BUSINESS ANALYTICS WITH SPREADSHEET MODELLING

(MGT1058)

Digital Assignment-2

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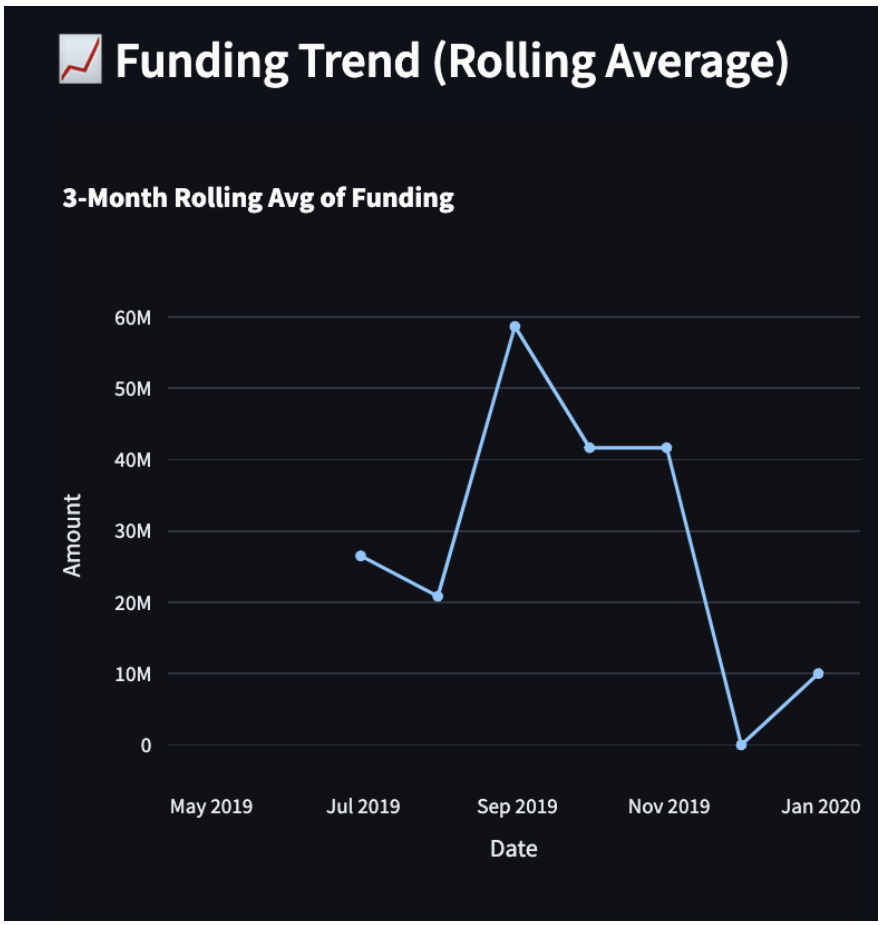
DEMO VIDEO LINK:

https://drive.google.com/file/d/1hk5EdsdB8tukvS4JIbo4o4j-go3FOq4-/view?usp=sharing

CHART INFERENCES:

1. LINE CHART



Funding Trend Insight (3-Month Rolling Average)

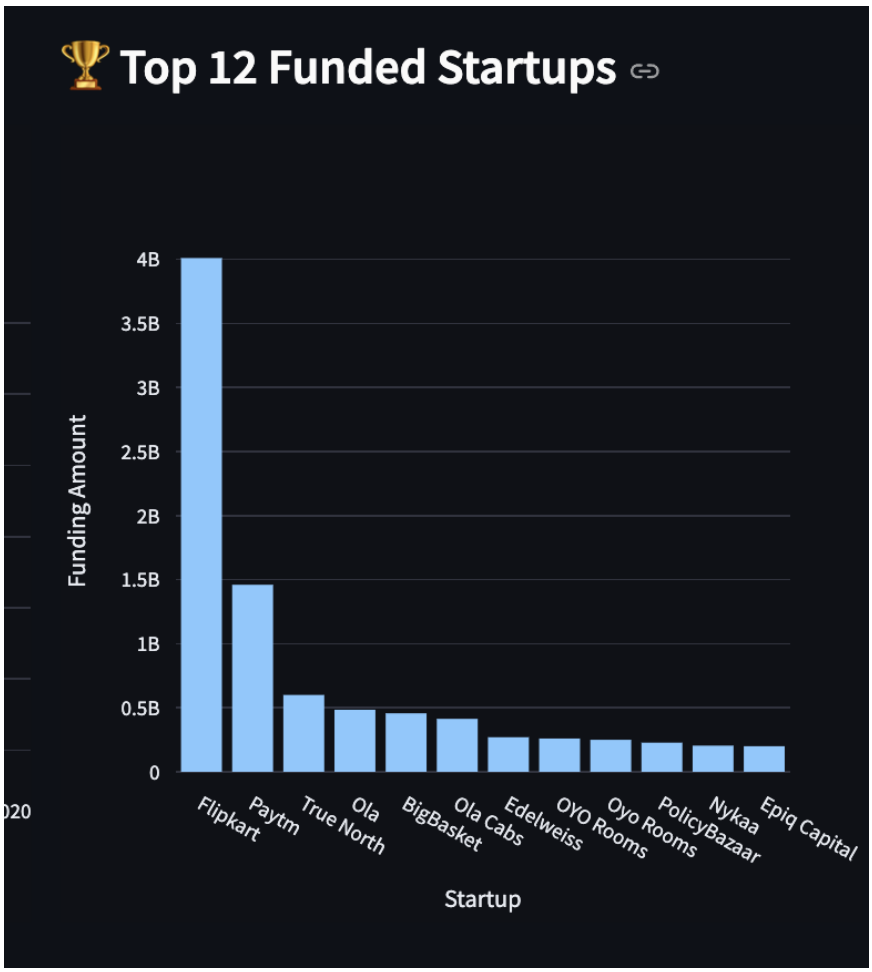
The funding pattern reveals a **clear seasonal rhythm** in the Indian startup ecosystem. Funding typically begins on a slower note in **Q1 and Q2**, as startups focus on **ideation, pitching, and visibility** through expos and events. This is the phase of sowing seeds — founders fine-tune ideas, scout for investors, and build traction.

