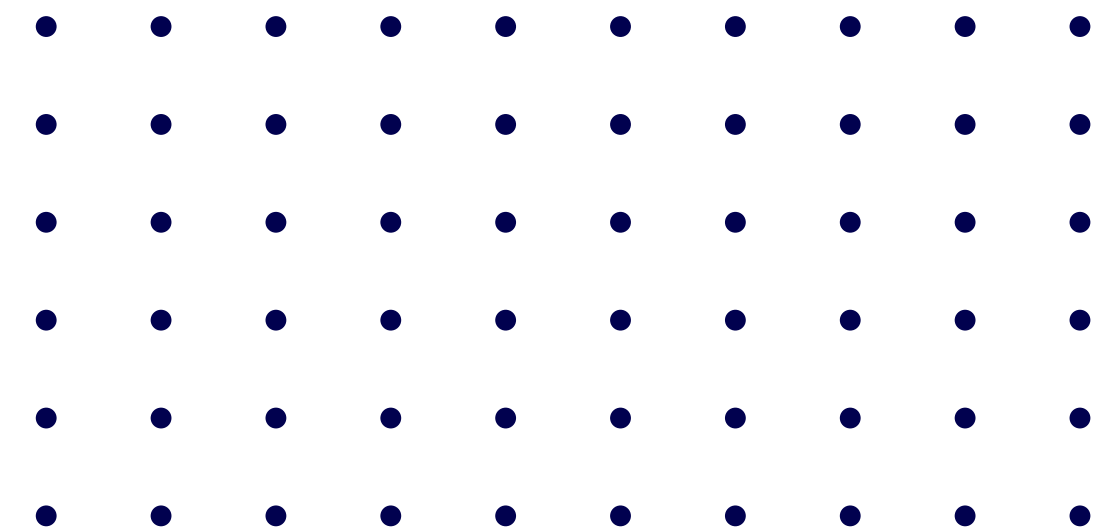


Building Space Apps on Web : Tools for the Next Generation

Inspiring Innovation at the NASA Space Apps Challenge

Presented By : Nishant Painter, Founder, Shivantra
26 September 2025

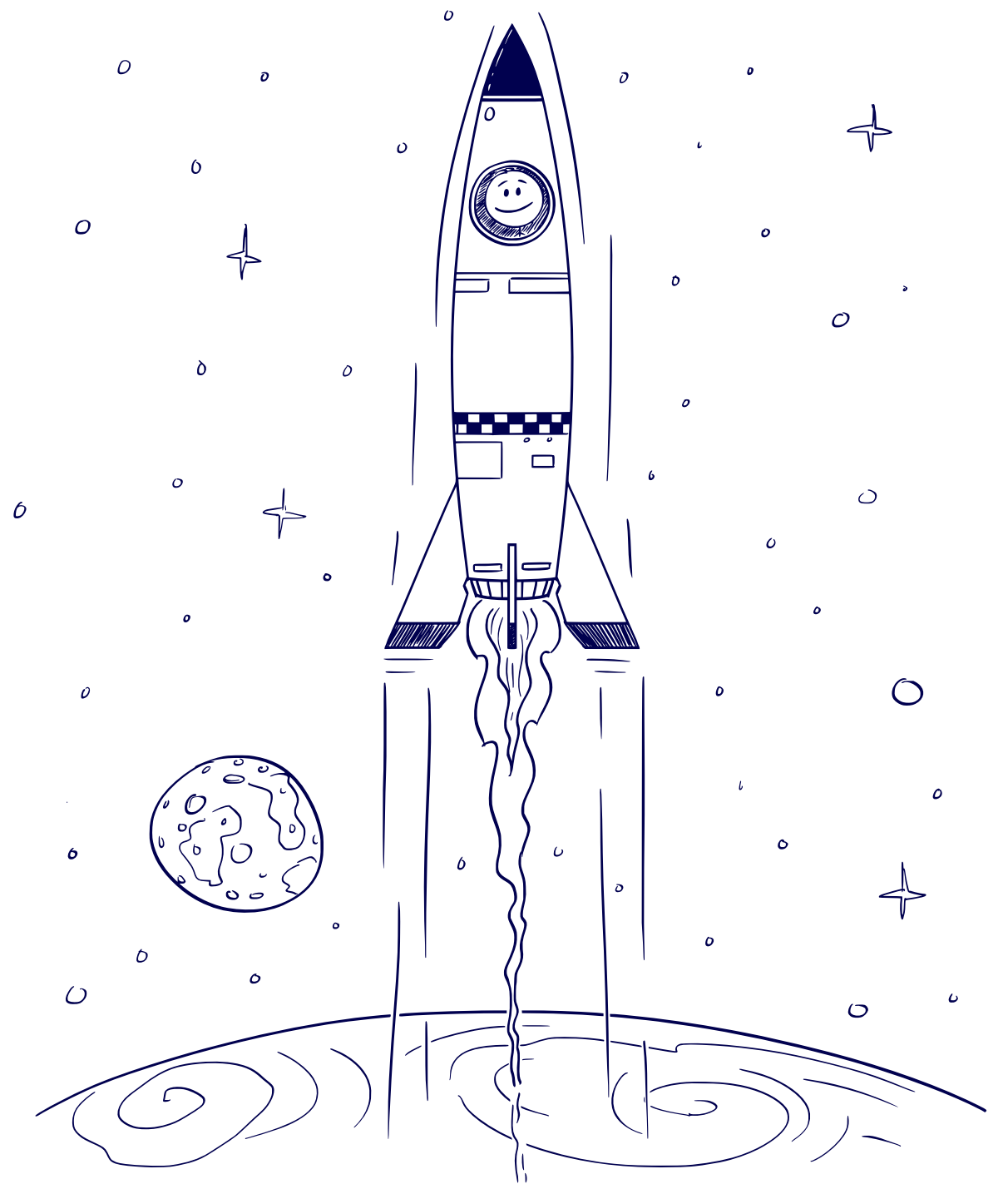


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Outline

- What is the NASA Space Apps Challenge?
- Past Projects & Winning Teams
- Why Space and Web ?
- The Application Journey
- Planning & Strategy
- Design & Wireframing
- Development
- Testing & Refinement
- Deployment & Demo
- Presentation & Impact
- Hackathon Strategy
- Q&A



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What is the NASA Space Apps Challenge?

