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Objective

- To evaluate common issues in Indian e-Government websites, such as poor performance, accessibility challenges, and inefficient backend systems.

- To compare Node.js and Django in terms of performance, scalability, and usability in e-Government platforms.

- To propose a hybrid backend solution using both technologies for optimal results.

- To enhance the user experience and accessibility of government portals using modern web technologies.

- To use the Startup AYUSH Portal as a case study for practical application and testing.

Introduction

- Indian e-Government websites are crucial for public service delivery but often underperform.
- Issues like slow speed, poor design, and non-compliance with WCAG 2.0 impact user experience.
- There's a growing need to modernize backend infrastructure to meet Digital India goals.
- Technologies like Node.js and Django can potentially resolve these issues.
- The AYUSH Startup Portal is used as a focused case study to explore solutions.

Abstract

- Highlights major challenges in accessibility, latency, and usability in Indian government websites.

- Presents a comparative analysis of Node.js and Django to address these challenges.

- Proposes a hybrid solution combining the strengths of both frameworks.

- Focuses on real-world implementation using the Startup AYUSH Portal.

- Emphasizes performance improvement and digital inclusivity in public portals.

Related Work

- Past studies reveal common issues in Indian e-Gov websites like poor design and low accessibility.
- Some works analyze performance, but lack real-world testing and backend comparison.
- Research on Node.js shows promise for real-time, high-load applications but with complexity.
- Django is praised for security and ease of development, yet lacks detailed scalability studies.
- Existing literature lacks integrated approaches combining these technologies for public service portals.

