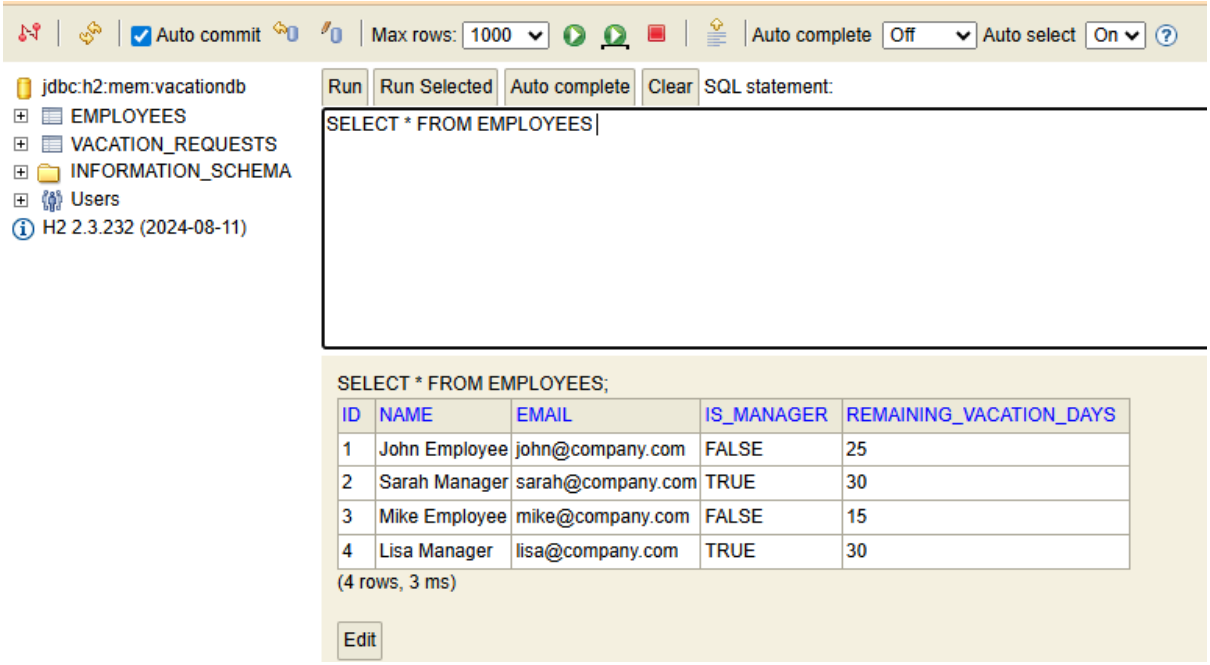
Introduction:

This report documents the testing activities performed on the **Vacation Management System API**. The system allows employees to submit vacation requests and managers to review, approve, or reject them. The API is built using a Java Spring Boot backend with an H2 in-memory database.

Database Overview:

Employees Table

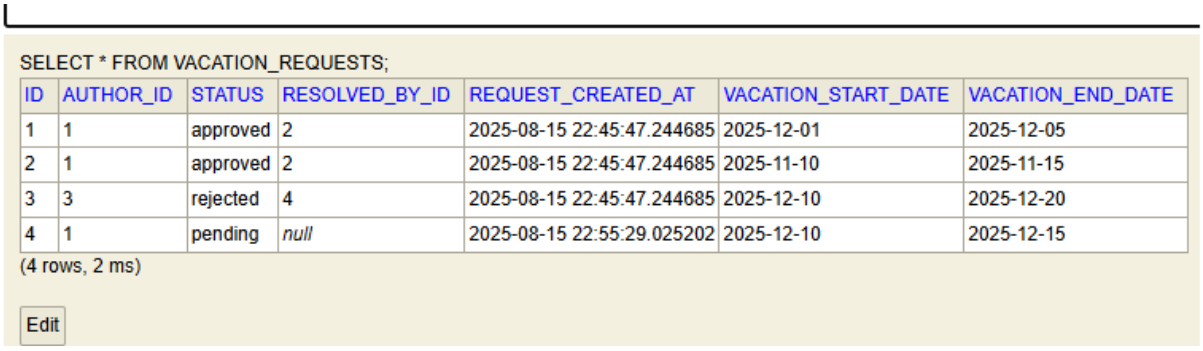
The EMPLOYEES table stores user information including role and remaining vacation days.



Vacation Requests Table

The VACATION_REQUESTS table stores all vacation requests with their status and dates.

