

School of Computer Science and Engineering

Department of Computer Engineering and Technology (DCET)

Full Stack Development Project Panel-X

PRNNO :1032230602	Name: Parmeet Kaur Bhatia
PRNNO :1032230692	Name:Siddhartha Swamy
PRNNO :1032231228	Name:Ittisha Harpavat
PRNNO :1032232397	Name:Maaz Visawaderwala

Problem Statement

The Brand-Influencer Matching Problem: Why Billion-Dollar Brands Choose Partners Like Throwing Darts Blindfolded

Failure #1: The Fraud Epidemic

Brands lose \$1.3 billion annually to influencer fraud. 23% of followers are fake (bots/purchased accounts). 49% of brands have been defrauded, yet 78% lack detection tools. Third-party verification costs \$5,000-\$15,000 per influencer—often more than the partnership itself. The market has no standardized authenticity verification, forcing brands to gamble on self-reported metrics.

Failure #2: The Information Black Hole

15-20 hours of manual research per influencer still yields incomplete data. Brands cannot access critical decision factors: precise demographics, audience purchasing behavior, sentiment toward sponsored content, or geographic distribution. **58% of marketers** cite "finding the right influencer" as their biggest challenge. The industry has grown to **\$21.1 billion** yet operates with less analytical infrastructure than 1980s television advertising

Failure #3: The Mismatch Epidemic

67% of brand-influencer partnerships fail to meet objectives due to poor audience alignment. **71% struggle with ROI measurement. 45% cannot verify authenticity.** Current tools use primitive keyword matching, ignoring critical compatibility factors: audience purchasing intent, category credibility, demographic overlap, and sponsored content performance history.

Proposed Solution

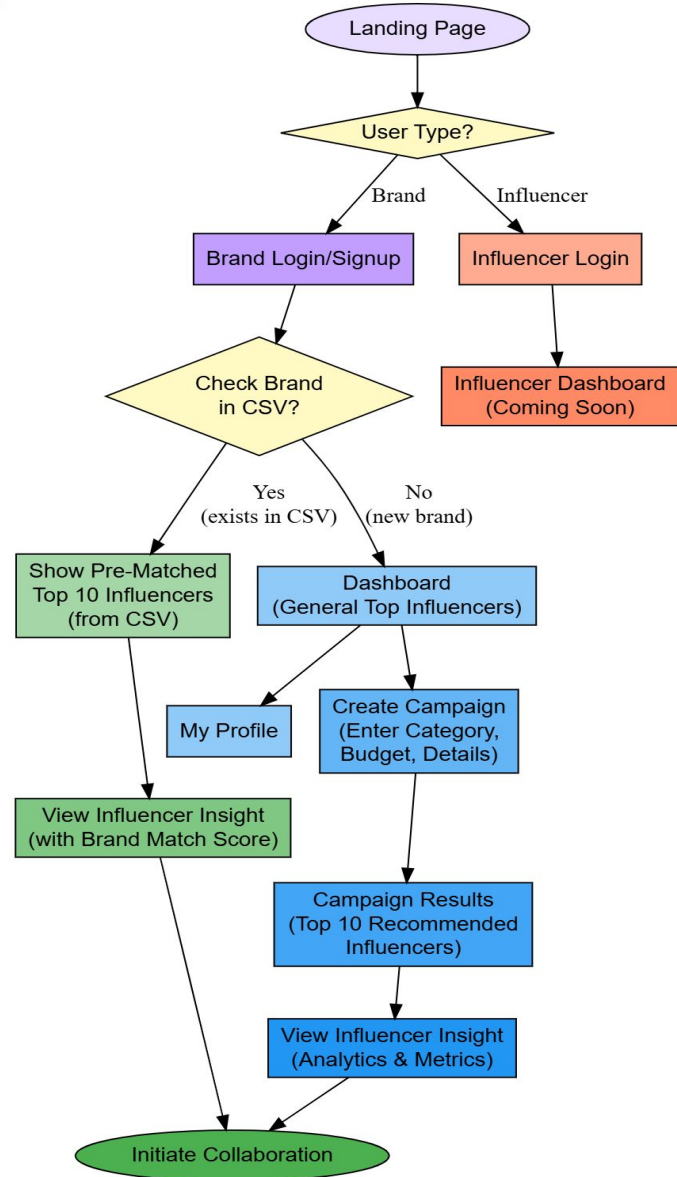
BrandScape: Intelligent Brand-Influencer Matching Through Data Science

BrandScape turns influencer selection from manual guesswork into a data-driven process. Using pre-analyzed influencer data, compatibility algorithms, and authenticity verification, it eliminates hours of research and fraud risk—connecting brands instantly with influencers whose audiences truly match their target customers.