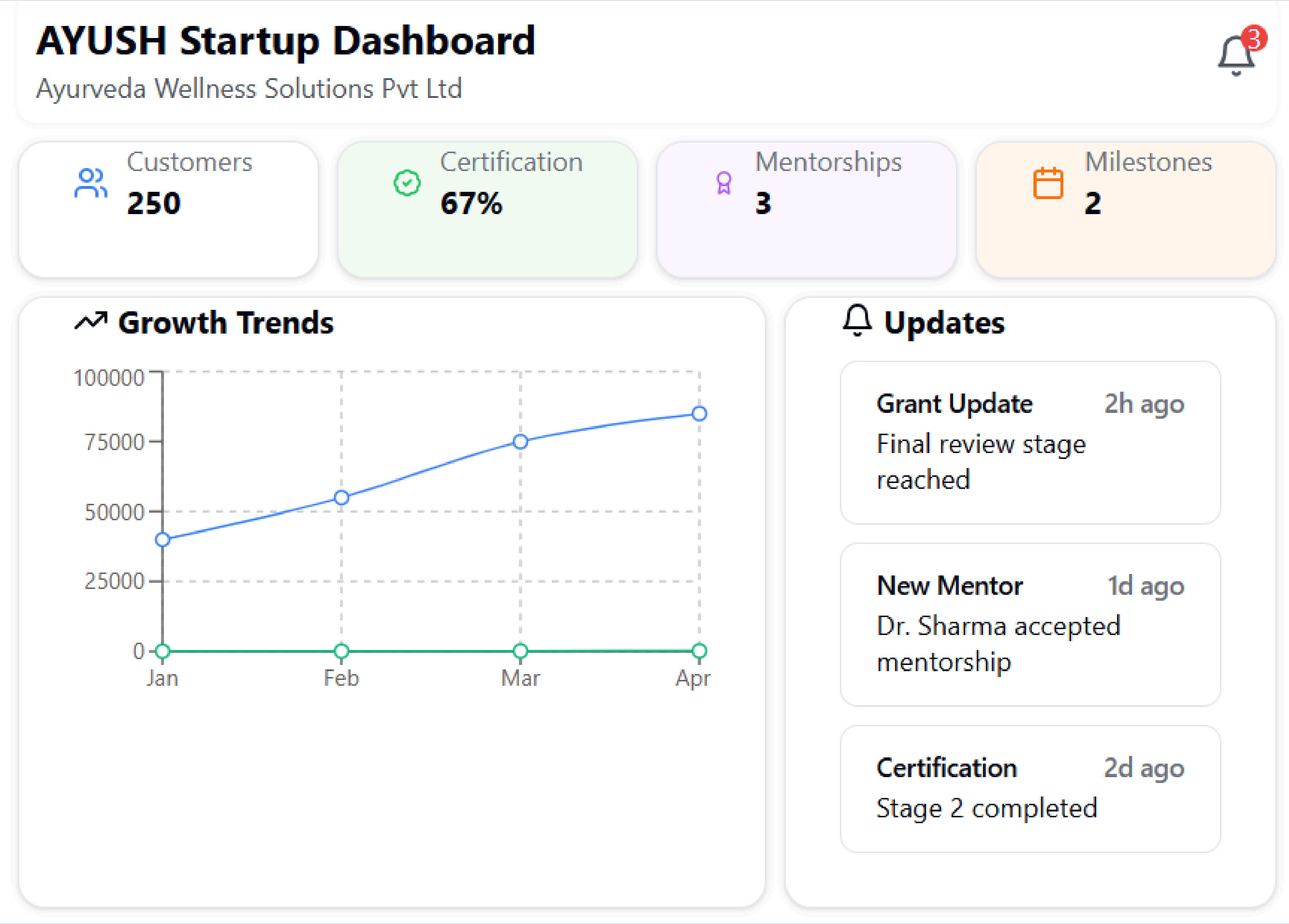
Methodology

- Used comparative analysis to assess Indian portals against global standards.
- Analyzed real-world backend issues like latency, scalability, and poor data handling.
- Proposed Node.js for real-time updates and Django for secure, structured tasks.
- Proposed and evaluated backend features of the AYUSH Portal using both technologies.

Proposed features:

1. Real time user dashboard
2. Startup registration and verification
3. Search and filter startups
4. API Integration for external data