Q3 marks the inflection point. Investors step in decisively, analyzing market trends and startup growth from earlier quarters. Venture capital firms also face internal pressure to **deploy reserved capital before fiscal deadlines**, driving a visible spike in investments during this phase.

However, **Q4 shows a steep decline**, attributed to **year-end budget constraints, cautious capital reallocation**, and the **holiday season lull** — a period when both investor activity and startup outreach slow down.

This cyclical pattern underlines a strategic insight: **startups aiming for high-value funding should align their momentum to peak in Q3**, when investor intent is sharp and capital deployment is aggressive.But Q4 is can also be a significant time period as most investors look to **flush funds** in Q4 to **settle books by year end**.

2. COLUMN CHART



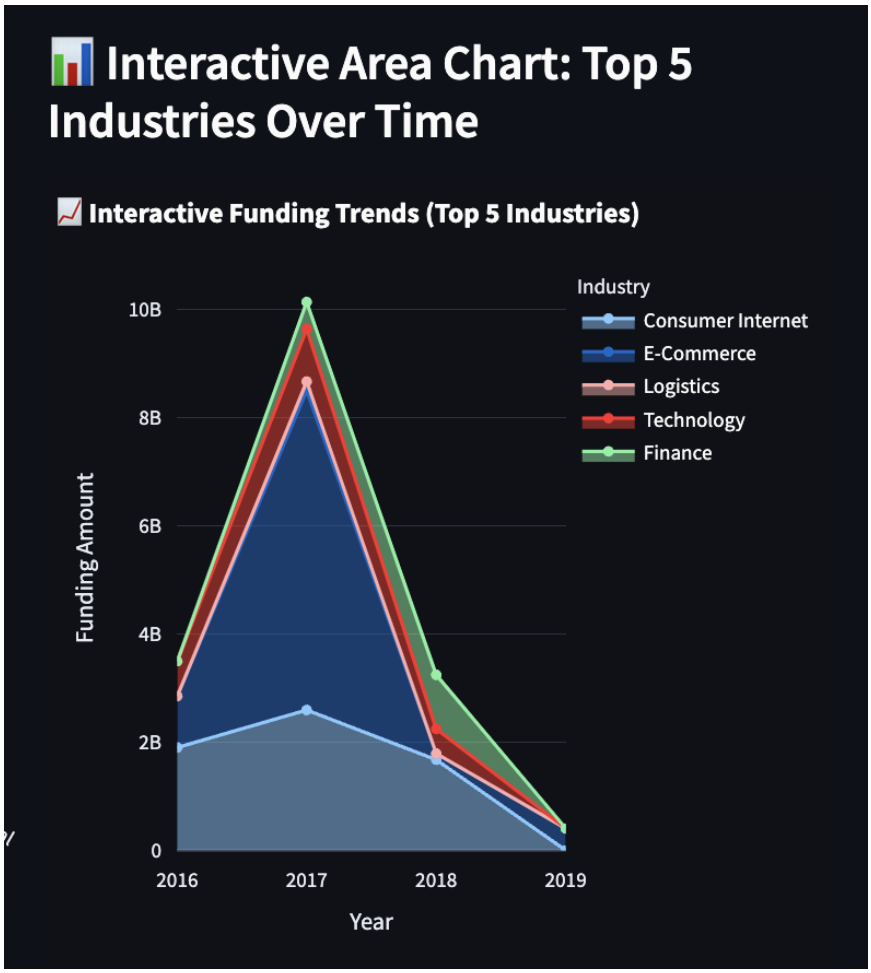
Inference: Funding Concentration in Indian Startups

The Indian startup funding landscape reveals a striking skew, with **Flipkart alone accounting for over 90% of the combined funding raised by the top 20 startups**. This single company exerts such dominance that **removing Flipkart from the dataset causes a 30% drop in the average funding per startup** across India. This underscores how **one standout startup can disproportionately influence the entire funding curve** of the ecosystem.

