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FireDucks

FireDucks Tech Workshop Event Report 17th March 2025

By Edulateral Foundation

Held on 17th March 2025 | The Residency Towers, Chennai

- **Event Name** – Edulateral & NEC FireDucks Tech Workshop
- **Edulateral Team** – Dr. Pradeep G, Mr. Dilip Kumar, Mr. Mani & Mr. Shiva
- **NEC Members** – Dr. Ishizaka San, Sourav San, Ashu San & Vaibhav San
- **Event Agenda** – Tech workshop on FireDucks by NEC Japan

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1. Event Objective

The event aimed to introduce FireDucks, an advanced data analytics library, to academic institutions, enabling faculty and students to explore its applications in learning, research, and collaboration.

2. Executive Summary

The 2nd FireDucks Tech workshop, organized by Edulateral Foundation in collaboration with NEC Japan, was successfully conducted on 17th March 2025 at The Residency Towers, Chennai. The event was designed to introduce FireDucks, an advanced data analytics library, to academic institutions, enabling faculty and students to explore its applications in learning, research, and collaborative projects.



This event was structured to facilitate interactive learning through technical demonstrations, knowledge-sharing sessions, and Proof of Concept (POC) showcases. The primary objectives of the event were:

✅ Introduce FireDucks to Academia – Demonstrating the real-world applications of FireDucks and its advantages over traditional data processing frameworks.

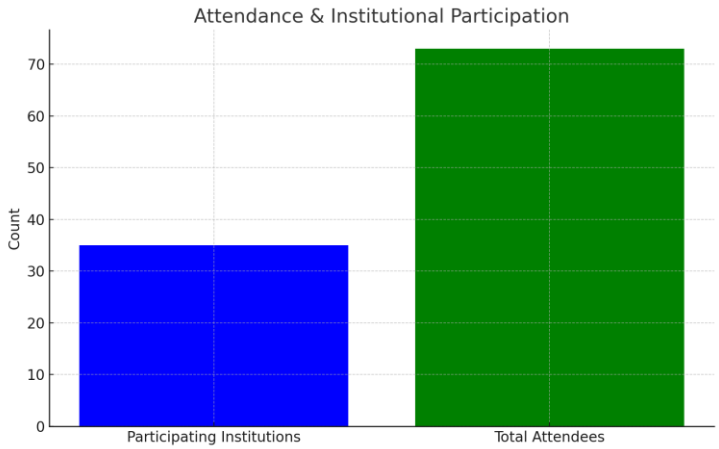
✅ Hands-on Learning – Providing live demonstrations and interactive sessions to allow attendees to experience FireDucks' capabilities firsthand.

✅ Encourage Research & Collaboration – Exploring potential research collaborations between institutions for integrating FireDucks into curriculum-based projects.

✅ Facilitate Academic Adoption – Discussing how FireDucks can be incorporated into university courses, research labs, and practical training modules.

✅ Showcase Successful POCs – Enabling institutions to present their Proof of Concept (POC) projects, demonstrating FireDucks effectiveness in solving real-world data challenges.

3. Attendee Participation



- Total Attendees: 73

- Number of Participating Institutions: 35

- Institutions engaged from various regions across Tamil Nadu.

The workshop provided a unique opportunity for educators, researchers, and students from 35 participated institutions across Tamil Nadu to gain hands-on experience with FireDucks and understand how it can enhance computational efficiency, streamline data processing.

4. Day Key Sessions and Workshop

09:45 AM – Edulateral-NEC Collaboration & Initiatives for Universities
Dr. Pradeep G, Edulateral

The event commenced with an insightful session by Dr. Pradeep G, who emphasized the strategic collaboration between Edulateral and NEC to drive academic innovation. He highlighted various

initiatives aimed at bridging the gap between industry and academia, ensuring students and researchers gain practical exposure to cutting-edge technologies.

10:00 AM – NEC and Its Legacy: 120+ Years of Innovation & Growth
Ashu Thakur San, NEC India

Mr. Ashu Thakur took the stage to present NEC's 120+ years of pioneering innovations in technology, telecommunications, and computing. He emphasized NEC's stronghold in AI, data science, and high-performance computing, reinforcing its commitment to academic institutions worldwide.

- *Key Highlights:*

- NEC's evolution from a telecom giant to a global leader in AI and computing.
- The company's investments in research and how academia plays a vital role in shaping future technologies.

