HealthKart Influencer Campaign Dashboard

Data Science & Analytics Project Report

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Must Read: https://github.com/Anushka-Sharma-008/HealthKartProject/blob/main/README.md
GitHub: https://github.com/Anushka-Sharma-008/HealthKartProject
Deployed Application: https://healthkartproject.streamlit.app/

Project Objective

To design and deploy a fully-functional dashboard that enables **real-time performance monitoring of influencer campaigns** at HealthKart, with special emphasis on **ROI measurement**, incremental **ROAS analysis**, and **influencer efficiency insights**.

What Was Asked vs. What I Delivered

Requirement	Delivered	Additional Enhancements
Dashboard showing campaign performance, ROAS, influencer insights	5-Page Streamlit App with filters, KPIs, ROAS graphs	Added **forecasting**, **chatbot**, **dynamic filters**, and **logo branding**
Payout tracking and influencer ROI	Separate "Payout Tracker" section with full influencer-level breakdown	Built **basis-based payout logic**, handled **NaN/inf**, and included **platform/category filters**
Data simulation of 4 CSVs	data_simulation.py with 4 realistic CSVs	Used **Faker**, **probabilistic logic**, and ensured **cross-table consistency**
Incremental ROAS calculation	Implemented ROAS metric with real-time computation per influencer and campaign	Added **box plot by platform**, and **monthly campaign selection**
Chatbot (optional)	Built from scratch with **regex-based NLP**, intent	Included **recommendations** based on criteria like

	recognition, and real-time metric answers	follower count, platform, category
PDF summary (optional)	Submitted as Project_description.pdf	Organized, structured with screenshots and insights

Special Features & Highlights

1. Multi-page Streamlit App with Sidebar Navigation
   A clean, modular design with 5 pages:
   - Campaign Overview
   - Influencer Insights
   - Payout Tracker
   - ROI Forecasting
   - Chatbot
2. Interactive Filtering System
   Filters on the sidebar dynamically control the view across pages:
   - Product, platform, and category filters
   - Month and campaign-level selectors
   - Filters sync across datasets
3. Data Consistency Across Tables
   - Used the same influencer IDs across posts, payouts, and tracking_data to simulate realistic joins.
   - Applied foreign key logic manually in simulation script.
4. Forecasting ROI Tool ***(Additional)***
   Built a custom regression-based ROI predictor:
   - Inputs: follower count and engagement rate
   - Output: predicted ROI (₹)
   - Trained using real payout data on follower count
   - Helps simulate influencer onboarding impact
5. Chatbot with Natural Language Query Handling ***(Additional)***
   Created a fully working chat interface using pattern matching:
   - Answers queries like “Top influencers by ROAS”
   - Recommends influencers meeting multiple conditions
   - Built as a plug-and-play chatbot.py module
6. Visual Storytelling with Plotly
   Custom visualizations per page:
   - Bar chart: Revenue by product
   - Box plot: ROAS by platform
   - Pie chart: Influencer revenue share
   - Dynamic KPI boxes with formatted outputs
7. Professional UI & Branding
   - Custom HealthKart logo added via base64 injection
   - Preview images for each page included in assets/
   - Responsive layout with wide screen mode

Key Features

- **Campaign performance** overview with filters by month, campaign, platform, and product
- Influencer-level insights including **revenue contribution**, average ROAS, and **engagement statistics**
- Payout tracker showing **basis-wise** and **influencer-wise payout distributions**
- ROI forecasting using **simple linear regression** based on follower count and engagement rate
- **Natural language chatbot** for instant queries like top influencers or total revenue

Technical Implementation

- **Frontend:** Streamlit
- **Data Processing:** Pandas, NumPy
- **Visualization:** Plotly Express
- **ML Modeling:** Scikit-learn (Linear Regression)
- **Chatbot/NLP:** Regex-based intent engine
- **Simulation:** Faker, random

Filtering and data transformation were done in real-time to update charts and insights based on user input. ROAS was computed as **Revenue / Total Payout**, with missing or infinite values handled gracefully. The chatbot was built to serve as an interface for non-technical users to extract key insights quickly.

