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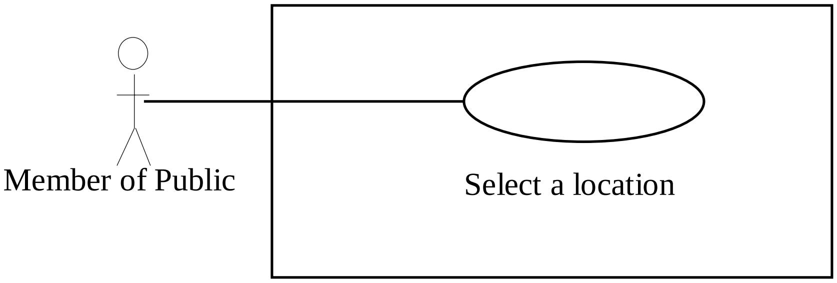
Task 1: Town Map – Model Answer

The use case model has one actor and one use case. It is shown below:



The use case for selecting a location is quite straightforward. It is informal at this stage of analysis and reads somehting like:

> *“A member of the public selects one location on the panel and presses the relevant button. The equivalent light, or lights, on the map goes on. After 10 seconds the light, or lights, go off“.*

It is difficult to define the problem domain objects for this example, because there are no problem domain objects according to the presented definition. This is because the system does not need to store information about entities in the real world. Rather the map is “hardcoded“ into the physical device, and lights are switched on next to the defined town location.

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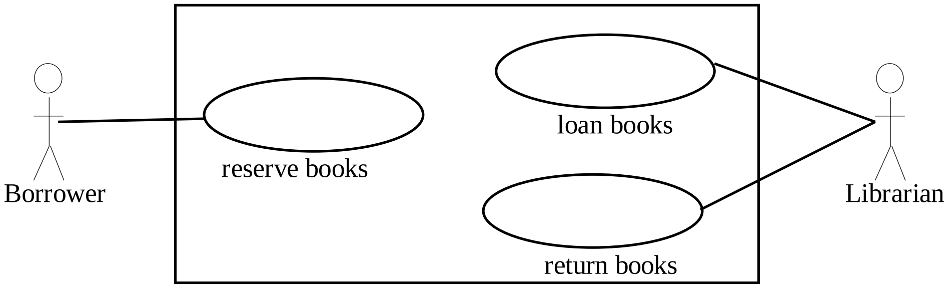
Task 2: Lending Library – Model Answer

The use case model has two actors and three use cases as shown below:



The use case for loaning books can be complex if we consider all possible alternative cases. It is informal at this stage of analysis and reads something like:

> *“The borrower passses the books and the borrower card to the librarian. The librarian reads the borrower details into the system using the bar code reader. Reader details appear on the screen for the librarian to check. From each book to be borrowed the librarian reads the book details using the bar code reader. Book details are displayed on the screen. The librarian passes the book through the barcode reader to record the loan. The librarian then stamps the book with the date and passes it, along with the borrower card, back to the borrower.*
>
> - *If the borrower is not allowed to borrow books for whatever reasons, terminate the use case;*
> - *If the book is reserved by someone else, do not lend the book;*
> - *If the quota of books which can be borrowed by the borrower is exceeded, stop the use case.“*

The use case can be complicated by other alternatives, for example what happens if the book is reserved by the borrower. The problem domain model will also be more complex than in other examples:

Class object: Borrowed Item
    Attributes
        ISBN: String
        Title: String
        Author: String

Class object: Borrower
    Attributes
        Name: String
        Identifier: String;
        Address: String;

Class object: Loan
    Attributes
        Borrower: String;
        Borrowed Item: String;
        Return date: String;

It is possible to extend the model using inheritance relations which say for example that a borrowed item is either a book, video or journal.