Largest
hackathon in the
world.

Challenges from
NASA and
partners.

Open to anyone;
students, coders,
designers,
innovators.



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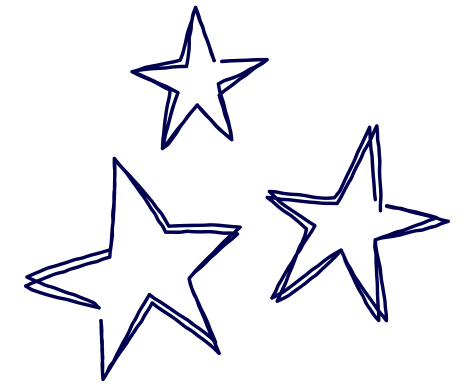
Inspiration from Past Winners

Team Space Ciphers (SCET, Surat, 2024)

Challenge: Improving ocean literacy worldwide

Using data from NASA's Plankton Aerosol Cloud Ocean Ecosystem (PACE) satellite, the team developed innovative educational materials to help students across the globe better understand complex data about Earth's oceans and atmosphere. Their work is driving greater ocean awareness and advancing environmental education for future generations.

Global Nominee recognition



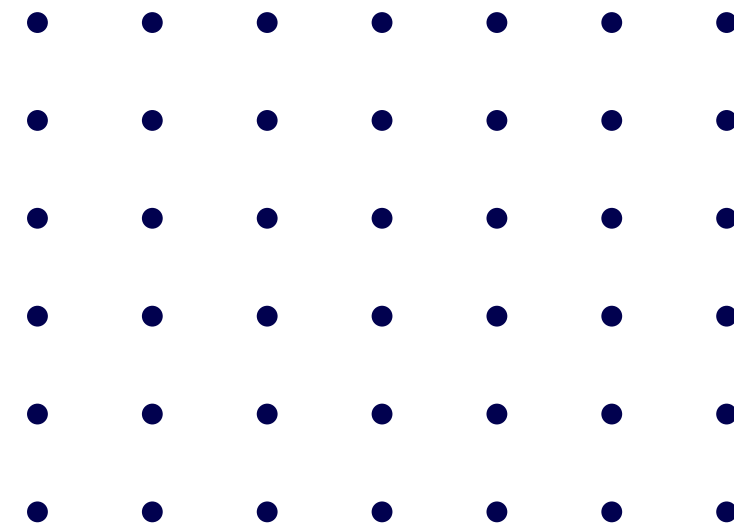
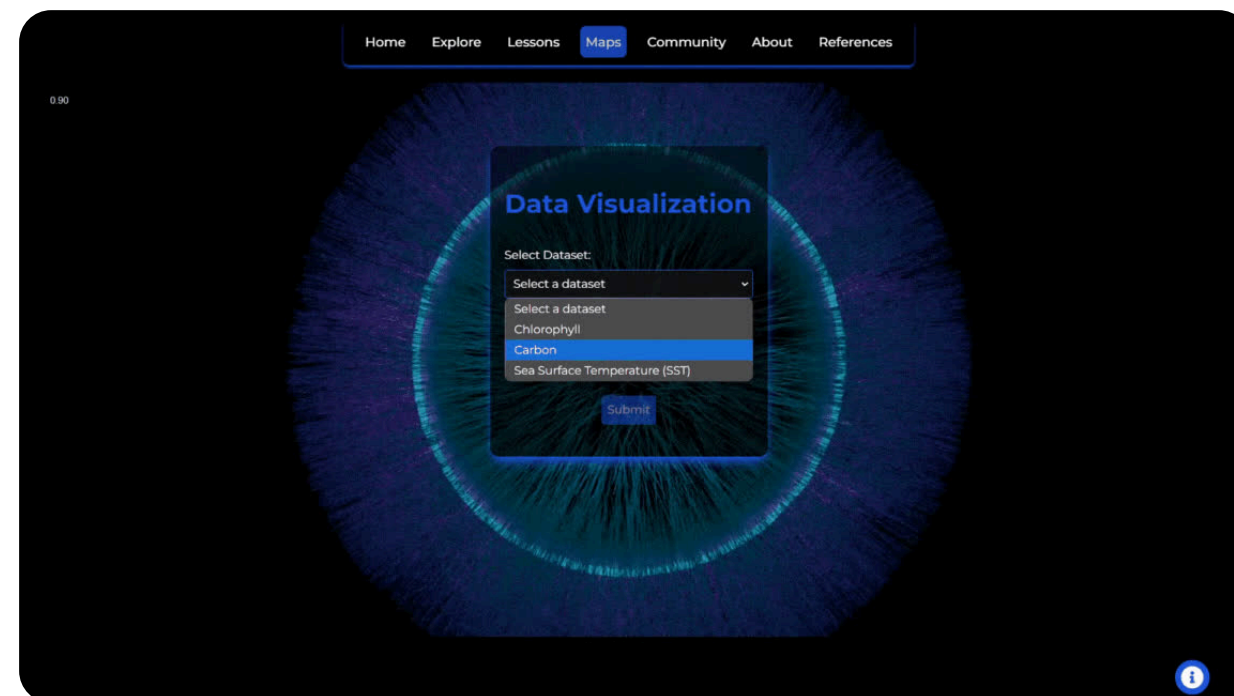
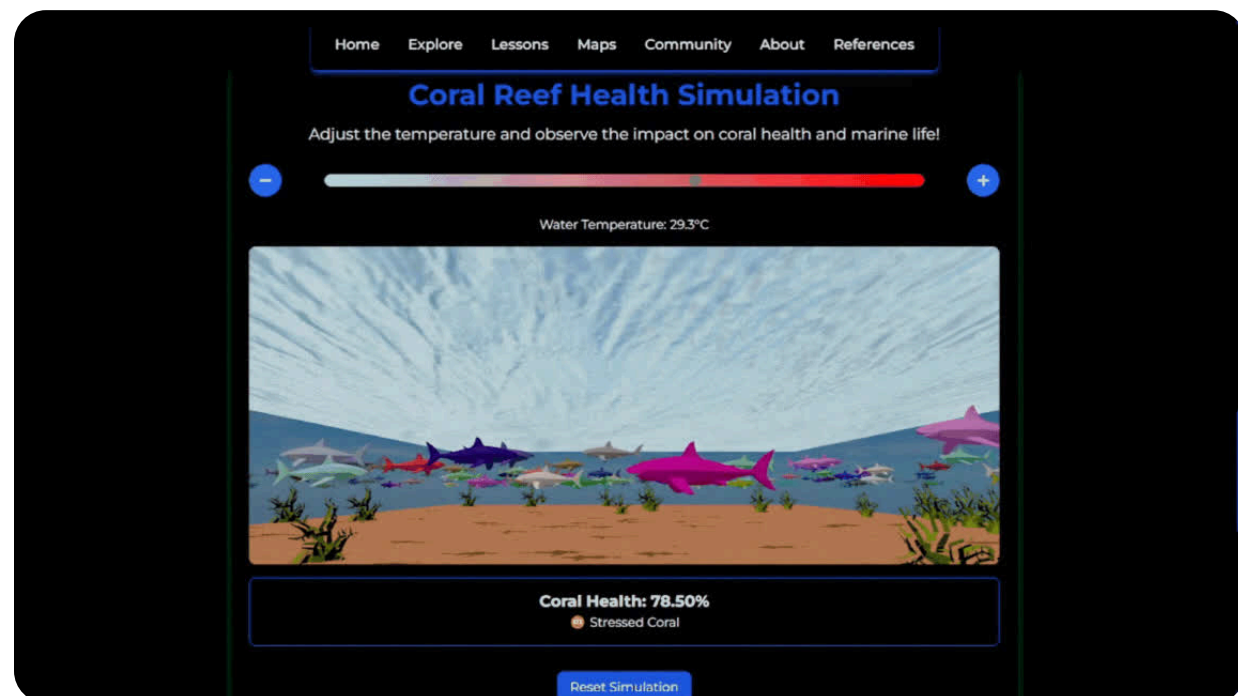
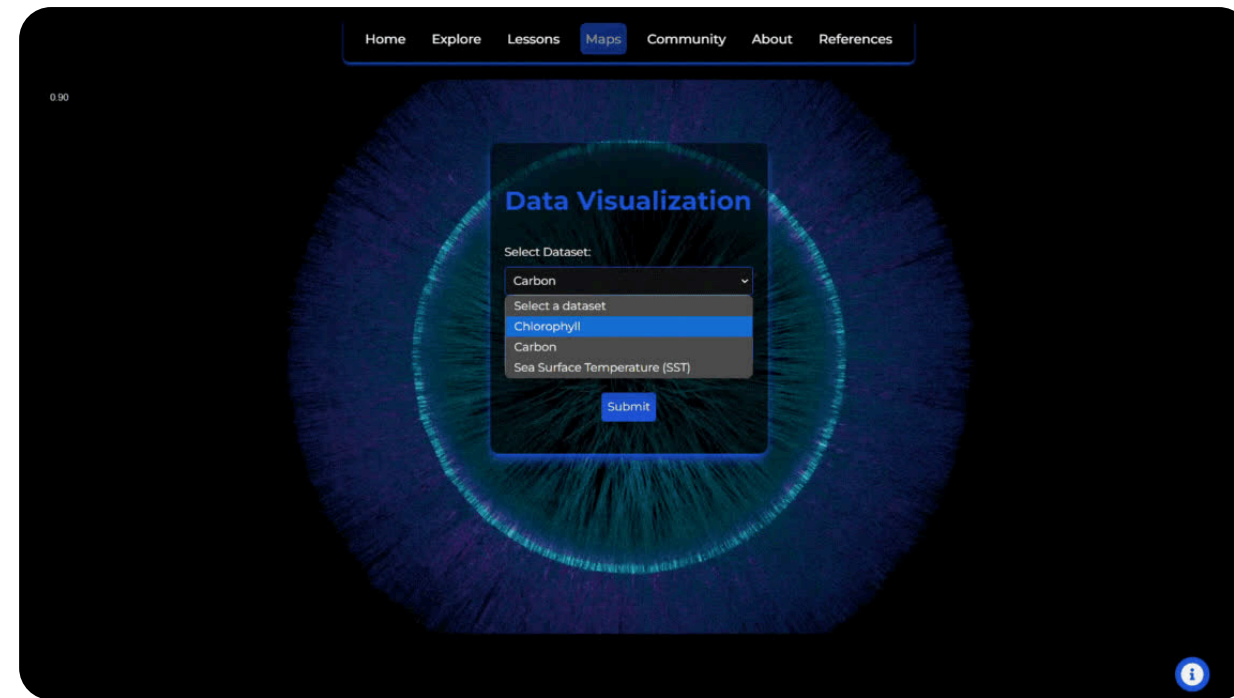
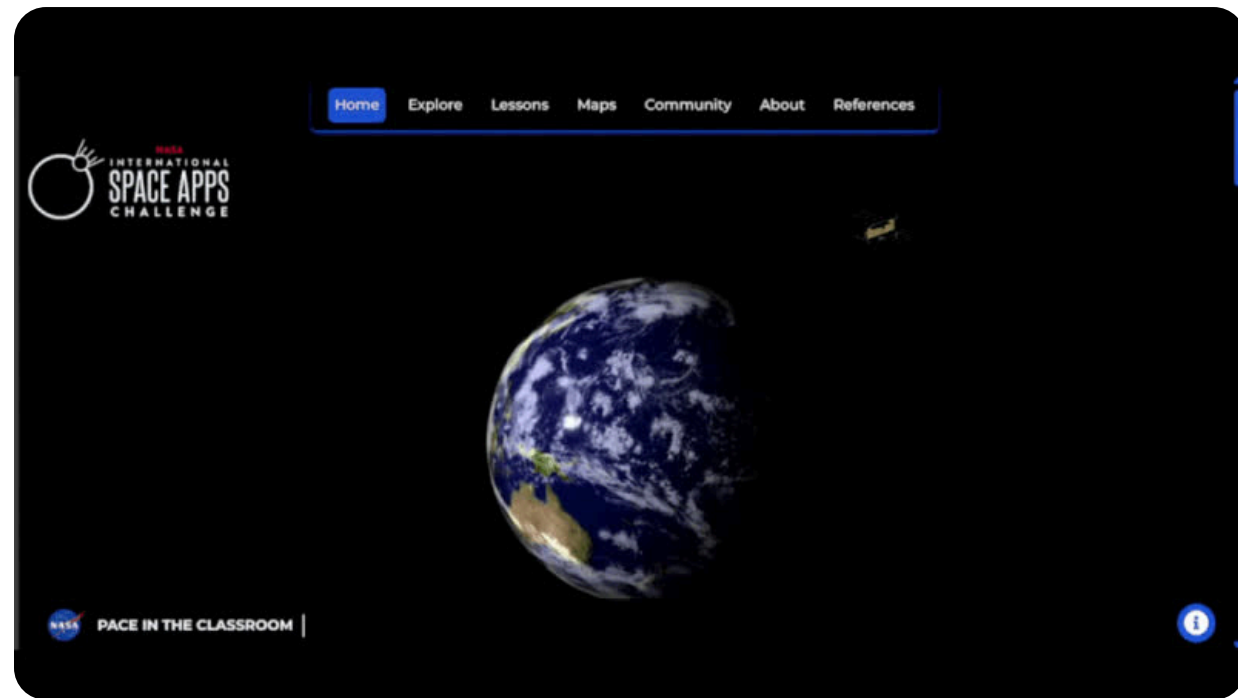
58,000
participants

