

PlantUML Sequence Diagram

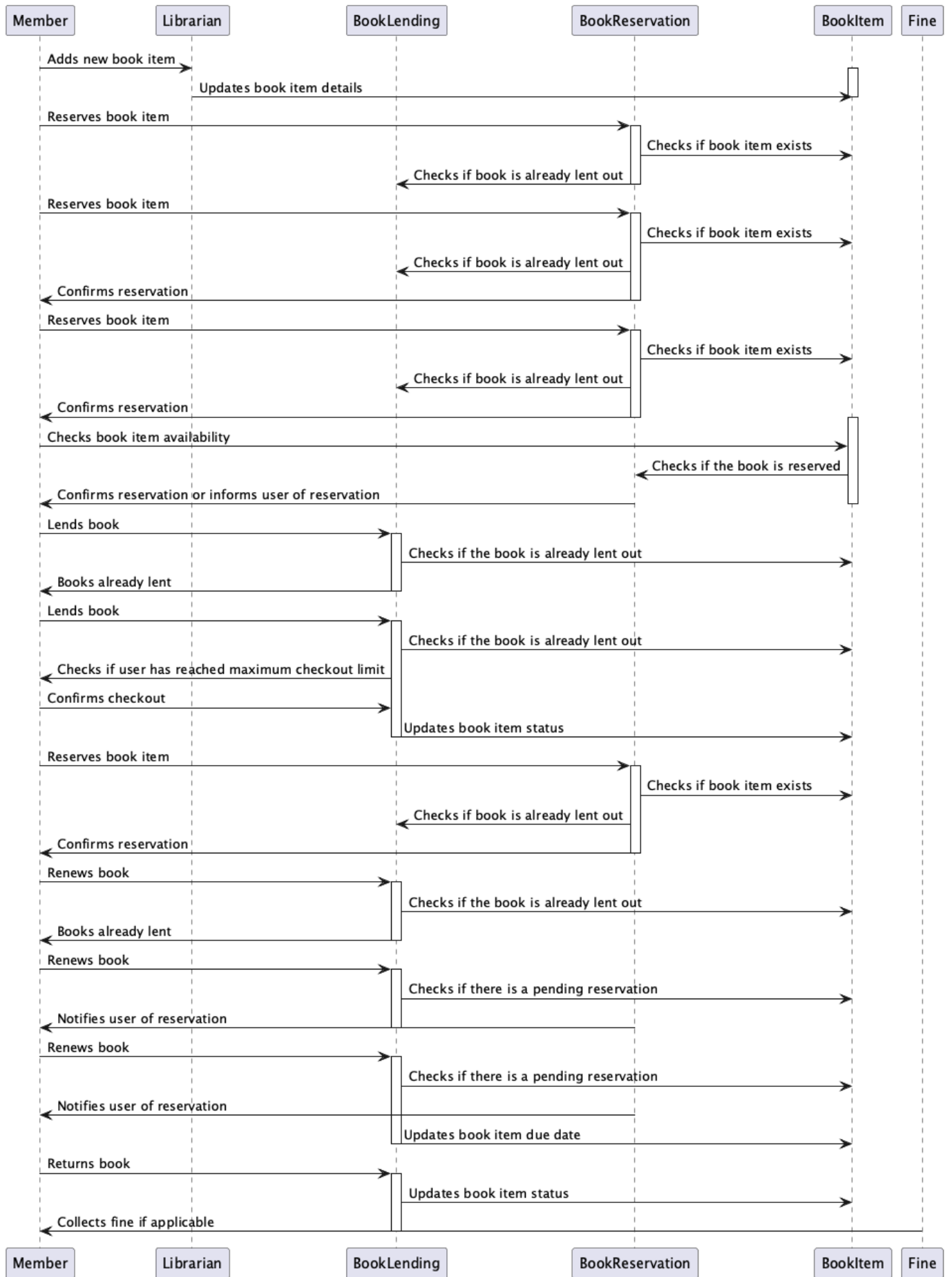
Root Cause Analysis of Crashes

Based on the logs provided, there are no crashes identified. However, there are several points where the flow could be improved or potential issues could arise:

- **Duplicate book addition:** The logs show the librarian adding the same book twice. This could lead to duplicate entries in the database.
- **Checking out a reserved book:** If a member tries to checkout a book that is reserved by another member, the system should inform the member about the reservation and prevent the checkout.
- **Reaching maximum checkout limit:** If a member tries to checkout more books than the allowed limit, the system should inform the member and prevent the checkout.
- **Renewing a book with a pending reservation:** If a member tries to renew a book that has a pending reservation from another member, the system should notify the member about the reservation and prevent the renewal.

