Acceptance Testing Alpha:

In the acceptance alpha testing phase of the provided main program, we conducted a thorough evaluation of various aspects to assess functionality and effectiveness. Here's a breakdown of the findings:

**What Worked:**

1. Shipment Validation: The program successfully validated shipment weight and box size, ensuring they fell within the specified range (1-1000 kg) and complied with valid cargo dimensions.

2. Invalid Destination Detection: The program accurately identified and reported invalid destination inputs, generating error messages for non-existent destinations or incorrect formats.

**What Didn't Work:**

1. Route Display: A significant drawback was observed as the program failed to display valid truck options and their corresponding shortest routes to the destination. This omission prevented users from making informed decisions about their shipments.

2. Route Deviation: The program lacked the ability to show deviations in routes, particularly the shortest route to the destination. This absence of information hindered users from assessing whether the selected route had any diversions.

**Improvement Suggestions:**

To enhance the program's functionality based on white-box acceptance alpha testing:

1. Route Presentation: Introduce a module that displays valid truck options along with their respective shortest routes to the destination. This addition will empower users to choose the optimal route.

2. Route Deviation Information: Incorporate a feature that illustrates any deviations present in the selected route. This transparency will enable users to gauge the efficiency and reliability of their chosen route.

3. Edge Case Testing: Expand testing to include extreme cases, such as minimum and maximum weight values, to ensure the program handles these scenarios accurately.

4. Error Handling: Improve the error handling mechanism to provide clearer and more user-friendly error messages, aiding users in understanding and rectifying their input mistakes.

Acceptance Testing Beta:

During the acceptance beta testing phase of the provided main program, we conducted a comprehensive evaluation to assess functionality and effectiveness. Here's an overview of the observed outcomes:

**What Worked:**

• Program Compilation and Execution: The program successfully compiled and executed, demonstrating its robustness and compatibility with designated inputs.

• Shipment Tracking: The program effectively tracked and displayed real-time shipment status, allowing users to monitor their cargo's journey at different stages.

**What Didn't Work:**

Input Error Handling for Coordinates: An issue arose with input errors when attempting to locate exact coordinates during the submission of MS05. Users faced difficulties accurately inputting coordinates, leading to errors in program operation.

**Improvement Suggestions:**

To enhance the program's performance based on white-box acceptance beta testing:

• Load Testing: Conduct load testing to assess the program's responsiveness and stability under varying user loads. This will help identify potential performance bottlenecks and ensure the system can handle peak usage periods.

• User Training: Provide clear and concise user guides or tutorials to assist users in navigating the program's features and functionalities effectively.