9,000+
teams

5,500+
project

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Inspiration from Past Winners



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Why Space and Web?



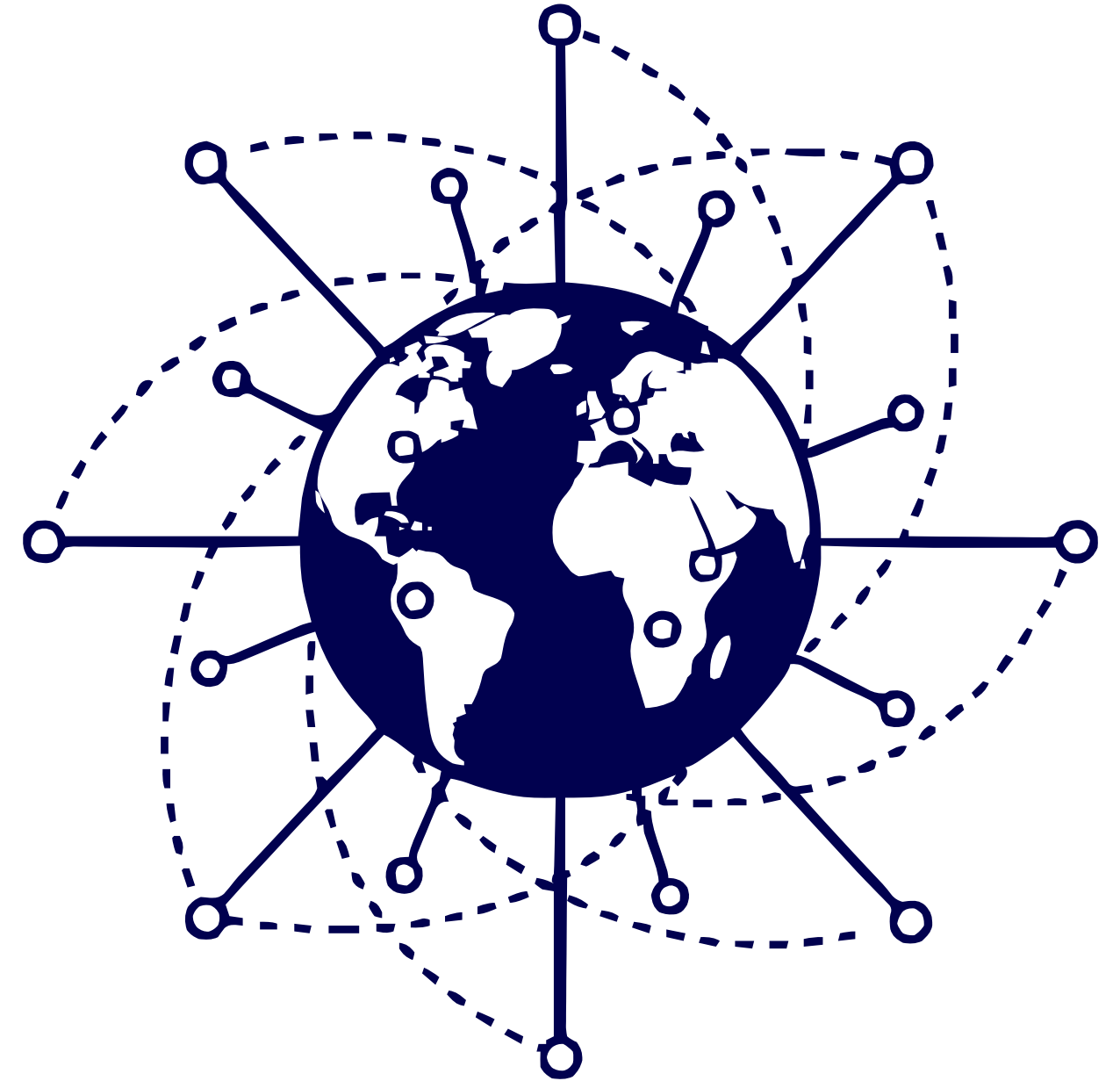
Space challenges = global, need global solutions.



The web is the most accessible platform.

