Functional Requirements:

1. The system must allow clerks to input fines and fees for specific cases and users.
2. Users must be able to view and pay their invoices online.
3. The system must generate detailed invoices including fine details, amounts, and due dates.
4. Payment tracking must update statuses in real-time and generate receipts after successful payments.
5. The system must allow admins to generate financial reports, including outstanding payments and collected fines.
6. Invoices, payments, and receipts must be securely stored in the database.
7. The system must send notifications to users for overdue fines and payment confirmations.
8. The system must validate all inputs, such as fine amounts and payment details, before processing.
9. Admins must be able to monitor billing activity logs for auditing purposes.

Non-Functional Requirements:

1. The system must respond to user actions, such as invoice generation and payment processing, within 3 seconds.
2. The system must handle up to 100 concurrent users without performance degradation.
3. All sensitive data, such as payment and user details, must be encrypted during storage and transmission.
4. The interface must be intuitive and accessible to users with varying technical expertise.
5. The system must maintain 99.9% uptime to ensure availability for billing and payment operations.
6. All payment transactions must comply with relevant financial and data protection regulations.
7. Reports must be exportable in PDF and Excel formats for easy sharing and offline use.
8. Audit logs must be retained for a minimum of 5 years to ensure traceability of billing activities.
9. The system must support multi-language interfaces for a diverse user base.

**Use Case Name**:Billing and Fine Management

**Actor:**Clerk, Payee (User), Admin

**Description/Scenario:**

1. The Clerk inputs fines and fees into the system using the case or user details.
2. The system validates the input and stores the fines in the database.
3. The Clerk generates an invoice based on the entered fines, which is sent to the Payee.
4. The Payee views the invoice and makes a payment using available payment methods.
5. The system processes the payment, updates the payment status, and generates a receipt.
6. The Admin generates financial reports, such as outstanding payments or collected fines, for auditing and review.
7. The system logs all actions, such as invoice creation, payment processing, and report generation, for auditing purposes.

**Exceptions:**

1. If required input fields are incomplete, the system shows an error message and blocks submission.
2. If payment processing fails, the system notifies the Payee with an error message.
3. If database connectivity is lost, the system displays a notification and retries the operation.
4. If an Admin attempts to generate a report for a nonexistent date range, the system displays a No Data Found message.

Precondition:

1. The user must be logged into the system with the appropriate role and permissions.
2. Fines and fees must be entered into the system before invoices can be generated.
3. Payment methods must be pre-configured and operational for successful transactions.

Postcondition:

1. Fines and fees are successfully recorded in the system.
2. Invoices are generated and sent to the Payee for payment.
3. Payment statuses are updated, and receipts are generated for completed transactions.
4. Financial reports are generated and saved for review and auditing purposes.
5. The system logs all operations for traceability and compliance.