Additionally, it's not just Flipkart — the **top 10 startups cumulatively attract around 40% of the total startup funding**, while the remaining **60% is distributed among the other 2,050+ startups** in the dataset (total of 2,060 startups). Flipkart's

funding boom can also be attributed to major investor confidence, notably from giants like **SoftBank and Microsoft**, which amplifies its valuation and global appeal.

3. AREA CHART



Inference: Top 5 Industries over Time:

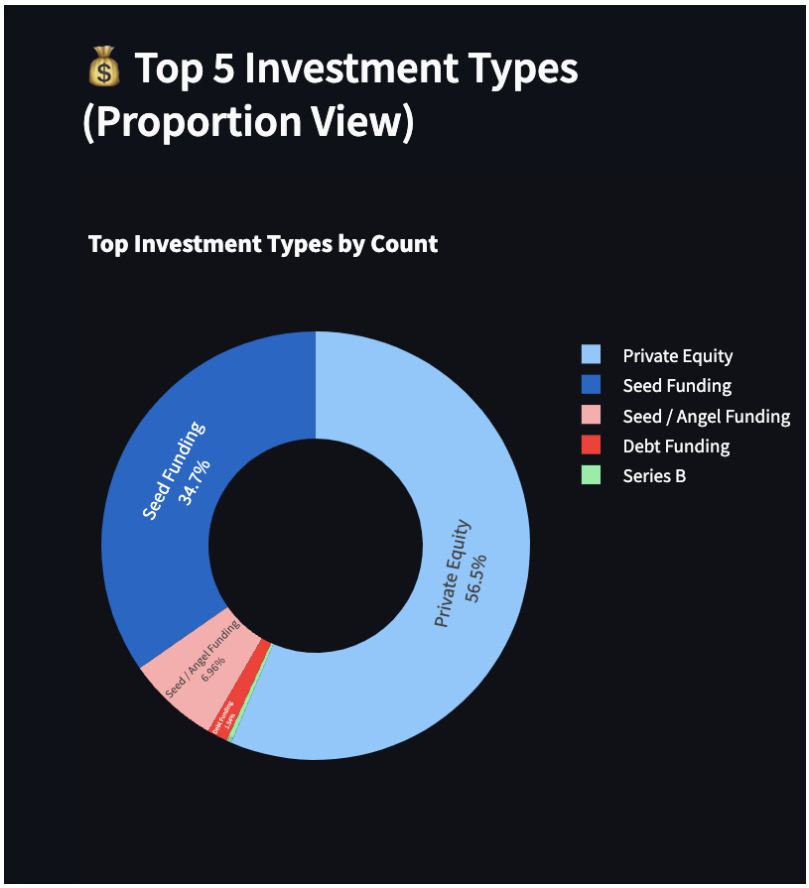
The year 2017 marked a significant boom in the Indian startup ecosystem. This period saw **rapid expansion**, with **heightened investor enthusiasm** and **aggressive funding**—especially from global giants like **SoftBank**, which made substantial investments in high-growth startups.

Moving into 2018, the momentum initially continued, but as the year progressed, investors began to **reassess valuations** and **exercise greater caution.** The realization of realistic startup worth led to more **selective and strategic funding**, with **SoftBank notably reducing its investment volume** compared to the previous year.

By 2019, the funding trend showed a further decline. This was influenced not only by **maturing investor perspectives** but also by a global shift in focus toward **emerging technologies like Artificial Intelligence (AI).** Additionally, **early signs of**

the impending COVID-19 pandemic contributed to **investor hesitancy** and a reallocation of funds toward **sectors with long-term resilience and technological innovation.**

