# Applications Development Practice 3

# 1st Phase: Planning document

# Problem statement & UML

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# Problem domain

The BRONZE library store has recently opened their first library store in Rondebosch. During the first few weeks after its opening, the store has started to attract more and more customers by the day that is interested in borrowing or buying books at the store. Then an unexpected disaster suddenly occurred. Their existing system that used to manage their library, got caught up in a fire due to an electric circuit that occurred inside the server room that is inside the library. This has caused that all data on their old library management system has become lost permanently, as this was their only system to manage the library activities. Luckily the rest of the library wasn’t affected by the fire (such as the books and furniture inside it). The BRONZE library has contacted us and ask us if we are able to completely redesign their system, as they wanted new additional features along with its existing features that their old system had, that was affected by the fire. While they didn’t have a system to manage customer and library data, they decided to temporarily close the store till the new system is completed and in full operation again. After we as developers had a meeting with the manager and staff of the library, we identified few requirements that the system must perform that was mentioned by the library manager.

There are two users who will be making use of the library management system. The librarians and the manager of the library. The system will be able to store their data. The system must also be able to manage data about the library, customers, book suppliers, computers, printers, transactions, and books, that is inside the library. The system should also be able to keep track of customer accounts. Users and customer can be divided into two types each. A customer can be a student or a non-student/adult.

**The new system must be able to store the following entities and perform the following actions:**

|  |  |
| --- | --- |
| **Entities** | **Actions** |
| Library | * Store data about the library * Library staff can also view and update library details on the system. |
| Staff | * Staff user of the system can be added, viewed, updated, and deleted |
| Librarian | * This class/entity is a sub-class or entity from the User entity * Use the <<extends>> function * The librarian data can be added, viewed, updated, and deleted by the system. |
| Manager | * This class/entity is a sub-class or entity from the User entity * Use the <<extends>> function * The manager data can be added, viewed, updated, and deleted by the system. |
| Customer | * The customer data must be captured by the system |
| Student | * A student can be from university or school * Uses the <<extends>> in Java from Customer * The system must be able to add, view, update and delete a student from the system. |
| Adult (non-student) | * A non-student can be an adult, who is not doing any tertiary education, but might work * Use the <<extends>> in Java from Customer * The system must be able to add, view, update and delete a non-student from the system |
| Supplier | * A supplier, supplies books to the library * The library has many suppliers * The system must save suppliers data onto the system. * Supplier data can be viewed, viewed, updated, and deleted. |
| Computer | * The library has many computers (workstations), which is used by the library staff and customers * The system must be able to store information about these workstations * The system must view the status of these workstations i.e. availability and monitor the user’s actions |
| Printer | * The library has more than one printer * Customers and the librarian can use the printer * The system should be able to store information about the printer * The system must view the availability of a printer as well as how much pages each printer has availability |
| Transaction | * Transactions are performed by the librarian * The system must be able to store, view and delete transaction data |
| Books | * The library has many books * A customer can borrow books * The system must be able to store, view, update and delete book details * Book details can also be viewed |
| Customer account | * A customer can have only a single library account * Transactions details can appear on one or more accounts |

Diagram

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