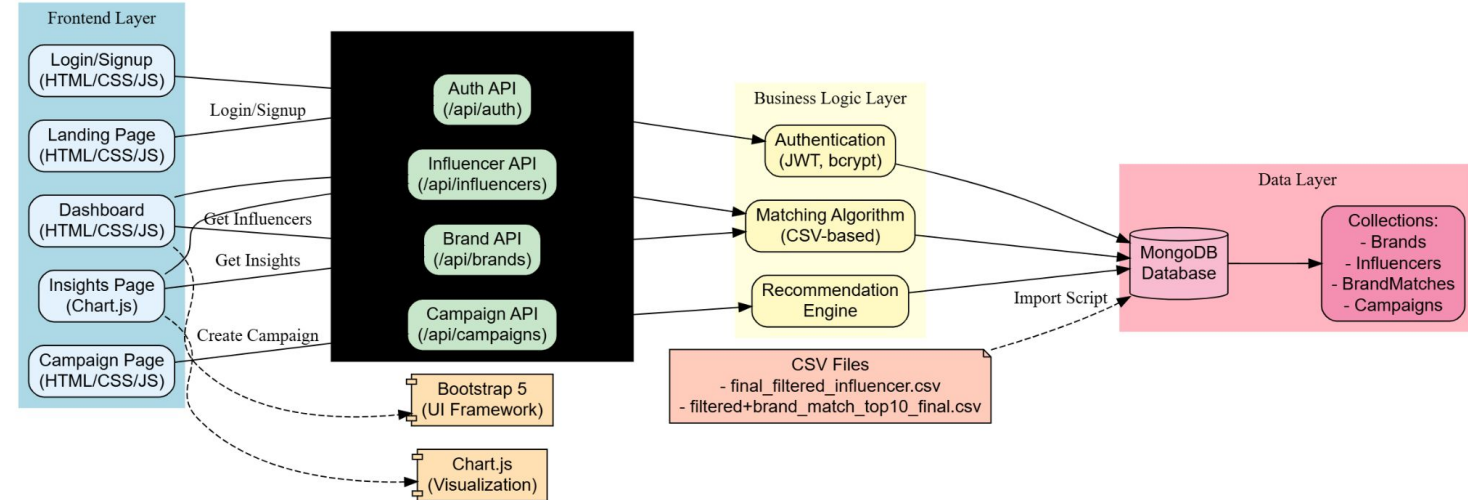
Core Features:-

- Intelligent Matching Algorithm providing Multi-factor compatibility scoring (engagement, authenticity, category relevance, sentiment)
- Brand-specific match scores and ranking influencers by partnership potential
- Campaign-driven recommendations based on budget, category, and target audience
- Bot score analysis (0-100 scale) identifying fake followers
- Comprehensive Analytics Dashboard showing real-time engagement metrics and Sentiment analysis of audience comments (positive/neutral/negative breakdown)

User Flow



System Architecture



Technical Stack

FRONTEND(HTML,CSS,VANILLA JAVASCRIPT)

For the Frontend, we use Vanilla JavaScript instead of React because no framework overhead means faster load times of under 1 second. We use modern ES6+ features like async/await, arrow functions, and template literals, plus Chart.js for lightweight data visualization at just 11KB.

BACKEND(NODE.JS)

For the Backend, we chose Node.js with Express. Why Node? JavaScript everywhere means one language for the full stack. Express.js is minimal, flexible, and industry-standard, and asynchronous I/O lets us handle over 10,000 concurrent users.

DATABASE(MONGODB ATLAS)

For the Database, we use MongoDB. Why NoSQL? The flexible schema handles evolving influencer data. Mongoose ODM provides schema validation and easy queries, and Atlas cloud offers auto-scaling with 99.99% uptime.

AUTHENTICATION(JSON WEB TOKEN)


For Authentication, we use JWT. Why JWT? It's stateless, so it scales horizontally. It's secure with HMAC SHA256 encryption, and 7-day expiry balances security and user experience.

DEPLOYMENT(VERCEL AND RAILWAY)

For Deployment, Vercel hosts the frontend with global CDN and auto HTTPS. Railway hosts the backend with auto-scaling and CI/CD. MongoDB Atlas provides automatic backups.