4. DONUT CHART



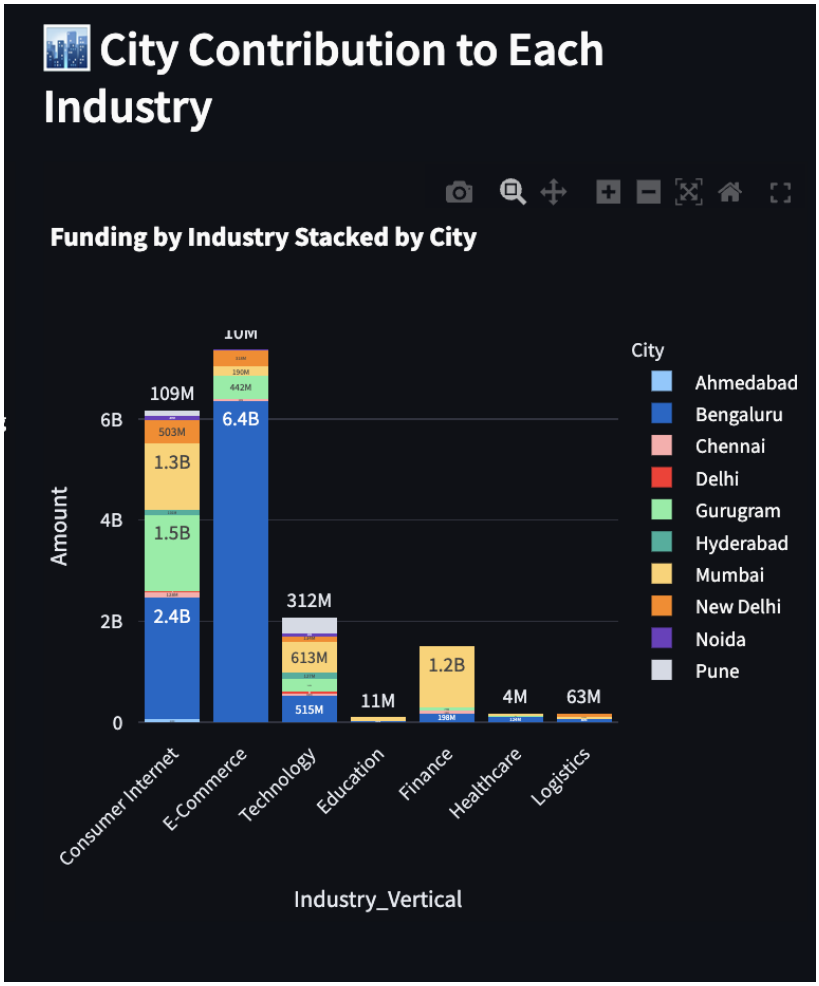
Inference: Investment Type Trends in Indian Startups

The distribution of investment types in India's startup ecosystem shows a distinctive pattern compared to more mature ecosystems like Silicon Valley. **Seed funding (35%) and private equity (57.6%) dominate the landscape**, highlighting that **India is still heavily encouraging early-stage startups**. Unlike mature markets where startups quickly move beyond seed rounds, the **strong presence of seed funding** in India suggests that **the trend of nurturing new ventures remains robust**.

However, **the relatively low presence of Series A, B, and later-stage funding indicates a risk** — many early-stage startups **may not survive beyond 4–5 years**, a phenomenon commonly referred to as the **"Funding Valley of Death."**

Additionally, **debt funding makes up less than 5%** of the total investments, showing that **equity-based investments are overwhelmingly preferred over loan-based financing** in the Indian startup environment.

5. STACKED BAR CHART



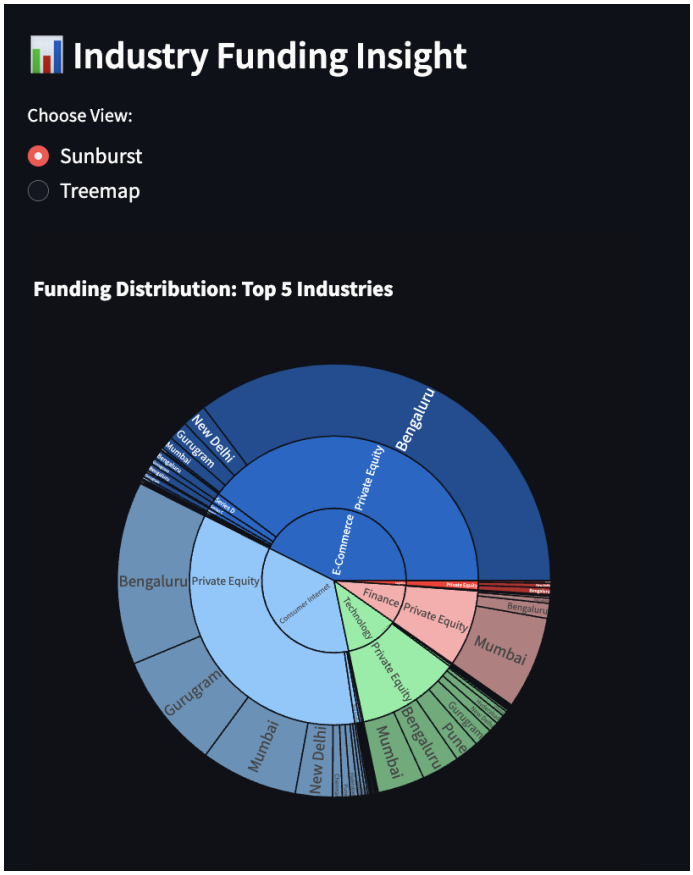
Inference: City Funding Across Industries