Screenshots of UI Mockup of proposed features in Startup AYUSH Portal



AYUSH Startup Dashboard

Ayurveda Wellness Solutions Pvt Ltd

Customers	Certification	Mentorships	Milestones
250	67%	3	2

Growth Trends

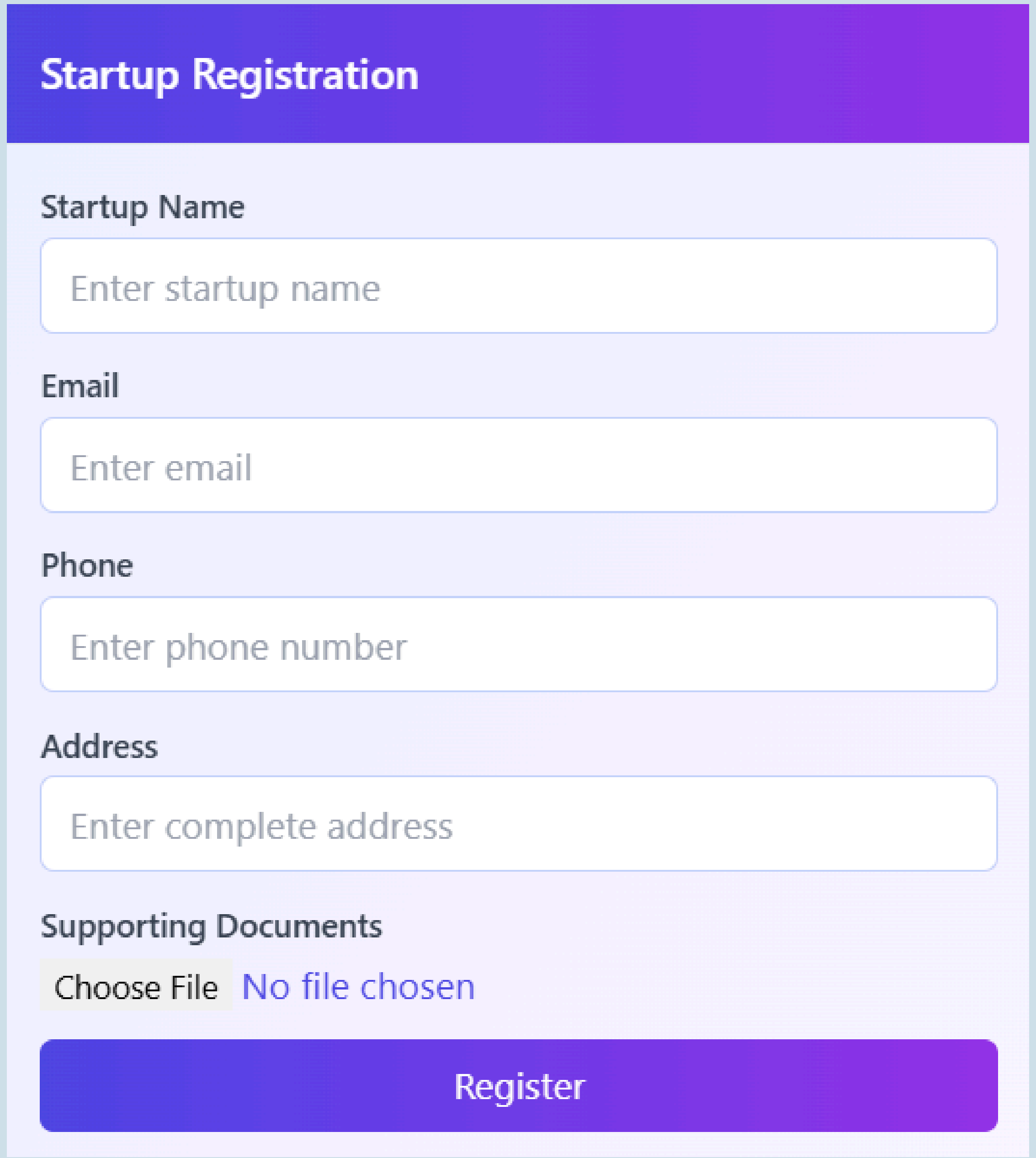
Updates

Grant Update 2h ago
Final review stage reached

New Mentor 1d ago
Dr. Sharma accepted mentorship

Certification 2d ago
Stage 2 completed

Figure 4.1: UI for Real time dashboard



Startup Registration

Startup Name
Enter startup name

Email
Enter email

Phone
Enter phone number

Address
Enter complete address

Supporting Documents
Choose File No file chosen

Figure 4.2: UI for Startup registration and verification

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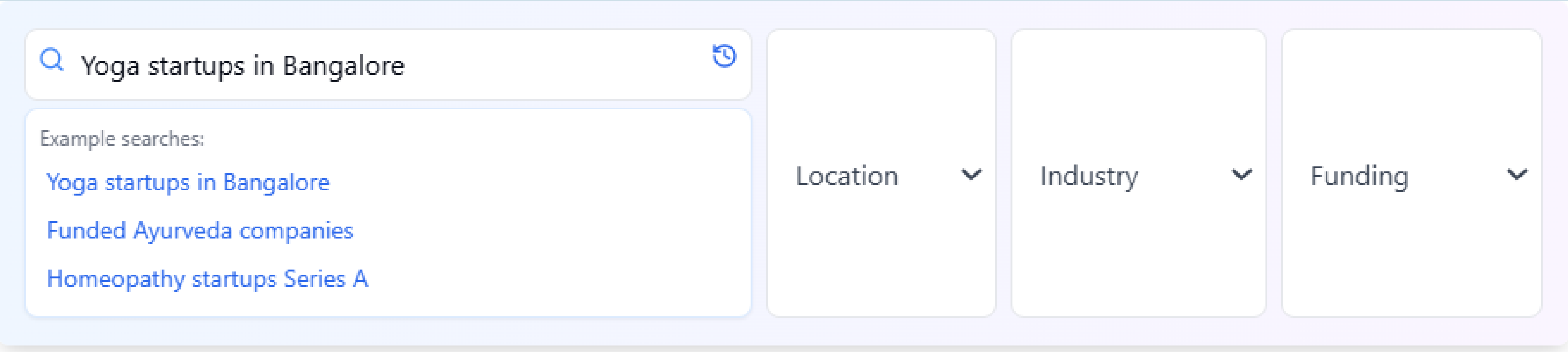
Screenshots of UI Mockup of proposed features in Startup AYUSH Portal



Yoga startups in Bangalore

Example searches:

Yoga startups in Bangalore

Funded Ayurveda companies

Homeopathy startups Series A

Figure 4.3: UI for search query

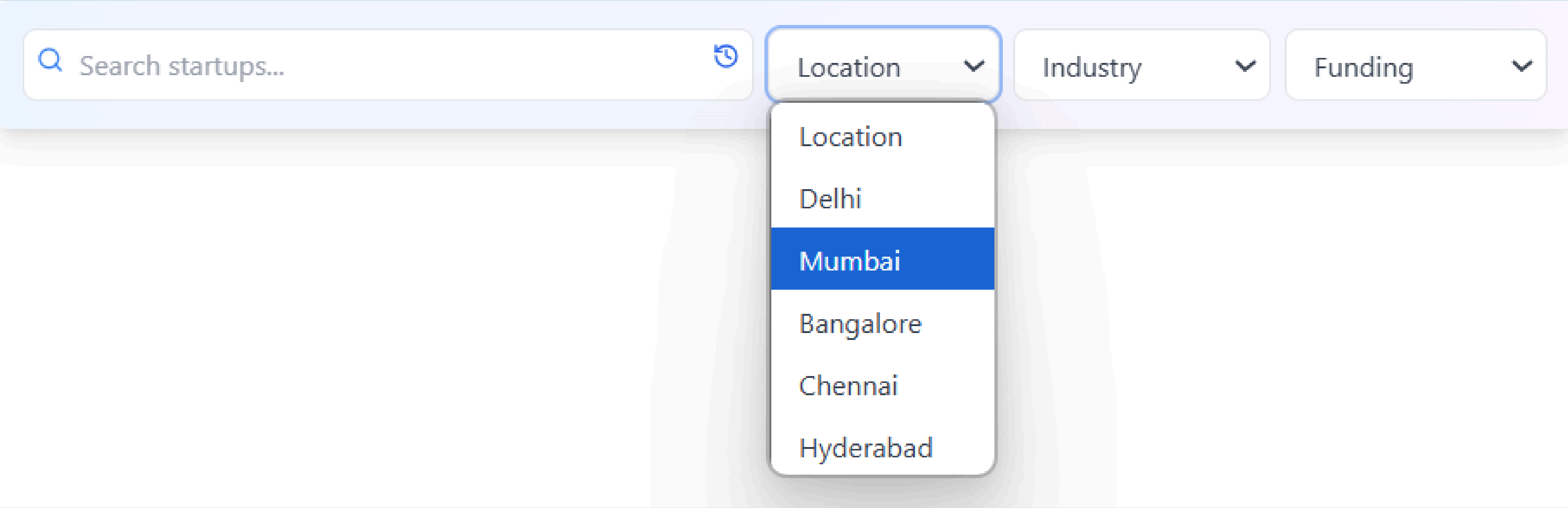


Figure 4.3: UI for filtering locations

Screenshots of UI Mockup of proposed features in Startup AYUSH Portal

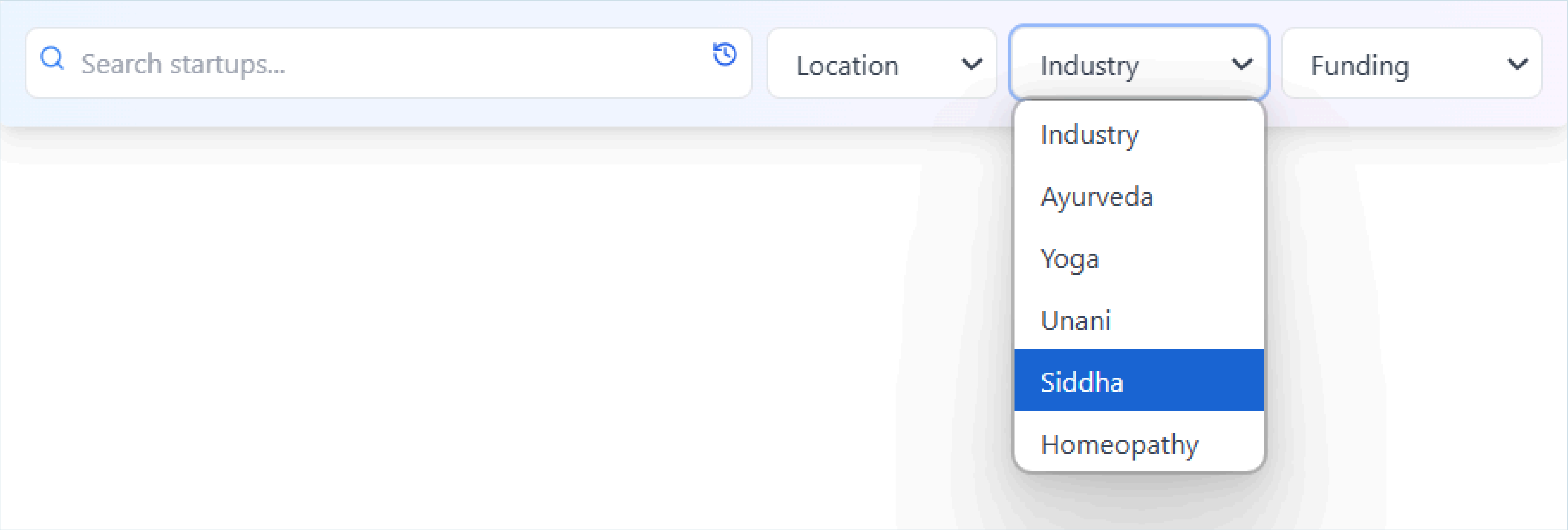


Figure 4.3: UI for filtering industry

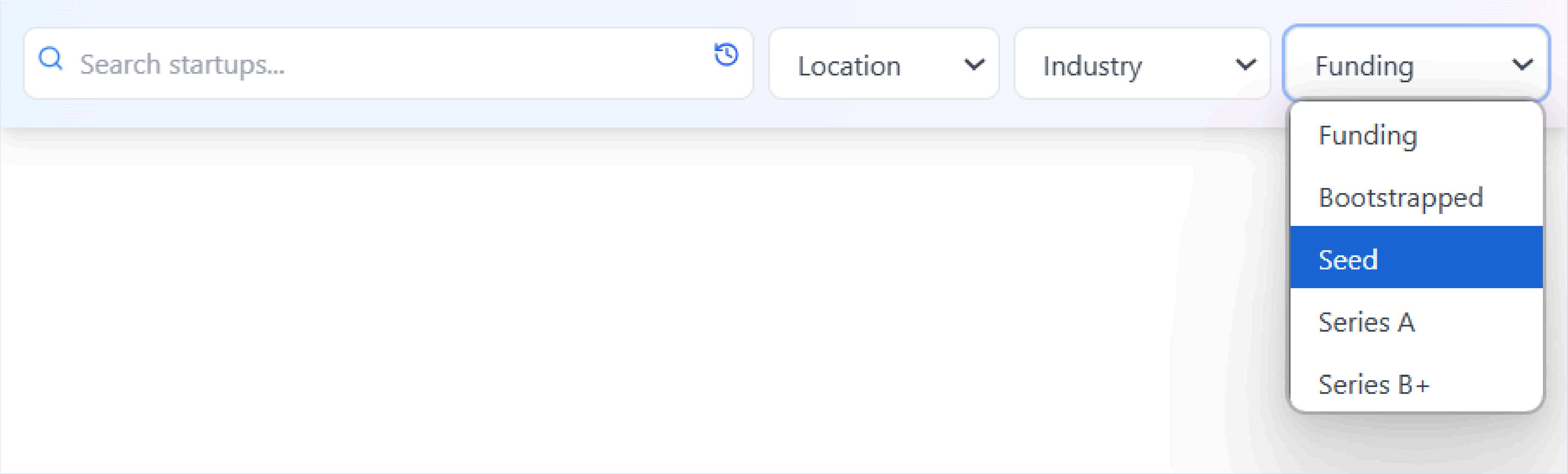


Figure 4.3: UI for filtering funding

Conclusion

- Node.js excels in real-time and high-concurrency environments (e.g., dashboards).
- Django is ideal for structured, secure operations like registration and form handling.
- A hybrid approach offers the best balance for performance and security in e-Gov portals.
- Demonstrated tangible benefits in performance, latency reduction, and usability.
- Provides a scalable model for modernizing Indian government websites.

References

- 15 scholarly sources covering topics like:

    a. Accessibility and performance analysis of Indian e-Gov websites.

    b.Technical evaluations of Node.js and Django.

    c.Case studies and benchmarks of backend systems.

- Cited studies span from 2011 to 2024, ensuring a broad and updated context.
- Included international and national research for comprehensive insights.

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