10:15 AM – Hands-on Exercises: FireDucks & High-Performance Pandas Alternatives
Sourav San, NEC Japan

This session was one of the most interactive segments of the event. Mr. Sourav San provided a live demonstration of FireDucks, comparing it with existing high-performance pandas alternatives. Participants followed along as they explored data manipulation, optimization techniques, and real-world applications of FireDucks.

02:00 PM – The Motivation Behind Developing a Compiler for DataFrames
Dr. Ishizaka San, NEC Japan

Mr. Ishizaka San delivered a thought-provoking session explaining why NEC invested in developing a compiler-based approach for data frame operations.

02:15 PM – Proof of Concept (POC) demonstration by integrating FireDucks
Dr. Ramya Radhakrishnan, Head AI & EsDA, KGISL Educational Institution

This POC demonstrated that FireDucks provides notable performance gains over Pandas in large-scale data processing, particularly for full dataset operations and chunked computations. The compiler optimizations and lazy execution model allow FireDucks to outperform Pandas in several scenarios while also reducing CPU and memory usage.

02:25 PM – Proof of Concept (POC) demonstration by integrating FireDucks
Mr. Adhish Bharadwaj, CMR University – (Guided by Dr. Kiran Kumari Patil)

The POC confirm that Fireducks significantly reduces execution time, particularly on high-end systems processing large datasets. As per the report and video shared by Mr. Adhish.

02:35 PM – Introducing FireDucks: A Compiler-Accelerated DataFrame Library with a Highly-Compatible Pandas API
Sourav San, NEC Japan

Key Demonstrations:

✅ Real-time performance benchmarking of FireDucks vs. traditional pandas.

✅ Hands-on exercises allowing attendees to execute commands and observe speed improvements.

✅ Introduction to compiler acceleration and why FireDucks is a game-changer in large-scale data processing.

03:30 PM – Optimizing Large-Scale Data Processing Challenges & Insights
Vaibhav San, NEC Japan

Challenge: Performance Bottlenecks in Traditional Data Processing

- Many data frameworks, such as pandas, operate in single-threaded environments, causing slow execution times for large datasets.
- Processing massive data files often leads to high memory consumption, affecting system performance and crashing workflows.

03:40 PM – Edulateral Honors Institutions for Their Industry-Academia Excellence

As the event approached its conclusion, Edulateral took the stage to recognize institutions that had actively participated in academic research and innovation.



5. Acknowledgment by Academia

- Many attendees were surprised by the speed gains when switching from pandas to FireDucks.
- University faculty members expressed interest in integrating FireDucks into their data science courses.
- Live Q&A sessions saw questions about compatibility, scalability, and real-world adoption.
- Future trainings, certification programs, and Proof-of-Concept (POC) development in collaboration with universities.
- Establishing academic partnerships for sustained engagement and knowledge sharing.



6. Conclusion & Next Steps

The FireDucks Academic Workshop successfully brought together leading academic institutions to explore the integration of compiler-accelerated data processing into university curricula. The event not only introduced participants to FireDucks but also sparked discussions on its long-term academic adoption.

Key Outcomes & Future Plans:

- **Institutional Interest in Curriculum Integration**
  Several universities expressed a strong interest in incorporating FireDucks-based learning modules into their data science and analytics programs. Faculty members and researchers acknowledged the practical advantages of using FireDucks for large-scale data operations and proposed pilot programs to evaluate its impact on student learning.
- **Potential Licensing & Long-Term Adoption**
  With the increasing emphasis on high-performance computing in academia, discussions were initiated regarding academic licensing models for FireDucks. Universities showed enthusiasm for long-term access to the platform, enabling them to train students and researchers on industry-ready, high-speed data processing techniques.
- **Follow-Up Events & Progress Tracking**
  To ensure the continued adoption and success of FireDucks in academic settings, a follow-up event has been planned. This session will provide a platform for participating institutions to:

- Share progress updates on FireDucks implementation.
- Present case studies on how FireDucks has improved data analytics coursework and research efficiency.
- Discuss challenges and solutions encountered during the adoption process.

The event concluded on a high note, with institutions showing enthusiasm for deeper collaboration, NEC reaffirming its commitment to academic partnerships, and Edulateral leading the way in bridging cutting-edge industry solutions with university learning.

7. Post-Workshop Digital Marketing & Outreach

To extend the reach of FireDucks' impact, a post-event engagement campaign was launched via digital platforms. The event was showcased on LinkedIn, highlighting key insights and participation.

🔗 View the post: https://www.linkedin.com/posts/edulateral-foundation_nec-fireducks-edulateral-ugcPost-7307435009613709312

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