Bengaluru is the **powerhouse of Indian startups**, leading **every industry**—from E-commerce to Tech—with a jaw-dropping **₹6.4B in tech funding alone**. Yet, in **E-commerce**, cities like **Mumbai and Gurugram combined match Bengaluru**, showing rising challengers.

But here's the twist: **Education + Healthcare get just ₹120M**, a mere **2% of E-commerce funding**—a stark reflection of **billions poured into shopping, but crumbs into health and learning**.

While Chennai and Hyderabad act as **quiet catalysts**, the spread in tech funding suggests a **maturing, multi-city innovation wave**. India's startup funding? **Heavily city-driven, wildly imbalanced—and absolutely fascinating**.

6. SUNBURST



Inference: Industry-Wise Funding Insight (Sunburst View)

The **sunburst chart** maps the funding distribution with:

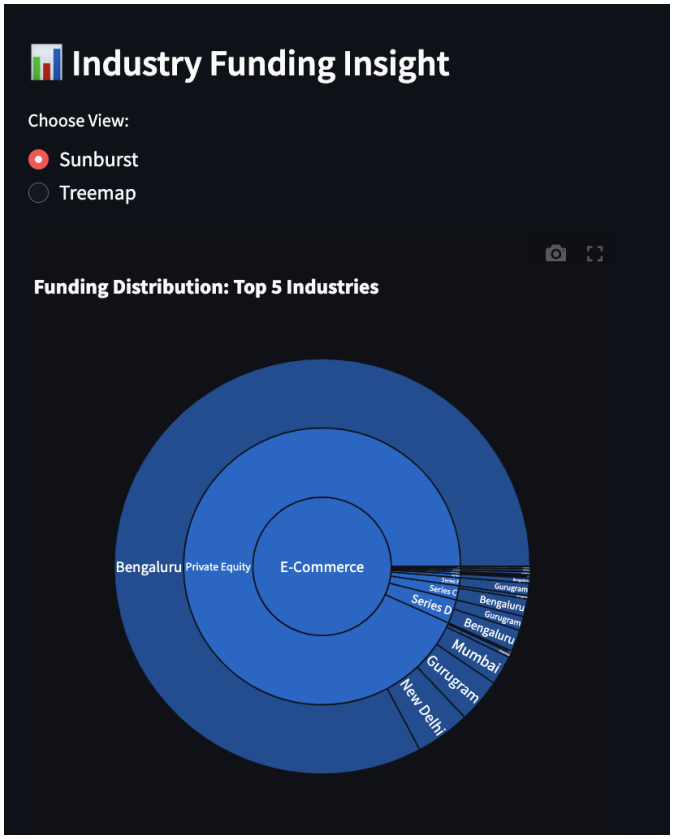
- Center: **Industries**
- First ring: **Investment Type**
- Outer ring: **City Contributions**

Bengaluru's Private Equity funding in just E-commerce is a bombshell—**it alone contributes nearly 1/3 of India's *entire* startup funding**. That's not just dominance, that's **funding centralization at its peak**.

Across **every top industry**, **Private Equity** emerges as the **most dominant investment type**, signaling investor confidence in high-growth, scalable ventures over smaller seed-stage bets.

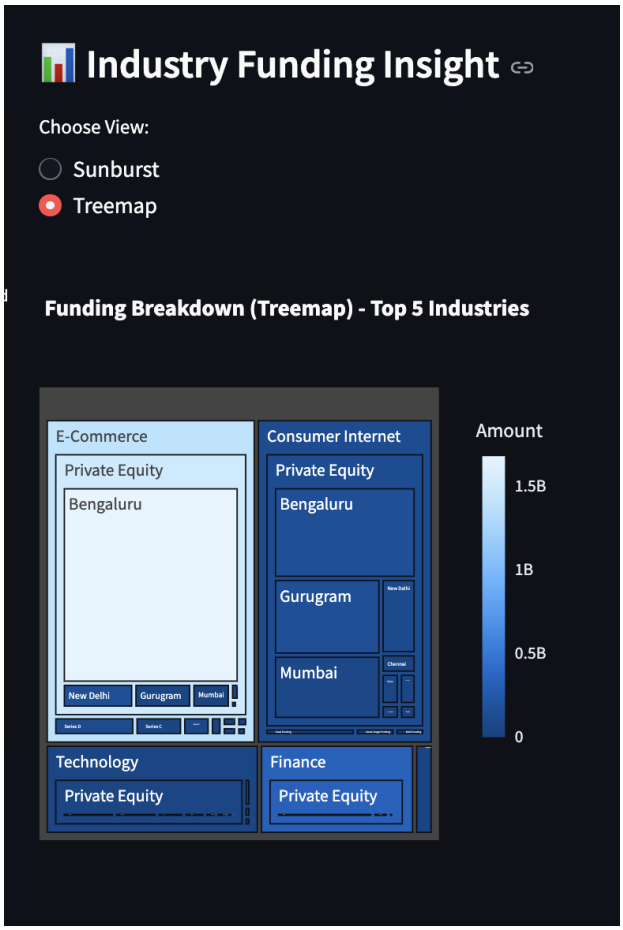
Consumer Internet and **E-commerce** take the lion’s share of capital, while **Finance** and **Technology** show relatively better distribution across cities and funding types.