These are just some potential issues that could arise based on the provided logs.

Sequence Diagram of Book Checkout and Renew Process



Logs:

2025-01-22 17:32:43,627 - root - INFO - class: Member, module: __init__, file: member.py, log: Member object created., line: 19

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2025-01-22 17:32:43,628 - root - INFO - class: Librarian, module:
code.library_administration.librarian, file: librarian.py, log: Book item added
successfully., line: 21
2025-01-22 17:32:43,628 - root - INFO - class: Librarian, module:
code.library_administration.librarian, file: librarian.py, log: Book item added
successfully., line: 21
2025-01-22 17:32:43,629 - root - INFO - class: Member, module: reserve_book_item,
file: member.py, log: Book item reserved successfully., line: 34
2025-01-22 17:32:43,629 - root - INFO - class: Member, module:
get_total_books_checkedout, file: member.py, log: Fetching total books checked out.,
line: 22
2025-01-22 17:32:43,629 - root - INFO - class: BookReservation, module:
fetch_reservation_details, file: book_reservation.py, log: Fetching reservation
details., line: 14
2025-01-22 17:32:43,629 - root - INFO - class: BookReservation, module:
fetch_reservation_details, file: book_reservation.py, log: No reservation details
found., line: 24
2025-01-22 17:32:43,629 - root - INFO - class: BookLending, module:
code.book_management.book_lending, file: book_lending.py, log: Lending a book, line:
17
2025-01-22 17:32:43,629 - root - INFO - class: BookLending, module:
code.book_management.book_lending, file: book_lending.py, log: Checking if the book is
already lent out, line: 21
2025-01-22 17:32:43,629 - root - INFO - class: BookLending, module:
code.book_management.book_lending, file: book_lending.py, log: Adding a new lending
record, line: 28
2025-01-22 17:32:43,629 - root - INFO - class: BookLending, module:
code.book_management.book_lending, file: book_lending.py, log: Book lent successfully,
line: 37
2025-01-22 17:32:43,629 - root - INFO - class: Member, module:
increment_total_books_checkedout, file: member.py, log: Incremented total books
checked out., line: 38
2025-01-22 17:32:43,629 - root - INFO - class: Member, module: checkout_book_item,
file: member.py, log: Book item checked out successfully., line: 75
2025-01-22 17:32:43,629 - root - INFO - class: BookLending, module:
code.book_management.book_lending, file: book_lending.py, log: Fetching lending
details, line: 42
2025-01-22 17:32:43,630 - root - INFO - class: BookLending, module:
code.book_management.book_lending, file: book_lending.py, log: Returning fetched
lending details, line: 49
2025-01-22 17:32:43,630 - root - INFO - class: Member, module: renew_book_item, file:
member.py, log: Due date is 2025-02-01, line: 81
2025-01-22 17:32:43,631 - root - INFO - class: BookReservation, module:
fetch_reservation_details, file: book_reservation.py, log: Fetching reservation
details., line: 14
2025-01-22 17:32:43,631 - root - INFO - class: BookReservation, module:
fetch_reservation_details, file: book_reservation.py, log: No reservation details
found., line: 24
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code.book_management.book_lending, file: book_lending.py, log: Book is already lent
out, line: 24
2025-01-22 17:32:43,632 - root - INFO - class: Member, module: renew_book_item, file:
member.py, log: Book item renewed successfully., line: 121
2025-01-22 17:32:43,632 - root - INFO - class: BookLending, module:
code.book_management.book_lending, file: book_lending.py, log: Fetching lending
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found., line: 24
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2025-01-22 17:32:43,632 - root - INFO - class: Member, module: return_book_item, file:
member.py, log: Book item returned successfully., line: 103
2025-01-22 17:32:43,632 - root - INFO - class: Member, module:
get_total_books_checkedout, file: member.py, log: Fetching total books checked out.,
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2025-01-22 17:32:43,633 - root - INFO - class: Member, module: checkout_book_item,
file: member.py, log: Failed to checkout book item., line: 71
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**This is an LLM generated report - please be aware of hallucinations
(Esp if you provide an incorrect prompt/insufficient data)**