

> PACE PROBE



GFG VIT-AP HACKTOBER FEST

IN COLLABORATION WITH CDC VIT-AP

~BINARY BRAINS

Problem statement :

- **PACE Satellite:** NASA's PACE satellite studies oceans and atmosphere, tracking plankton, aerosols, and clouds to assess ecosystem health and climate impact.
- **Open Access Data:** PACE data is publicly available, supporting global education and collaboration on climate science.
- **Educational Challenge:** Make complex PACE data accessible in classrooms to enhance understanding and ocean literacy.
- **Classroom Materials:**
 - Simple lesson plans on key PACE concepts.
 - Visual aids and easy-to-read data sets.
 - Hands-on activities for real-world climate applications.

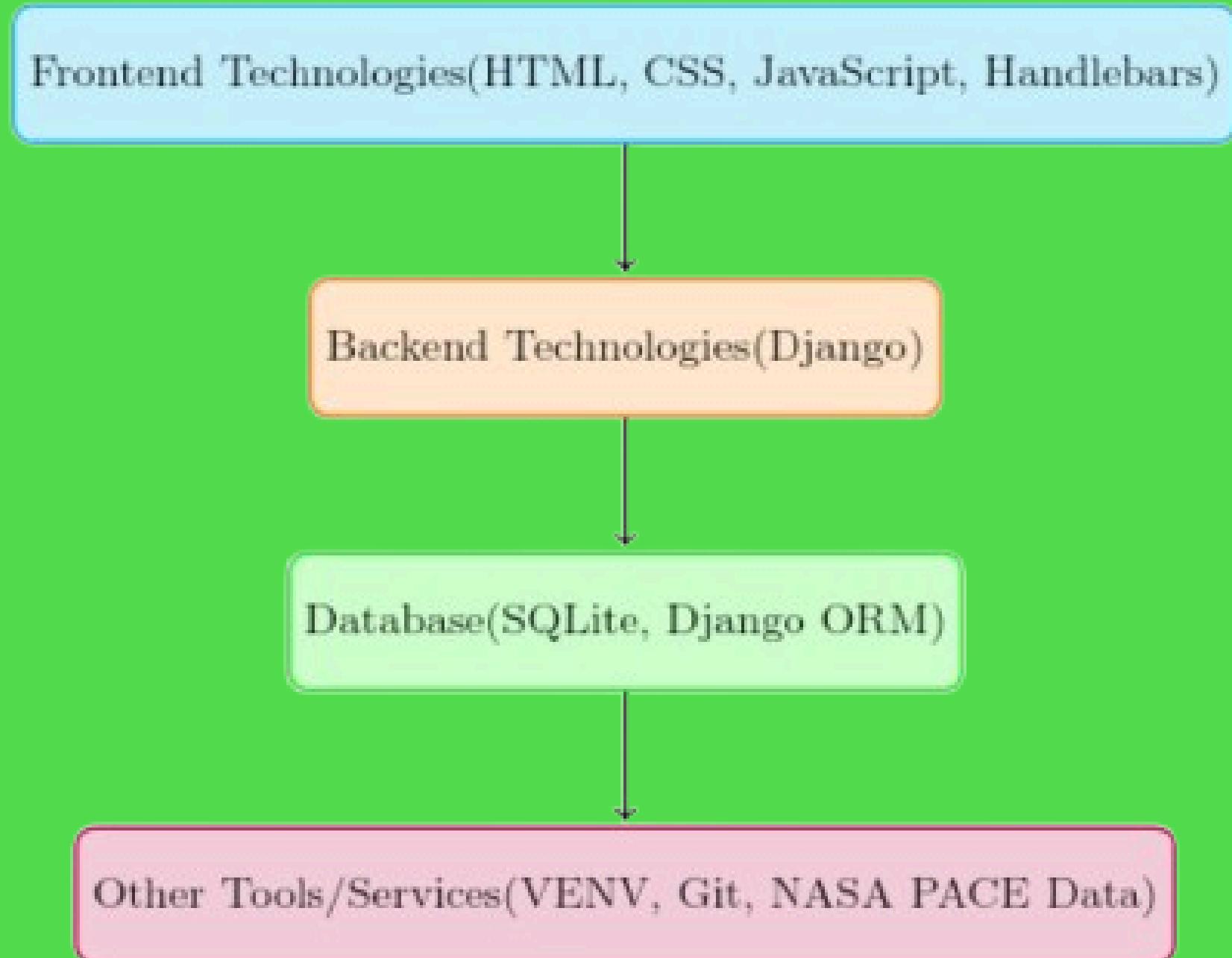
Problem Solution :

