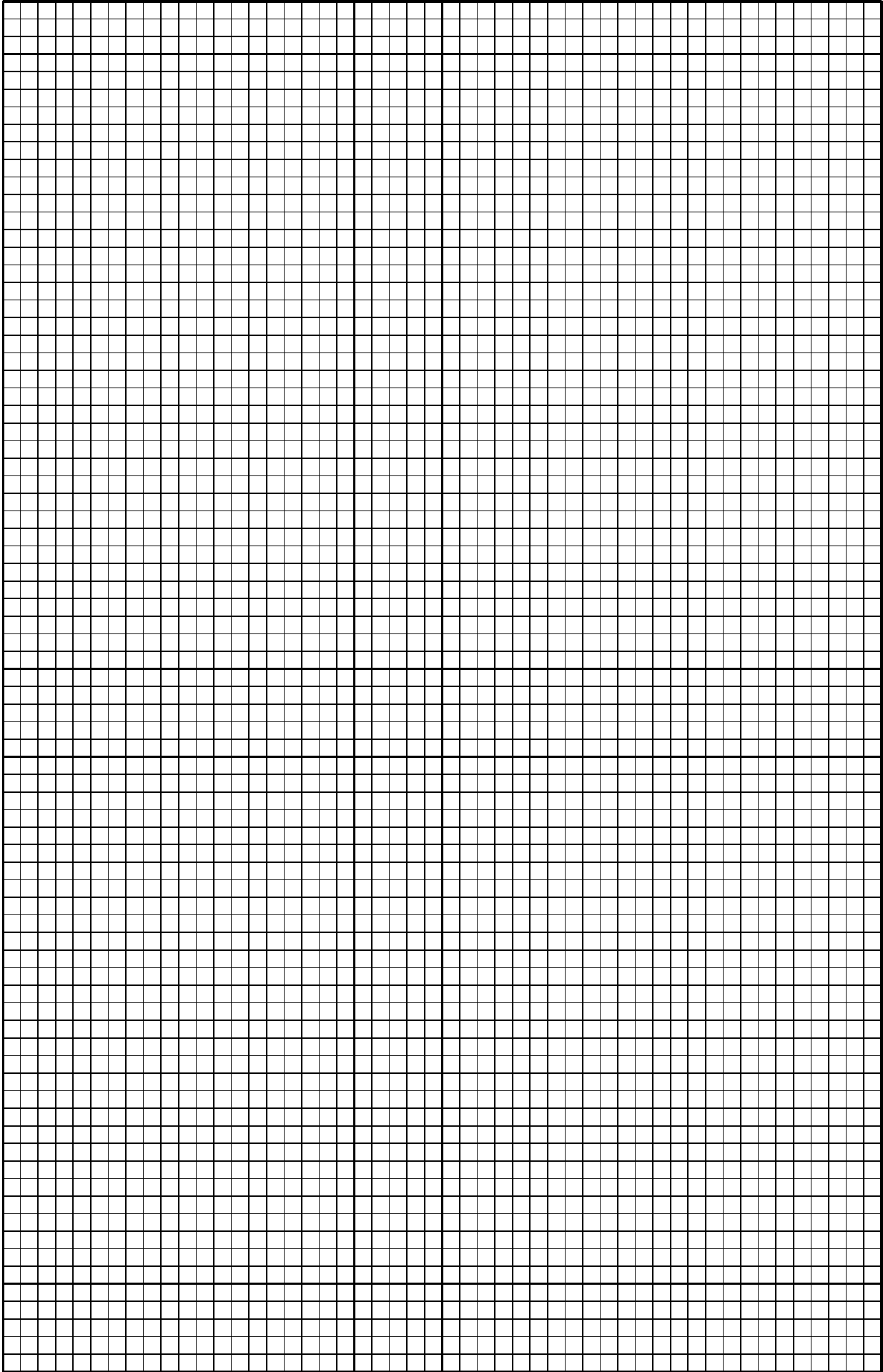
The librarian can easily create, update, and delete information about the titles, borrowers, loans, and reservations in the system by a separate process (not required).

Provide a reasonable schema of the outlined process(es), according to the modeling formalism of WIDE. Please, suitably model all the *pre-conditions* and *post-conditions* of every task. Also provide a reasonable description of the needed external database tables.

**(3)** With respect to the process described in Exercise 2, provide an example of an exception that manages the late borrower and disables him/her from the loan for an amount of time corresponding to the delay in returning the book or magazine.

space reserved to your answer - exercise 3

space reserved to your answer - exercise 2



(4) When starting a new process instance, the Workflow Management System makes a copy of its current schema. Describe what is the rationale for this.

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This part for use by the teacher, only.

Ex. 1	Ex. 2	Ex. 3	Ex. 4	Total
4	12	5	4	25

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