Key Insights

- **Top-performing influencers** identified by ROAS and total revenue
- **Platform-wise ROAS** trends visualized (e.g., YouTube > Instagram)
- **High-converting products** spotted via product-revenue breakdown
- **Engagement-to-payout correlation** leveraged for forecast model
- **Cost inefficiencies** detectable from payout vs. order contribution

Output Summary

- Fully functional and modular **Streamlit dashboard** with five key components
- **Clean, maintainable code** with strong data handling and transformation logic
- **GitHub repository** with complete codebase, assets, and simulated datasets
- **Deployed version available publicly** with smooth user experience
- **PDF summary** of project work and insights included in repository

Product Thinking and Assumptions

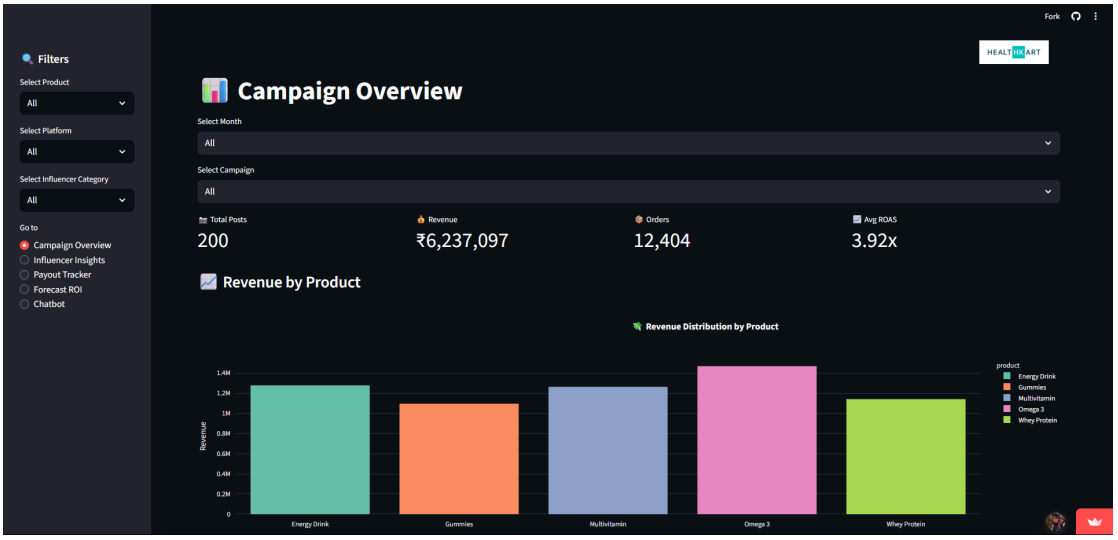
- Influencers are either paid per post or per order, never both
- Follower count and engagement are key ROI predictors