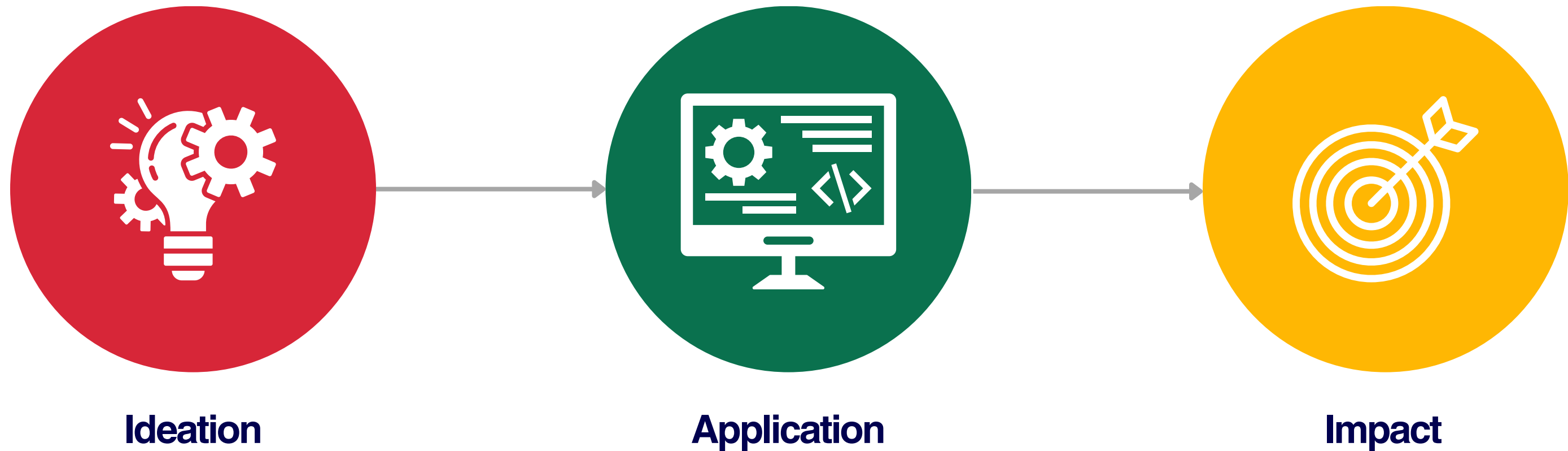


Every browser is a gateway to innovation.



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The Application Journey



Plan & Strategize → Design & Wireframe → Develop & Test → Deploy & Present

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Step 1 : Planning & Strategy

The most important step is narrowing scope.

- Understand the challenge.
- Define the audience.
- Assign team roles.
- Scope MVP (Must/Should/Could/Won't).

AI Helpers

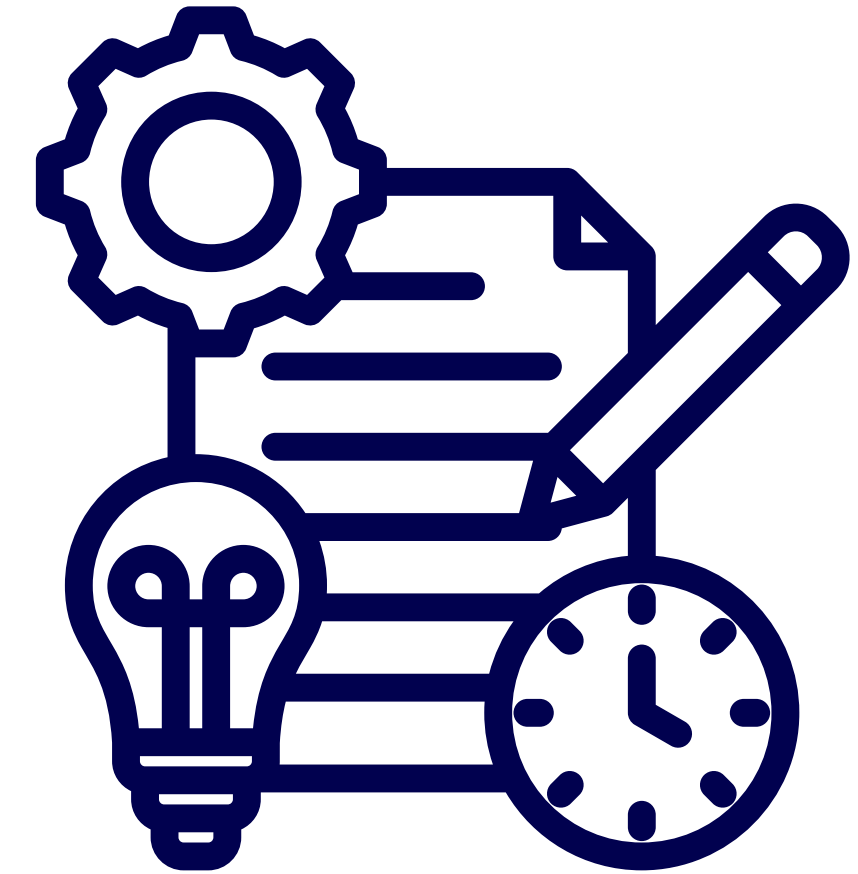
Brainstorming & summarizing datasets



ChatGPT



Claude



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Step 2 : Design & Wireframing

Spend less time sketching and more time building.

- Sketch the user journey.
- Tools: Figma, Relume.
- Focus on clarity, not complexity.
- Uniformity in layout and design system

AI Helpers

Relume (Wireframes); Figma (Mockups)



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Step 3 : Development

Web apps often combine NASA APIs with front-end visualizations.

- Frontend: React, Next.js, Leaflet, CesiumJS, D3.js.
- Backend: Node.js, Flask, Spring Boot, Firebase, Supabase.
- APIs: NASA Open APIs, ESA, OpenWeatherMap.
- Database: PostgreSQL, MongoDB

AI Helpers

Cursor, GitHub Copilot (code generation), Claude/ChatGPT (API explanations)



CURSOR



GitHub
Copilot



Claude



ChatGPT



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Step 4 : Testing & Refinement

If someone outside your team can't understand your app in 30 seconds, refine it.

- Test on multiple devices.
- Validate data accuracy.
- Simplify user flow.