Industries like **Healthcare** and **Education**, despite their societal value, receive a *fraction* of the total funding—less than what Bengaluru alone pulls in from one vertical!This is a real concern for the country more than the monetary side to it.


Industry Funding Insight
Choose View:
Sunburst
Treemap
Funding Distribution: Top 5 Industries
Bengaluru
Private Equity
E-Commerce
Series D
Bengaluru
Gurugram
Bengaluru
Mumbai
Gurugram
New Delhi


Industry Funding Insight
Choose View:
Sunburst
Treemap
Funding Distribution: Top 5 Industries
Bengaluru
Private Equity
Mumbai
Gurugram
New Delhi

7. TREEMAP



Inference: Industry-Wise Funding Insight (Treemap View)

The Treemap lays it bare: **over 60%** of India's startup funding is absorbed by just two industries—**E-Commerce** and **Consumer Internet**.
Zoom in closer, and the dominance sharpens—**Bengaluru alone**, through Private Equity rounds in E-Commerce, commands almost **one-third** of the nation's total startup capital.
One city, one industry, one investment type—swallowing billions while the rest compete for scraps.

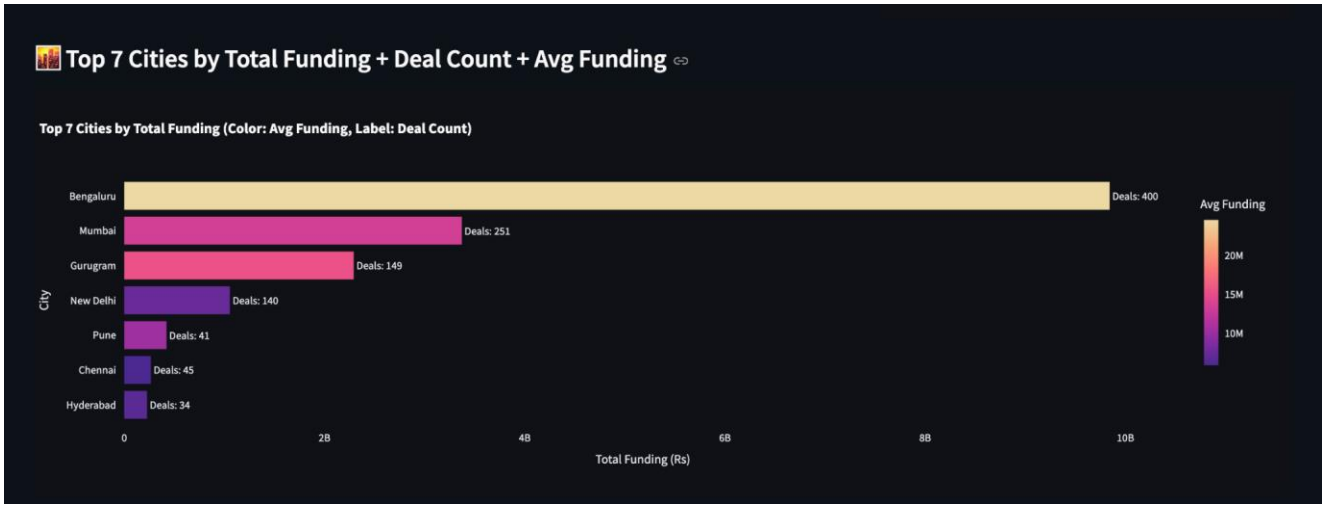
Private Equity is the undisputed king across all major industries, with Seed and Early Stage deals reduced to minor blips—visibly minimized even in sectors like Technology and Finance.
Even when Finance tries to break free, cities like Mumbai can barely crack the funding fortress that Bengaluru has built.

In a nation of **1.4 billion people**, industries like Healthcare and Education are practically invisible on the funding map—receiving **less than 5%** of the total capital combined.

