**Data Dictionary – Library System  
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**About This Data**

This file explains what each column means in the sample\_data.csv file.

**Dataset Name:** Library Book Borrowing and Return System **Time Period:** January 2024 – December 2024 **Total Records:** 50 transactions

**Column Details**

1. **Transaction\_ID**
   * **What it is:** Unique number for each borrow or return
   * **Example:** T-00001
   * **Format:** T-XXXXX
   * **Empty:** No
2. **Member\_ID**
   * **What it is:** Code for each library member
   * **Example:** M-1001
   * **Format:** M-XXXX
   * **Empty:** No
3. **Book\_ID**
   * **What it is:** Code for each book
   * **Example:** B-5001
   * **Format:** B-XXXX
   * **Empty:** No
4. **Book\_Title**
   * **What it is:** Name of the book
   * **Example:** The Great Gatsby
   * **Format:** Text
   * **Empty:** No
5. **Book\_Category**
   * **What it is:** Type of book
   * **Values:** Fiction, Non-Fiction, Children
   * **Example:** Fiction
   * **Empty:** No
6. **Transaction\_Type**
   * **What it is:** Borrow or Return
   * **Values:** Borrow, Return
   * **Example:** Borrow
   * **Empty:** No
7. **Date**
   * **What it is:** Date of transaction
   * **Example:** 1/2/2024
   * **Format:** MM/DD/YYYY
   * **Empty:** No
8. **Time**
   * **What it is:** Time of transaction
   * **Example:** 9:15
   * **Format:** HH:MM (24-hour)
   * **Empty:** No
9. **Day\_of\_Week**
   * **What it is:** Day name
   * **Example:** Tuesday
   * **Values:** Monday–Sunday
   * **Empty:** No
10. **Counter\_Wait\_Time\_Minutes**
    * **What it is:** Waiting time in line
    * **Example:** 5
    * **Unit:** Minutes
    * **Range:** 2–18
    * **Empty:** No
11. **Processing\_Time\_Minutes**
    * **What it is:** Time staff took to finish transaction
    * **Example:** 2
    * **Unit:** Minutes
    * **Range:** 1–3
    * **Empty:** No
12. **Staff\_ID**
    * **What it is:** Code of staff who helped
    * **Example:** Staff-01
    * **Format:** Staff-XX
    * **Empty:** No
13. **Staff\_on\_Duty**
    * **What it is:** Number of staff working
    * **Example:** 3
    * **Range:** 2–4
    * **Unit:** People
    * **Empty:** No
14. **Due\_Date**
    * **What it is:** Book return date
    * **Example:** 1/16/2024
    * **Format:** MM/DD/YYYY
    * **Empty:** Yes (for Return)
15. **Return\_Status**
    * **What it is:** If book returned on time or late
    * **Values:** On Time, Late
    * **Example:** Late
    * **Empty:** Yes (for Borrow)
16. **Late\_Days**
    * **What it is:** Days late for return
    * **Example:** 0, 3, 5
    * **Unit:** Days
    * **Empty:** Yes (for Borrow)

**Simple Calculations**

* **Total Time =** Counter\_Wait\_Time + Processing\_Time **Example:** 3 + 2 = 5 minutes
* **Book Late?**
  + If Return\_Status = Late → Late\_Days > 0
  + If Return\_Status = On Time → Late\_Days = 0

**What We Can Learn**

**Waiting Times:**

* Check longest waiting times
* Compare days and times
* See if more staff reduces waiting

**Staff Work:**

* Count transactions per staff
* Find fastest staff
* Plan for busy times

**Books:**

* Find most popular category
* See how many late returns
* Check most borrowed books

**Busy Times:**

* See busiest day of week
* Find busiest time
* Compare weekdays and weekends

**Examples**

**Borrow Example:**T-00001 → M-1001 borrowed *The Great Gatsby* on Tuesday, 1/2/2024 at 9:15  
Wait 3 min, process 2 min, Staff-01, 2 staff working, due 1/16/2024

**Return Example:**T-00002 → M-1002 returned *To Kill a Mockingbird* on 1/2/2024 at 9:20  
Wait 2 min, process 1 min, Staff-01, 2 staff, returned On Time

**Late Return Example:**T-00016 → M-1016 returned *The Da Vinci Code* on 1/2/2024 at 15:00  
Wait 10 min, process 1 min, returned Late (5 days late)

**Important Notes**

**Good Data:**

* Every record complete
* Shows real queue and staff work
* Shows late returns clearly

**Check For:**

* Wait Time ≤ 30 minutes
* Processing Time 1–3 minutes
* Staff on Duty 2–4
* If Late, Late\_Days > 0

**File Created:** October 30, 2025 **Data Source:** Library Transaction Records 2024