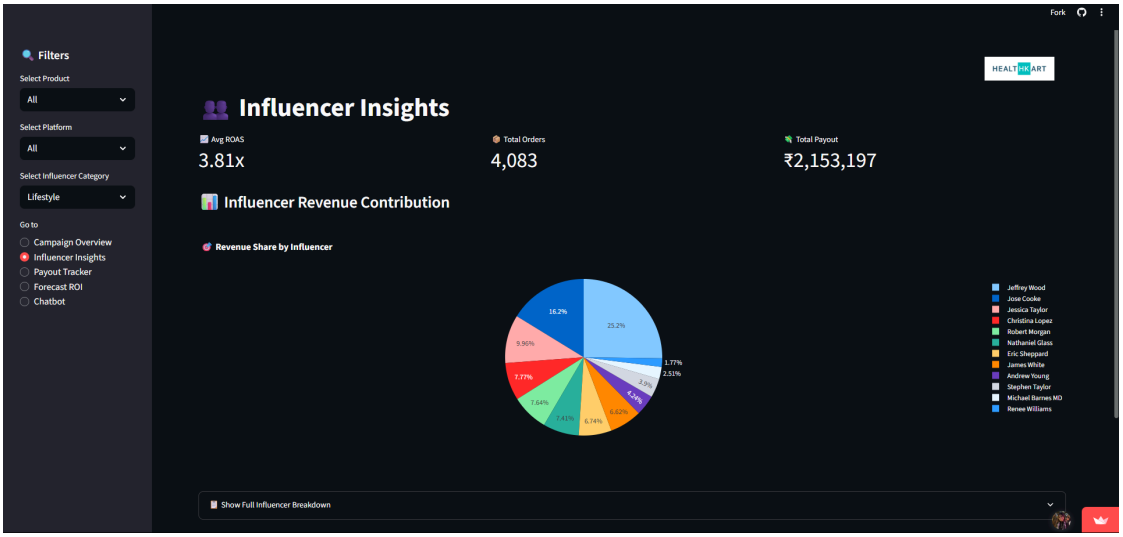
- ROAS = Revenue / Total Payout, with invalid values safely replaced
- Each influencer can participate in multiple campaigns
- No external API access or real campaign data used