PACE Probe: Bringing NASA's Ocean Data to Classrooms

- **Educational Web Platform:** PACE Probe delivers NASA's ocean and climate data to students worldwide in an accessible format.
- **Structured Learning:** Offers courses and interactive lessons covering essential concepts about Earth's oceans, atmosphere, and climate.
- **Real NASA Data:** Allows students to work directly with NASA's PACE data, exploring topics like ocean health, climate impacts, and ecosystem dynamics.
- **Global Reach:** Designed to improve environmental literacy and inspire future scientists and informed global citizens.

TECHNICAL ARCHITECTURE

- **Frontend Technologies:**
 - HTML, CSS, Vanilla JavaScript, Handlebars
- **Backend Technologies:**
 - Django
- **Database:**
 - SQLite, Django ORM
- **Other Tools/Services:**
 - VENV, Git, NASA PACE Data





Dynamic Data Displays

Engaging graphics bring complex datasets to life, fostering deeper understanding.



Hands-On Activities

Immersive experiments and simulations reinforce key concepts through practical application.

SCALABILITY AND FUTURE SCOPE

SCALABILITY

- **Global Expansion:** Expand the platform to support multiple languages and regional adaptations, increasing accessibility worldwide.
- **Content Scaling:** Add advanced modules for different educational levels, from primary to university, allowing broad age-group engagement.
- **Partnerships:** Collaborate with educational institutions, NGOs, and governments to integrate PACE Probe into broader educational initiatives.

FUTURE SCOPE

- **Enhanced Interactivity:** Incorporate VR/AR experiences to simulate oceanic and atmospheric phenomena for immersive learning.
- **Research Integration:** Provide tools for students to conduct their own mini-research projects using live PACE data, encouraging scientific inquiry.
- **Certification and Recognition:** Develop certification programs for students who complete advanced modules, adding academic value to their learning.
- **Cross-Platform Expansion:** Adapt PACE Probe for mobile apps to increase accessibility and provide seamless learning on various devices.

KEY CONCEPTS: PHYTOPLANKTON, AEROSOLS, CARBON CYCLE

Phytoplankton

Tiny ocean plants that form the base of the marine food web and produce much of Earth's oxygen.

Aerosols

Tiny particles suspended in the atmosphere that can impact climate and weather patterns.

Carbon Cycle

The exchange of carbon between the Earth's systems, including the oceans, atmosphere, and biosphere.



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Accessibility

PACE Probe's responsive design ensures a high-quality experience on any device.

Flexibility

Students can access lessons and data visualizations anytime, anywhere.

Engagement

Intuitive user interfaces and interactive features keep students captivated.

FEASIBILITY

- **Challenges and Risks**
 - **Data Complexity:** PACE data can be hard for students to interpret.
 - **Technology Access:** Limited internet and device access could hinder platform use.
 - **Curriculum Fit:** Adapting materials to global standards may be challenging.
 - **Engagement:** Keeping younger students interested in technical content.
 - **Privacy and Security:** Ensuring secure access and data privacy.
- **Strategies**
 - **Simplify Content:** Use beginner-friendly language, visuals, and layered lessons.
 - **Offline Access:** Create low-bandwidth and downloadable resources.
 - **Flexible Resources:** Provide adaptable materials for varied curricula.
 - **Engage with Gamification:** Add interactive, game-like elements.
 - **Data Security:** Apply strong security and privacy measures for user safety.

>Team Details



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THANK YOU



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