AI Helpers

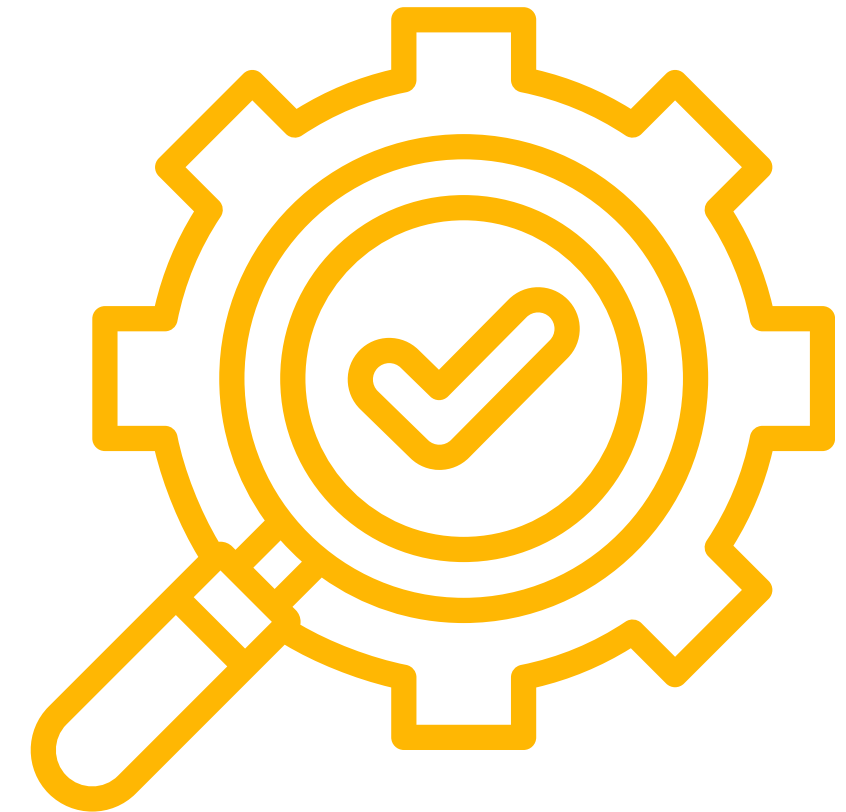
Cursor (unit tests), ChatGPT (edge cases)



CURSOR



ChatGPT



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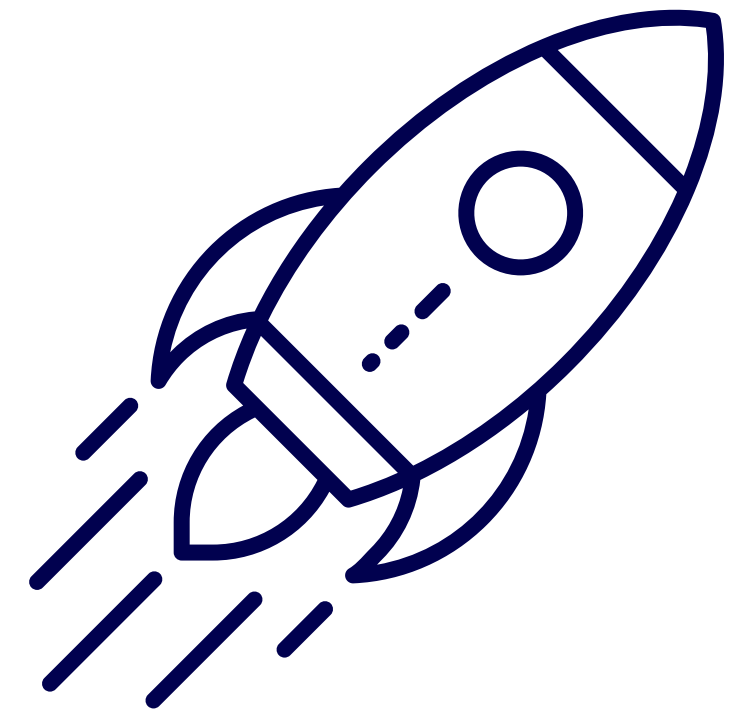
Step 5 : Deployment & Demo

Deployment is launch day. Keep it simple and ensure the demo runs smoothly even with limited internet.

- Platforms: Netlify, Vercel, Firebase.
- Preload data for smooth demo.
- Branding: logo, tagline, landing page.
- Server vs Serverless Deployment : NeonDB, Mongo Atlas

AI Helpers

ChatGPT/Claude (taglines), MidJourney/DALL-E (logos)



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Step 6 : Presentation & Impact

A great pitch makes all the difference. Remember: the story is as important as the tech.

- Storytelling = Problem → Solution → Demo → Vision
- Judges value clarity & creativity.
- Focus on impact (climate, education, accessibility).
- Documentation, Presentation and GitHub Repository
- Appropriate Videos, GIFs and Images

AI Helpers

Claude (pitch script), ChatGPT (slide flow), AI design tools (infographics)



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Hackathon Strategy

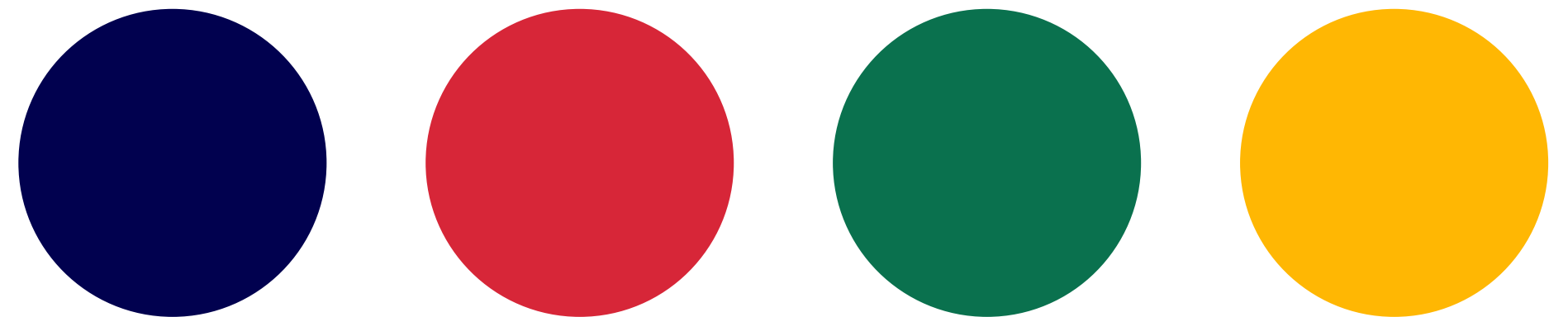
Hackathons are marathons in 48 hours. Strategy is everything, focus your energy on the MVP.

Pick problems that excite you.

Build small, focus on impact.

One polished feature > ten broken ones.