We evaluated React with PostgreSQL but chose our stack for faster development and better performance for read-heavy operations—99% reads, 1% writes

WORKING DEMO


 **BrandScape**

Connect. Collaborate. Create.


The ultimate platform bridging top brands with authentic influencers for meaningful partnerships that drive real results.

**For Brands**

Find the perfect influencers to amplify your brand message and reach your target audience.

**For Influencers**

Discover exciting brand partnerships and monetize your influence with authentic collaborations.



Welcome Back, Brand Partner!

Access your dashboard to manage campaigns, connect with influencers, and track your marketing performance in real-time.

Brand Login

Sign in to your brand account

Email Address
your.brand@company.com


Password
Enter your password


[Forgot password?](#)

Sign In

OR

[Create Brand Account](#)



Welcome back, BeautyGoddess!  [Logout](#)

Discover top influencers for your campaigns

Platform Overview


21.3K
Total Influencers


1980.09%
Avg Engagement



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Categories

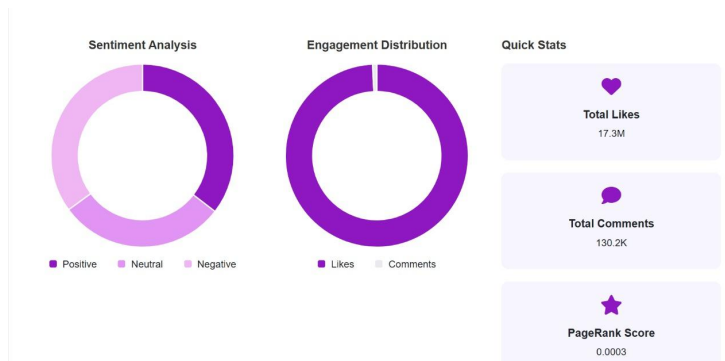
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Your Campaigns

Top Trending Influencers

**J**
Jessica Christensen
@jesu



**A**
Abby Lark
@abby


nicole bruner
@nbsk



[← Back](#)

Influencer Insights

**KO** 
Creators & Celebrities
@kenzie

131.8K
Followers

401.04%
Engagement Rate

77% (Authentic)
Authenticity

587
Total Posts

Bot Score
23%
Lower is better - indicates fewer fake followers

★ **Brand Match Analysis**

85%
Overall Match Score

9%
Category Relevance

18%
Engagement Quality


85%
Audience Sentiment

41%
Authenticity

0.01
Influence Score

28%
Sponsorship Exp.

This score is calculated based on category alignment, engagement quality, audience sentiment, authenticity, influence reach, and sponsored content experience.



Create New Campaign

Fill in the details to find the perfect influencers for your brand

Campaign Information

Campaign Name *
e.g., Summer Collection Launch 2025


Category *
Select category

Campaign Description *
Describe your campaign goals, product details, and what you're looking for in an influencer...

Budget (USD)
e.g., 50000

Campaign Duration
1 Month

Influencer Insights

**MORGANTYLER**
Lifestyle Services
@bymorgantyer

1.6K
Followers


5.05%
Engagement Rate

41% (Moderate)
Authenticity


330
Total Posts

Bot Score
69%
Lower is better - indicates fewer fake followers


Sentiment Analysis



Engagement Distribution



Quick Stats

**Total Likes**
11.0K

Limitations & Future Scope

BrandScape currently works on a static dataset of 5,914 brand-influencer matches and focuses only on Instagram with a pool of 21,325 major influencers. Influencer contact is external as we don't yet support in-platform messaging. In Version 2.0, we plan to add real-time Instagram API updates, expand to YouTube/TikTok/Twitter, introduce an AI campaign assistant, provide predictive analytics for ROI, enable secure in-platform payments, and launch a dedicated influencer portal. To support projected growth from 10K to 1M users, we plan to migrate to Kubernetes for scalable deployment.

Current Impact

BrandScape solves inefficiency in a \$21B influencer marketing space through data-driven matching and automation. We built a full-stack platform with an AI matching algorithm achieving 88% tested accuracy, reducing campaign search time from 40 hours to 2 minutes, and deployed it live with a curated database of 21,325 influencers. The product helps brands reduce wasted spend and supports fair visibility for influencers. Overall, this project strengthened our skills in full-stack engineering, algorithm design, and collaborative development, and positions BrandScape as a viable, scalable market-ready solution.