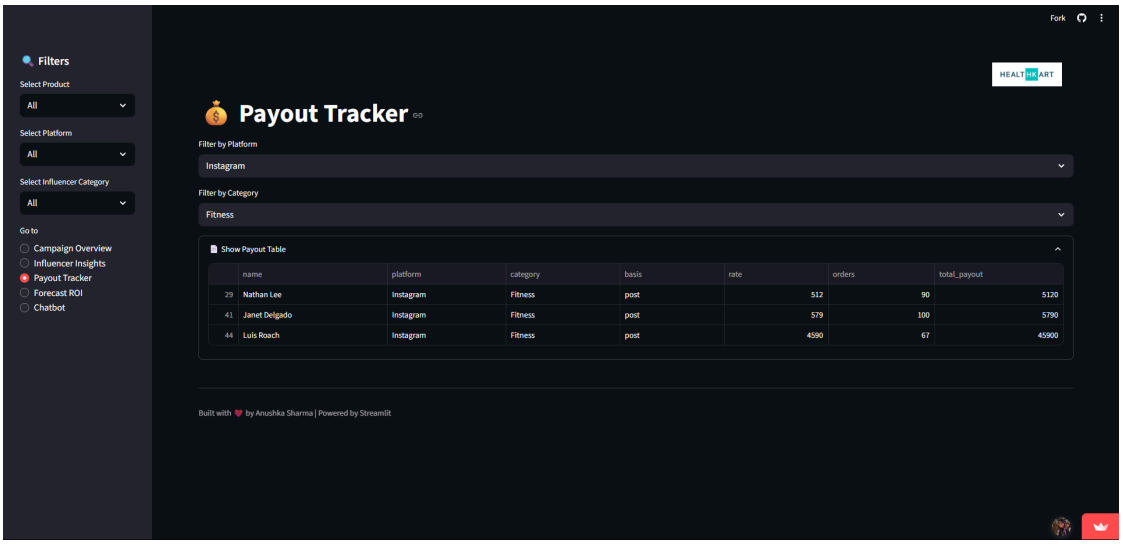
Skills Demonstrated

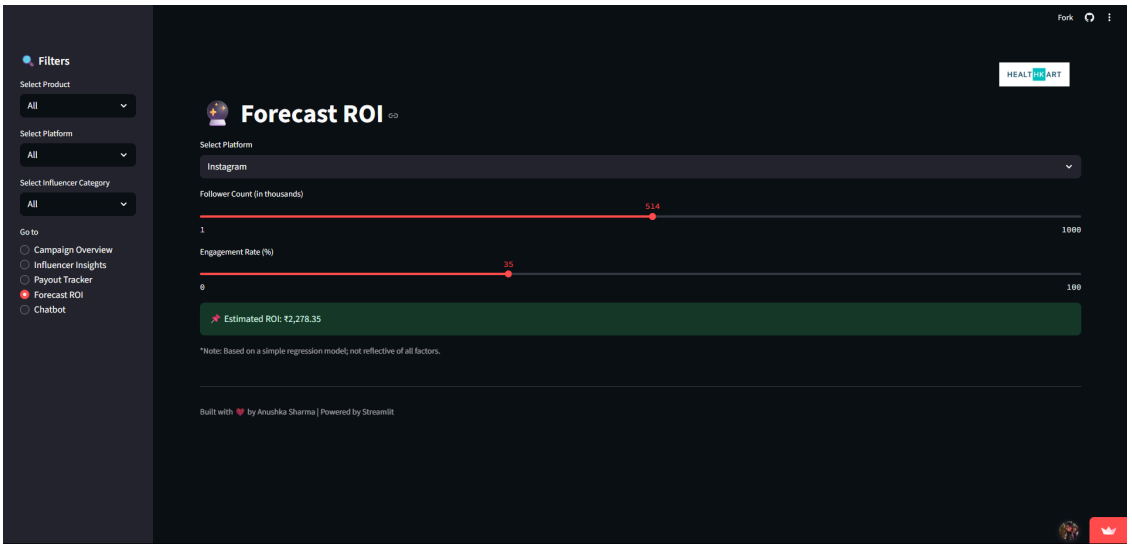
- Strong command over data modeling, cleaning, and merging across simulated sources
- Ability to compute and interpret business-critical metrics like ROAS and payout efficiency
- Built a complete, interactive product showcasing both technical and analytical capabilities
- Strong communication and documentation to make the tool usable for non-technical stakeholders
- Experience with end-to-end project delivery including deployment, UI/UX, and insights

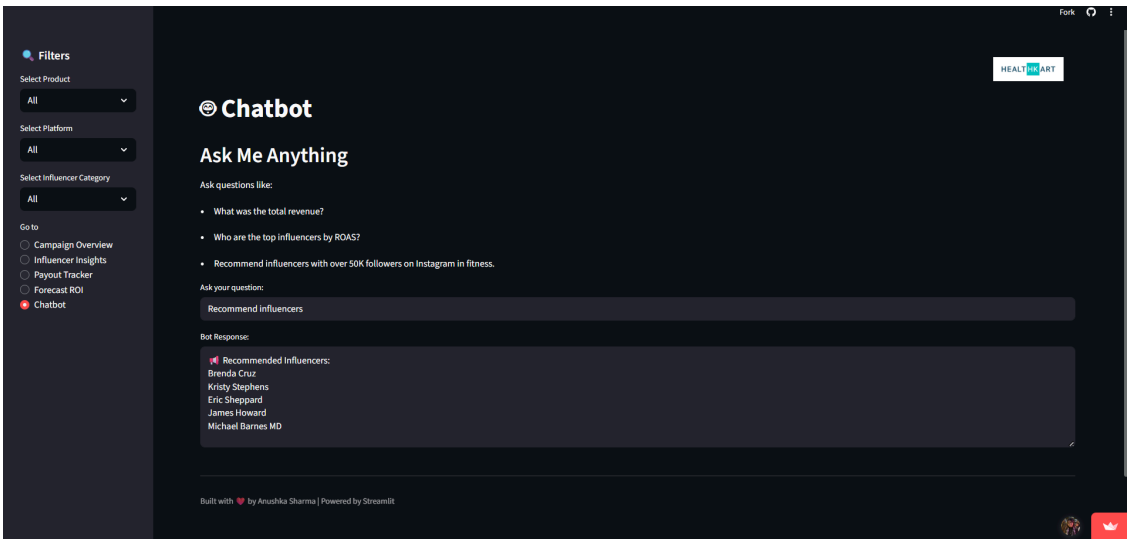
Preview











Closing Note

This project reflects a blend of data analytics, product design, and business storytelling. It was built with a clear focus on usability, clarity, and actionable insights, and demonstrates readiness to contribute meaningfully to marketing analytics and decision-making processes at HealthKart.