Test Results Summary

Project Name: PizzaDronz
Date of Execution: [Insert Execution Date]
Test Suites:

- AStarTest
- MainTest
- OrderProcessingIntegrationTest
- OrderValidatorTest
- SystemTest

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1. Test Summary

AStarTest
The A* pathfinding algorithm was tested for its ability to find paths while avoiding no-fly zones. All tests passed, verifying that the algorithm correctly finds routes, avoids restricted areas, and properly prunes unnecessary directions.

MainTest
The application's main entry point was tested for correct argument handling. The program correctly executed with valid input and properly exited with an error when invalid arguments were provided.

OrderProcessingIntegrationTest
The full order processing workflow, from validation to pathfinding, was tested. All validation rules, including card number, expiry date, CVV, multiple restaurant checks, and pizza count limits, were correctly enforced. Orders that met all criteria were successfully processed and delivered.

OrderValidatorTest
Each individual validation rule was tested to ensure compliance with expected behavior. Card numbers, expiry dates, and CVVs were correctly validated. Orders from multiple restaurants and exceeding the pizza count limit were properly rejected.

SystemTest
API endpoints were tested to confirm the correct retrieval of orders, restaurant data, no-fly zones, and central area information. The API returned the expected data for valid requests and correctly responded with an empty list for invalid dates.

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2. Detailed Test Results

AStarTest Results

- Pathfinding correctly generated routes from start to destination.

- The algorithm avoided no-fly zones and did not attempt to generate paths through restricted areas.
- When a goal was inside a no-fly zone, the algorithm correctly returned no valid path.
- Neighbour nodes were generated accurately based on movement rules.

MainTest Results

- The application correctly processed valid input arguments.
- When provided with incorrect arguments, the program displayed an appropriate error message and exited as expected.

OrderProcessingIntegrationTest Results

- Orders with valid card details and within limits were successfully processed and marked as delivered.
- Orders with expired credit cards were rejected with the appropriate validation error.
- Orders with invalid credit card numbers were identified and rejected.
- Orders with invalid CVVs were correctly marked as invalid.
- Orders containing pizzas from multiple restaurants were rejected.
- Orders exceeding the maximum pizza count were correctly identified and invalidated.

OrderValidatorTest Results

- 16-digit card numbers were accepted, while shorter or longer numbers were rejected.
- Expired credit cards were properly flagged as invalid, while valid future expiry dates were accepted.
- CVV validation correctly accepted three-digit values and rejected incorrect lengths.

SystemTest Results

- The API correctly retrieved central area data.
- The API provided accurate no-fly zone data.
- The restaurants list was correctly retrieved.
- Orders for each date were returned as expected, with invalid dates producing an empty response.

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3. Final Status

All tests passed successfully.

- Order validation and pathfinding function correctly.
- The main application handles input as expected.
- API endpoints respond with accurate data.

The system is functioning as intended and is ready for deployment.