Sample Data:

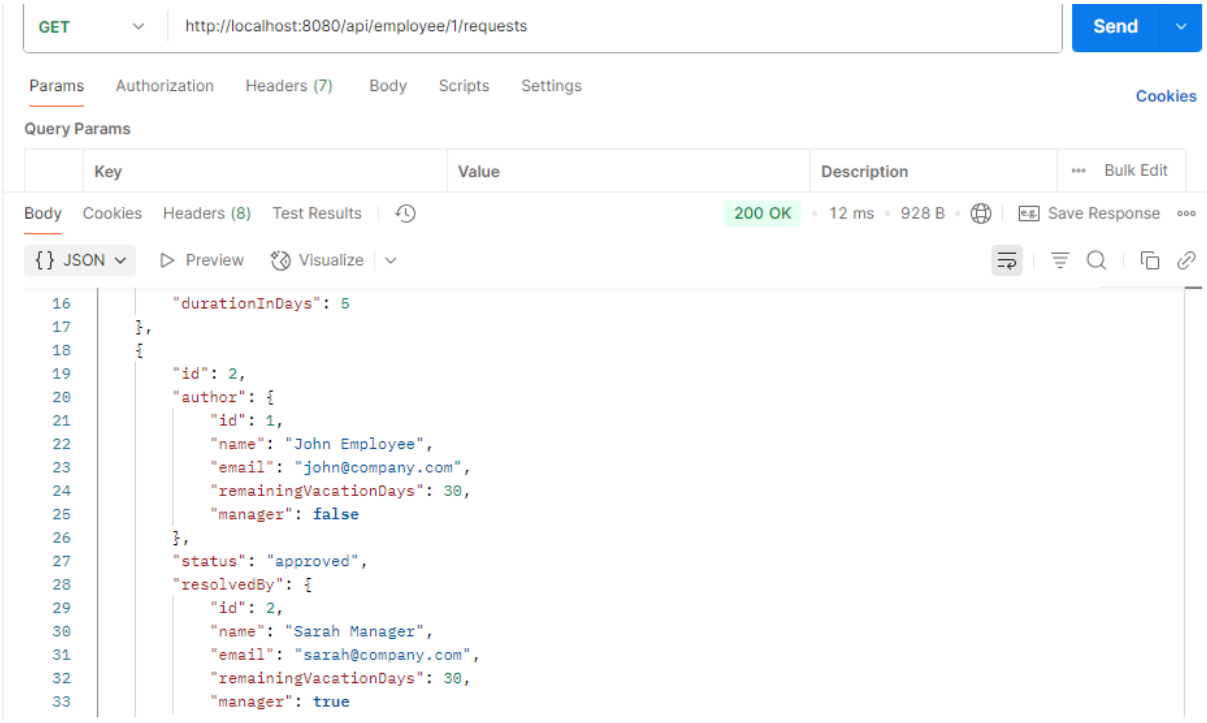


API Endpoint Testing

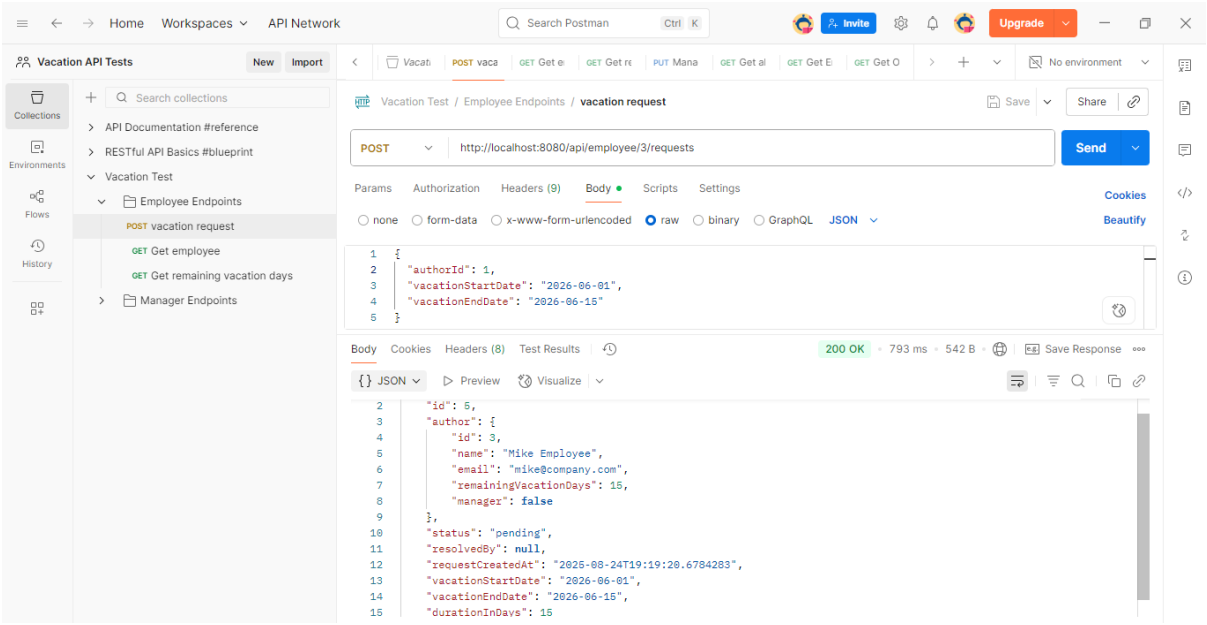
Employee Endpoints:

1. GET /api/employee/{id}/requests

- Retrieves vacation requests for a specific employee.
- Supports status filtering (approved, pending, rejected).