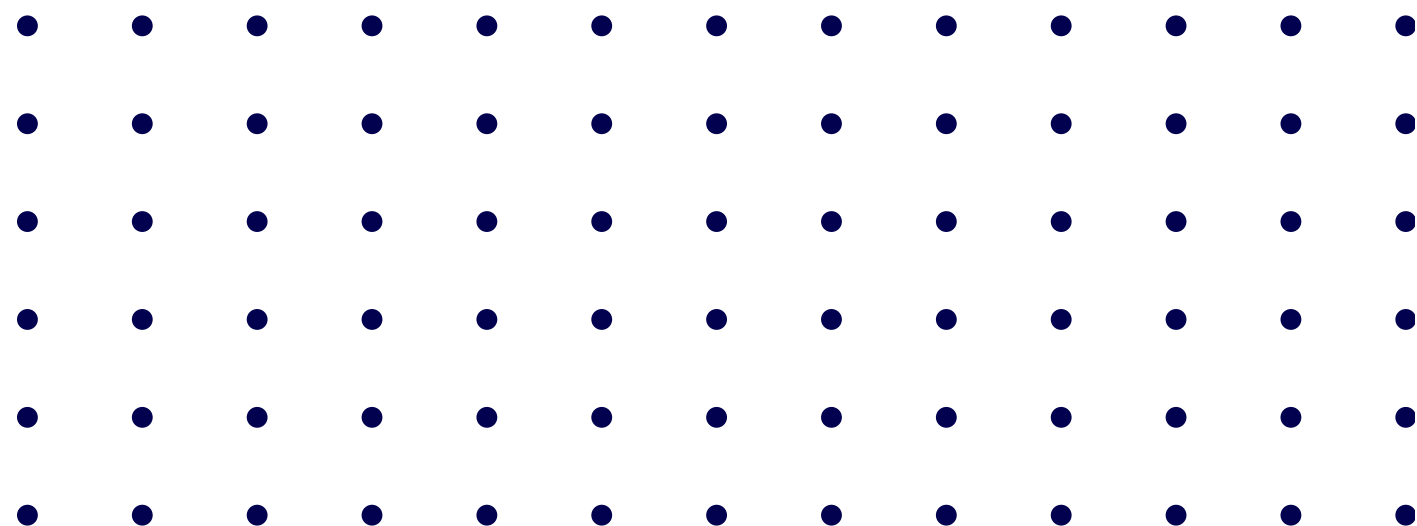
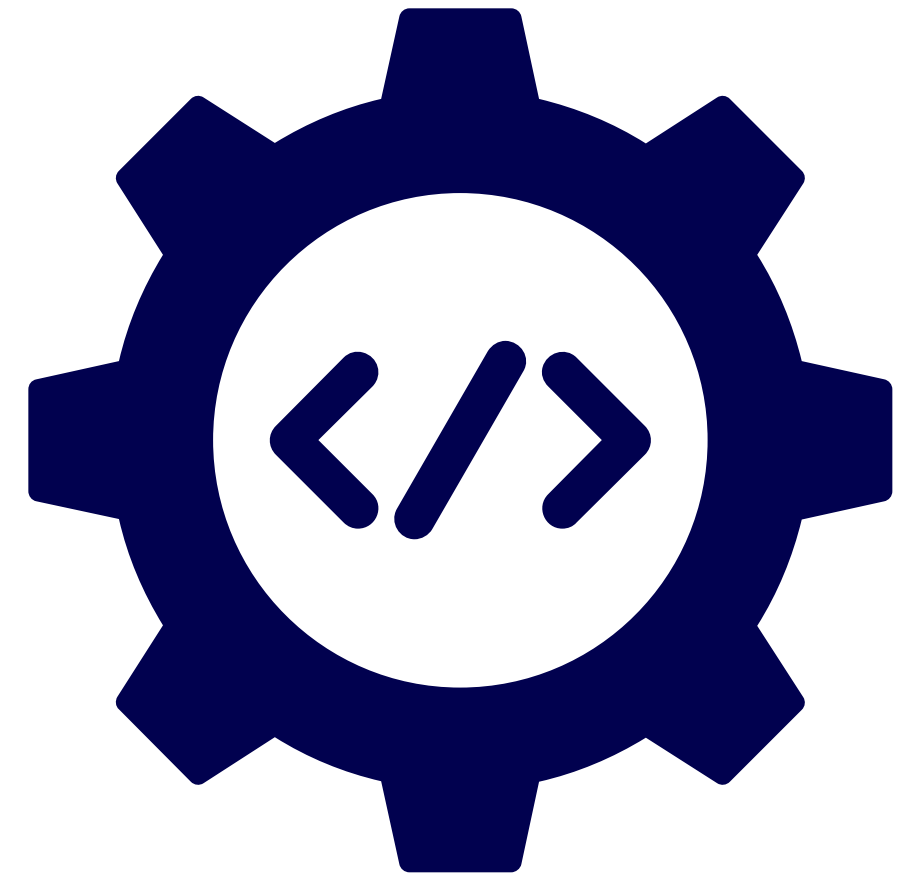
Diverse teams win: tech + design + storyteller.



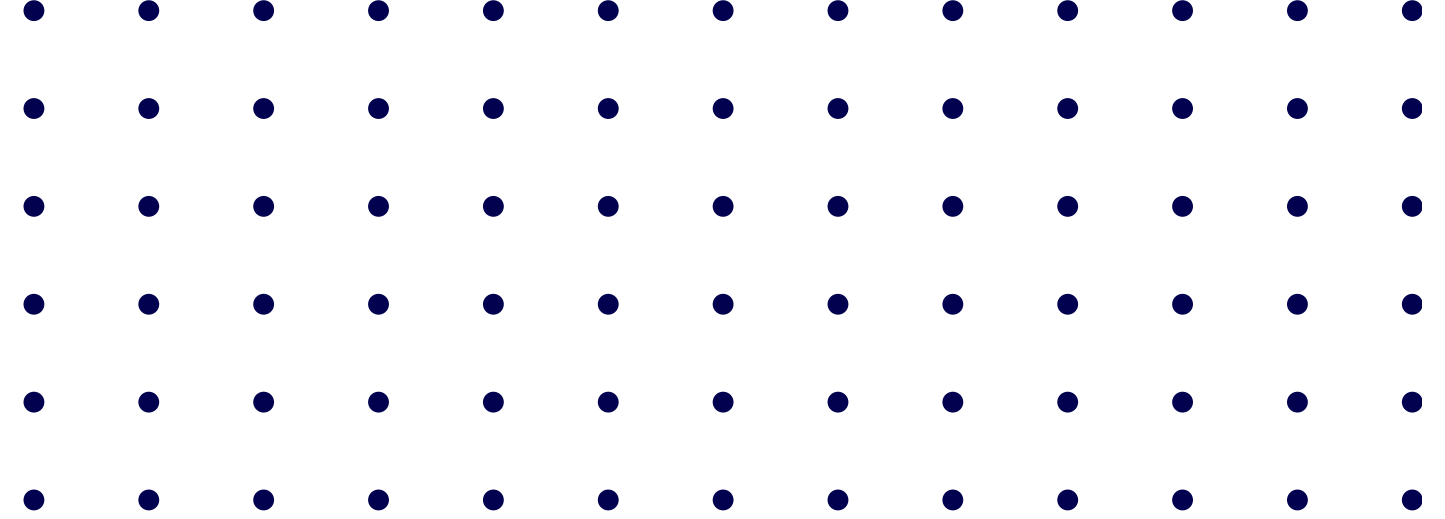
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Your Turn to Build!