Bengaluru’s E-Commerce sector alone eclipses them **10x over**, a stark reminder that financial ecosystems don’t always align with societal needs.

This Treemap isn't just data—it's a wake-up call.
India's startup dream is scaling fast, but if left unchecked, it risks becoming a skyscraper built on a frighteningly narrow base.

8. BAR CHART



Inference: City-Wise Funding Dynamics

The chart reveals a **power play of volume vs. value** in India’s top startup cities:

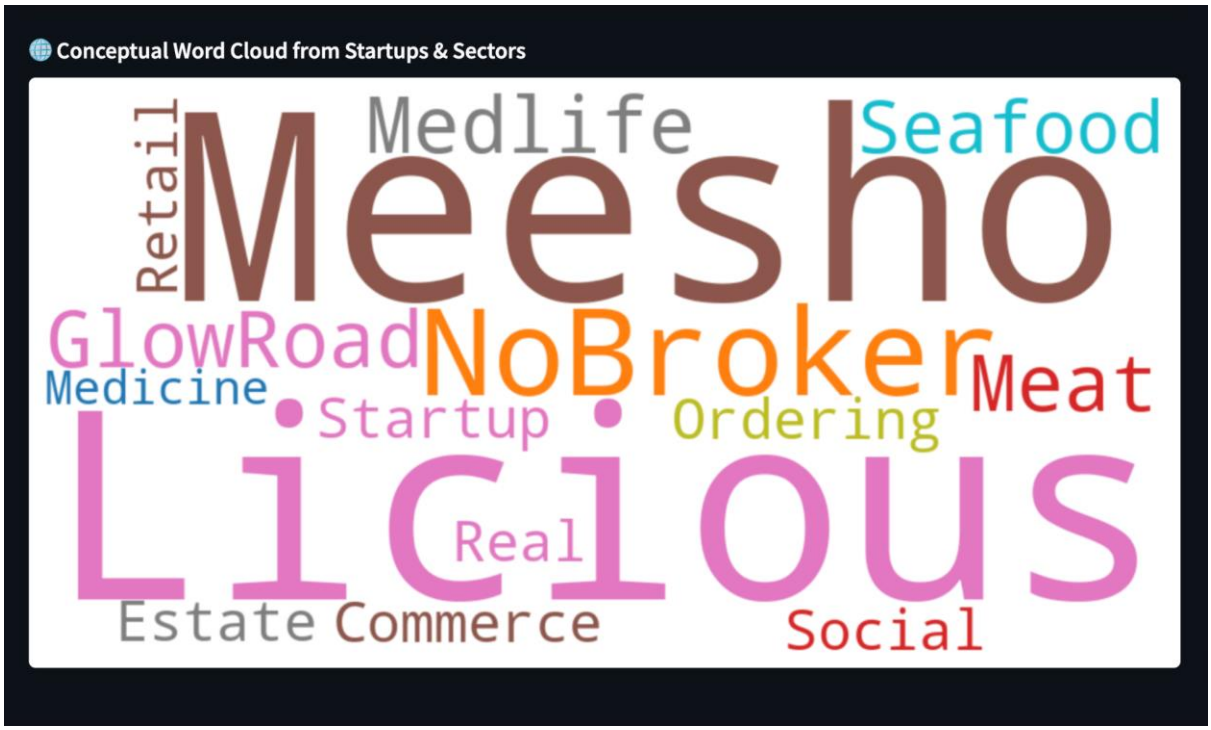
Bengaluru is in a league of its own — **400 deals** with **highest total funding** and **strong average per deal**, making it both **prolific and premium**. It’s not just the most active hub, it’s the **undisputed epicenter of startup capital** in India.

Gurugram vs. Delhi tells a fascinating story: both close in deal volume (**110 vs 140**), but **Gurugram’s avg funding per deal is significantly higher**. It’s betting big on **high-stake, high-potential ventures**, while **Delhi spreads smaller investments**, possibly nurturing a wider range of **early-stage, low-risk startups**.

Mumbai, despite having **251 deals**, sees relatively **lower average funding**, indicating a preference for **safer, smaller bets** — quantity over mega-quality.

Cities like **Pune** and **Chennai** show moderate activity but minimal funding impact, signaling untapped or emerging ecosystems.