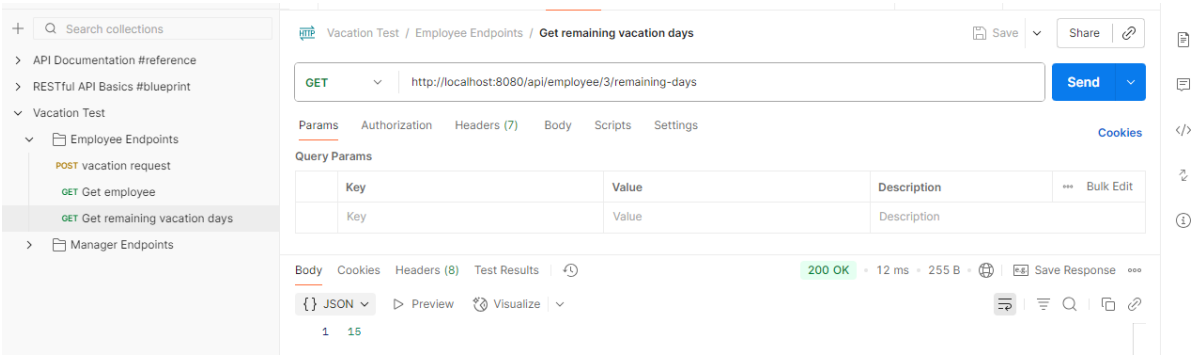


2. Submits a new vacation request:



3. GET /api/employee/{id}/remaining-days

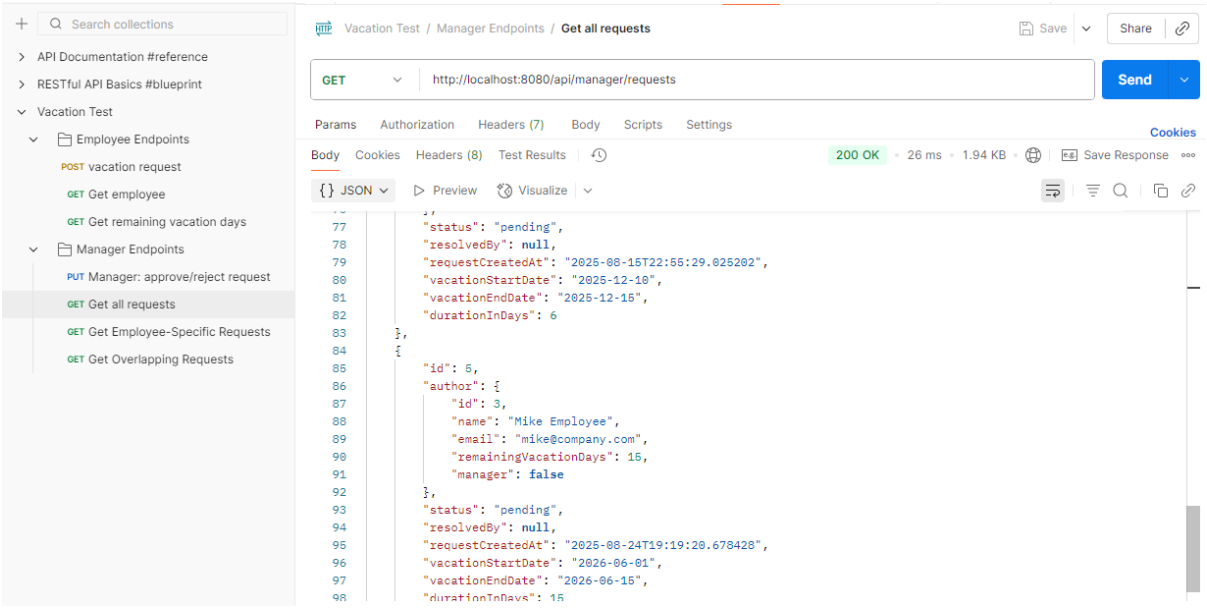
- Returns the remaining vacation days for an employee.