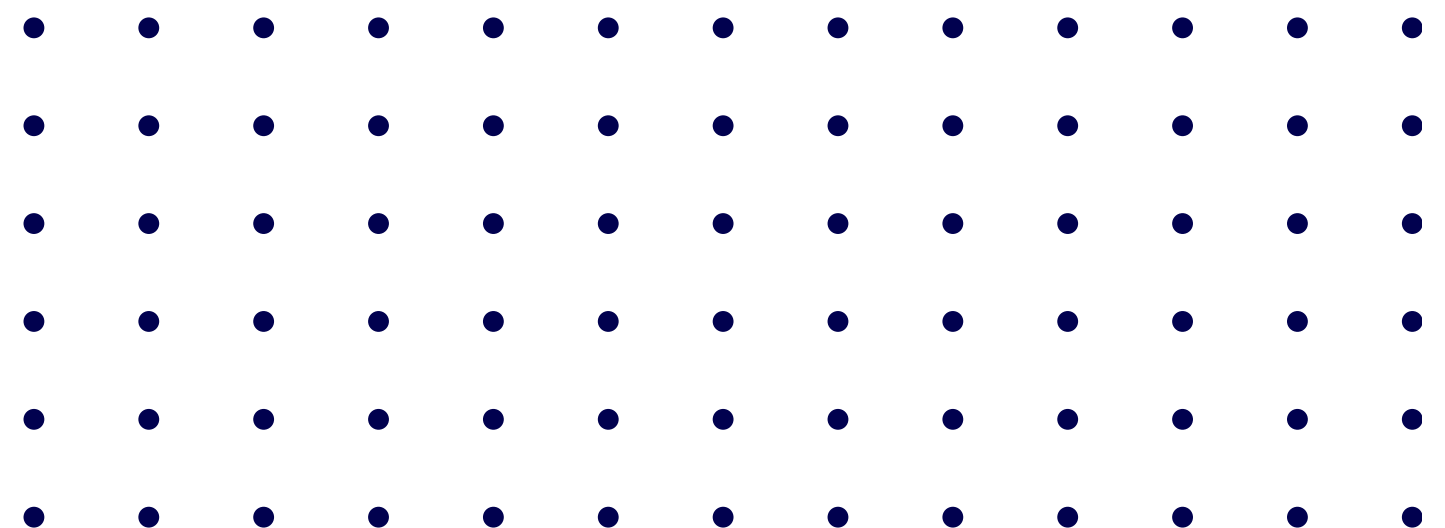
The NASA International Space Apps Challenge is more than just a hackathon, it's a platform where creativity, technology, and collaboration come together to solve real-world challenges. With the power of web technologies and the support of AI tools, every student here has the ability to transform open space data into impactful solutions. Remember, innovation doesn't always come from building the biggest or most complex projects; it comes from starting small, focusing on clarity, and addressing real problems that matter. The next global nominee or winning project could very well come from you, right here, right now.



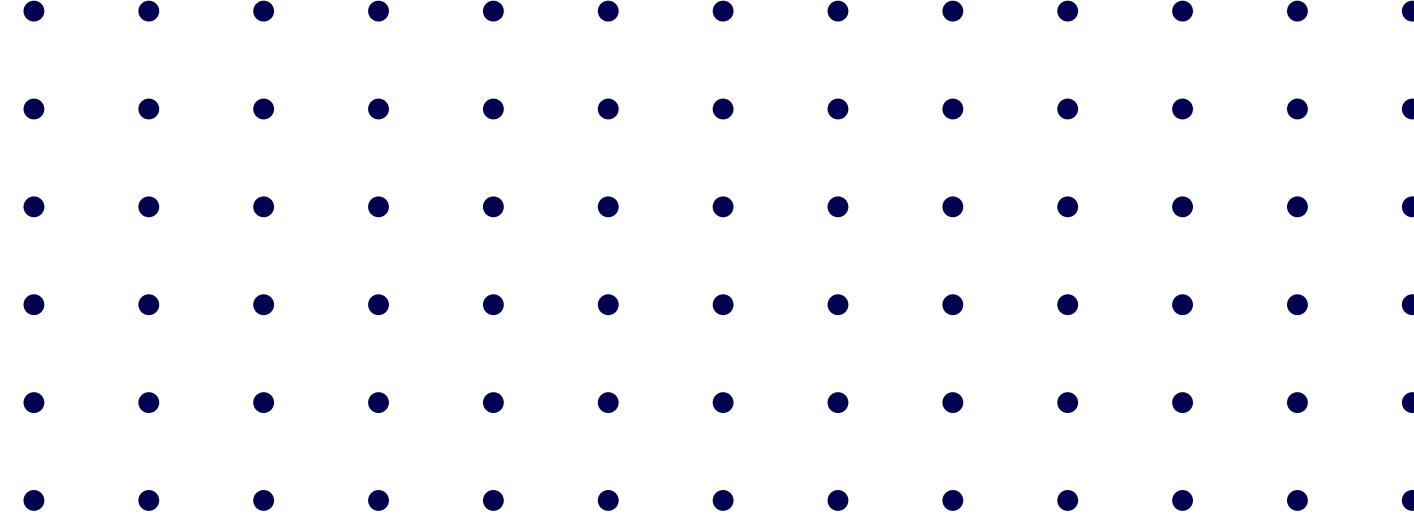
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Q&A



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Thank You

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