

National Space Hackathon 2025

Updates and FAQs

Indian Institute of Technology, Delhi

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Important Updates

Registration Now Open

Registration for the National Space Hackathon 2025 is now open on Unstop. Please visit the following link to register your team:

<https://unstop.com/hackathons/national-space-hackathon-2025-iit-delhi-1422390>

Join Discord for Updates and Support

Join our Discord server for real-time updates, announcements, and to get your queries resolved:

<https://discord.gg/Z8nH9Fywhw>

Submission Link

The submission link for your hackathon solutions will also be released on Unstop. Please keep checking the registration page for updates.

Sample Data

Sample data files have been uploaded to help you test your solutions. These samples are available in the same drive folder as this document. We recommend using these samples to validate your algorithms and APIs before final submission. We have also provided the code used to generate this sample data. Keep in mind these are only the sample data and the actual data might be different from this.

Frequently Asked Questions (FAQs)

Technical Implementation Questions

1. **Q: How exactly will our solution be tested?**

A: Testing will be performed using automated scripts that will build your Docker container and run a series of predefined test cases against your exposed APIs. Both correctness and performance will be evaluated under various scenarios, including edge cases.

2. **Q: Is a database required for the solution?**

A: No, a database is optional. You're free to implement state management using any approach (in-memory storage, file-based storage, or a database), as long as your solution maintains state between API calls.

3. Q: Can we use AI/ML in our solution?

A: Yes, but be mindful of the time limits and accuracy requirements. Any AI components should not compromise the performance metrics specified in the evaluation criteria.

Space Environment Clarifications

1. Q: How should we handle microgravity conditions in the algorithm?

A: For this hackathon, assume that items remain stable in their assigned positions regardless of microgravity. You don't need to account for floating items or special latching mechanisms.

2. Q: Do we need to consider the astronaut's handling of items in microgravity?

A: No, focus on the algorithm for organizing and retrieving items rather than the physics of microgravity item handling.

Algorithm Design Questions

1. Q: When should container rearrangements be triggered?

A: This is part of your algorithm design. Consider rearrangements when: containers become disorganized after many retrievals, new shipments arrive requiring optimization, or when frequently used items need to be made more accessible.

2. Q: How should we handle items with the same name but different IDs?

A: Items with the same name might have different properties (dimensions, priority, preferred zone). Your algorithm should handle each unique item ID separately while potentially grouping similar items logically.

3. Q: How should we prioritize item retrieval when multiple items have the same name?

A: Your algorithm should make intelligent decisions based on factors like expiry dates, remaining uses, accessibility, and usage patterns. Consider providing options to the user when multiple matches exist.

4. Q: Can we place items in any orientation?

A: Yes, any orthogonal orientation is allowed. Your algorithm can rotate items in 90° increments to optimize space usage.

Submission Questions

1. Q: Are we allowed to modify our program after the first round?

A: No, the second round is just for presentation of your solution. Your code submission from the first round will be final.

2. Q: What kind of improvements should we focus on for the second round presentation?

A: Focus on explaining your algorithm's design decisions, optimization strategies, handling of edge cases, and potential future improvements. Visual demonstrations of your solution's capabilities are encouraged.

Data Format Questions

1. Q: Will item dimensions always be integer values?

A: No, item dimensions can include floating-point values. Your solution should handle both integer and decimal measurements.

2. Q: For the import API endpoints, what is the format of CSV files?

A: CSV files will include headers matching the field names described in the tables in the problem statement, with values following the same data types specified for the JSON format.

3. **Q: Why are there both import (CSV) and placement (JSON) APIs that seem to handle similar data?**

A: The import endpoints simulate user interface operations, while the placement API is used for direct programmatic interaction and efficiency evaluations. Both are required for a complete solution.

Contact Information

For any further queries or clarifications, please contact:

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Good luck to all participants!