Manager Endpoints

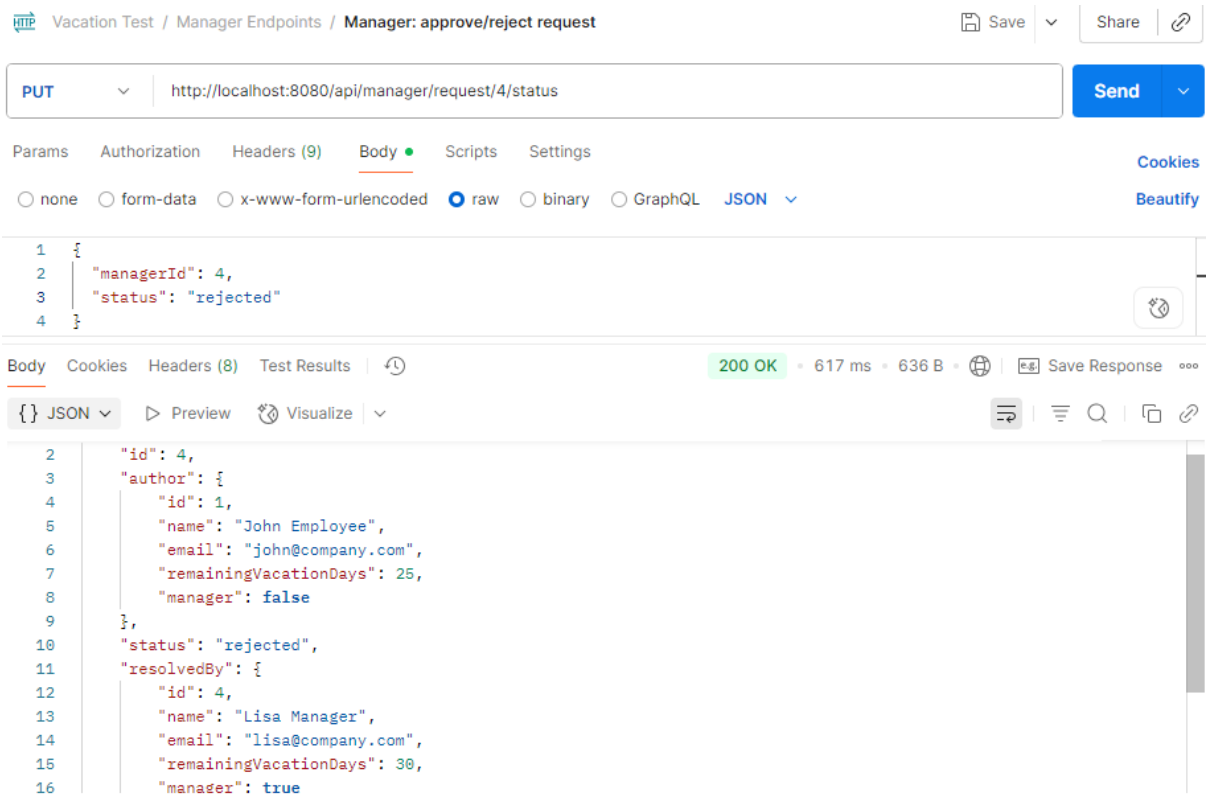
1. GET /api/manager/requests

- Retrieves all vacation requests (for managers).



2. PUT /api/manager/request/{id}/status

- Updates the status of a vacation request (approve/reject).



Also rejected for id = 5.

Table:

SELECT * FROM VACATION_REQUESTS;

ID	AUTHOR_ID	STATUS	RESOLVED_BY_ID	REQUEST_CREATED_AT	VACATION_START_DATE	VACATION_END_DATE
1	1	approved	2	2025-08-15 22:45:47.244685	2025-12-01	2025-12-05
2	1	approved	2	2025-08-15 22:45:47.244685	2025-11-10	2025-11-15
3	3	rejected	4	2025-08-15 22:45:47.244685	2025-12-10	2025-12-20
4	1	rejected	4	2025-08-15 22:55:29.025202	2025-12-10	2025-12-15
5	3	rejected	4	2025-08-24 19:19:20.678428	2026-06-01	2026-06-15

(5 rows, 2 ms)

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Test Scenarios & Results

Positive Tests

- All endpoints return expected status codes (200, 201).
- Vacation days are correctly deducted upon approval.
- Filtering by status works as expected.

Negative Tests

- **Invalid employee ID** → 404 Not Found
- **Overlapping dates** → 400 Bad Request
- **End date before start date** → 400 Bad Request
- **Non-manager trying to approve** → 403 Forbidden
- **Invalid status transition** → 400 Bad Request

Conclusion

The Vacation Management System API has been thoroughly tested using Postman. All core functionalities are working as expected. Error handling is robust, and business rules (e.g., vacation day deduction, overlapping requests) are correctly enforced. The API is ready for production use.