9. WORD CLOUD

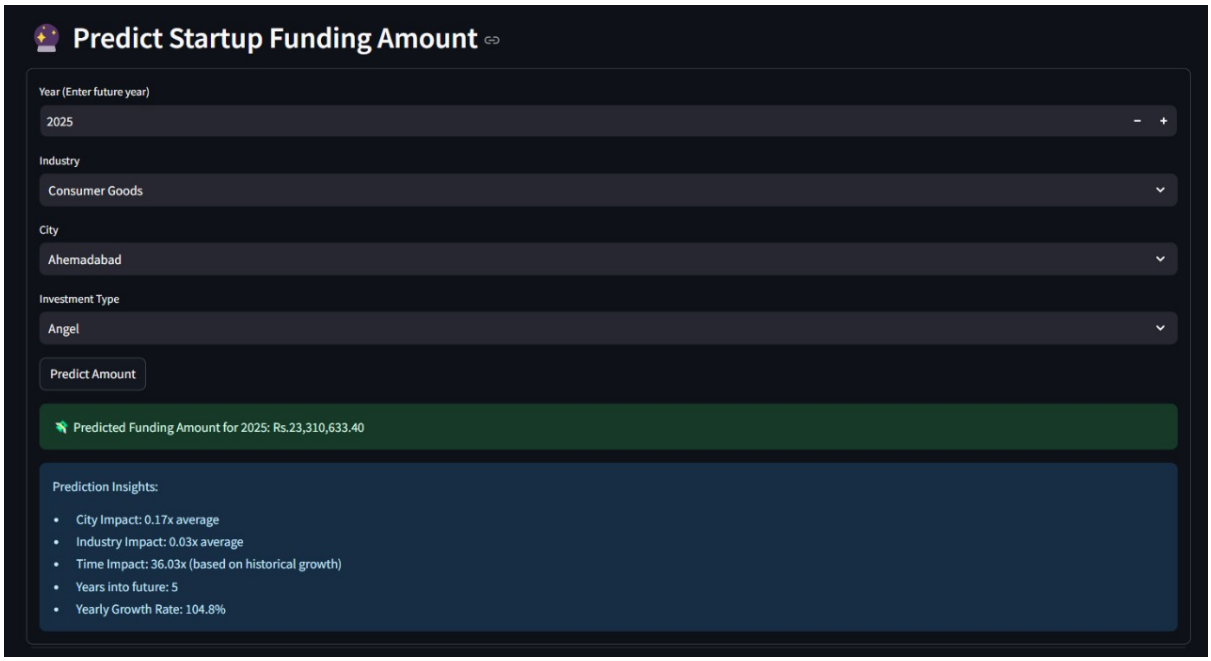


Inference: Word Cloud Startup Names & Sectors
The word cloud provides a quick visual overview of the most recurring themes in India's startup ecosystem. Dominant sector tags like **Technology**, **E-commerce**, **FinTech**, and **HealthTech** stand out, signaling high activity and innovation in these domains.

Common patterns in startup names — such as the frequent use of terms like **"Tech"**, **"Labs"**, **"Solutions"**, and **"Innovations"** — suggest a strong orientation toward **technology-driven problem solving**. This reflects a broader trend of startups branding themselves around **modernity, scalability, and digital transformation**.

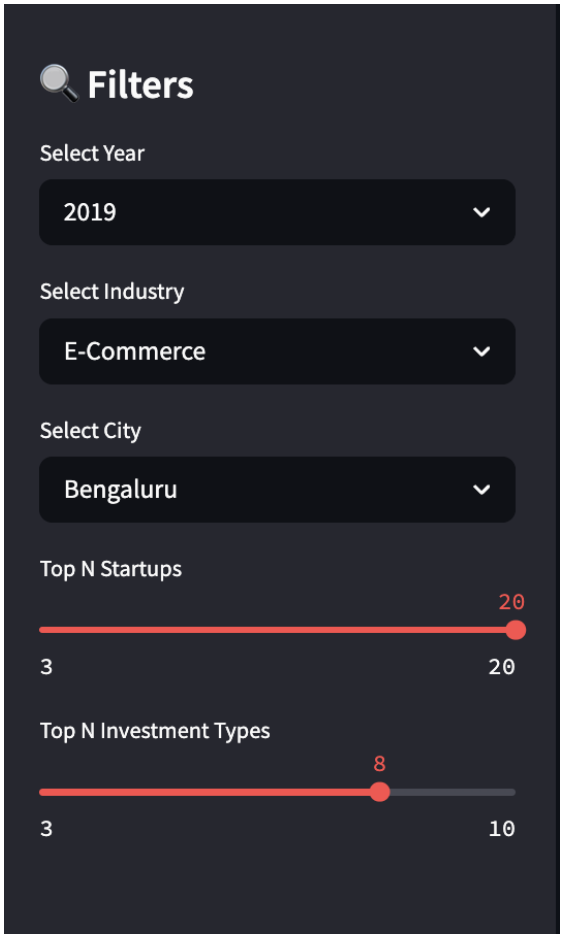
Overall, the word cloud highlights the **emergence of tech-centric, sector-specific ventures**, pointing to India's evolving landscape where **innovation meets industry need** in a bold and visible way.

PREDICTION :



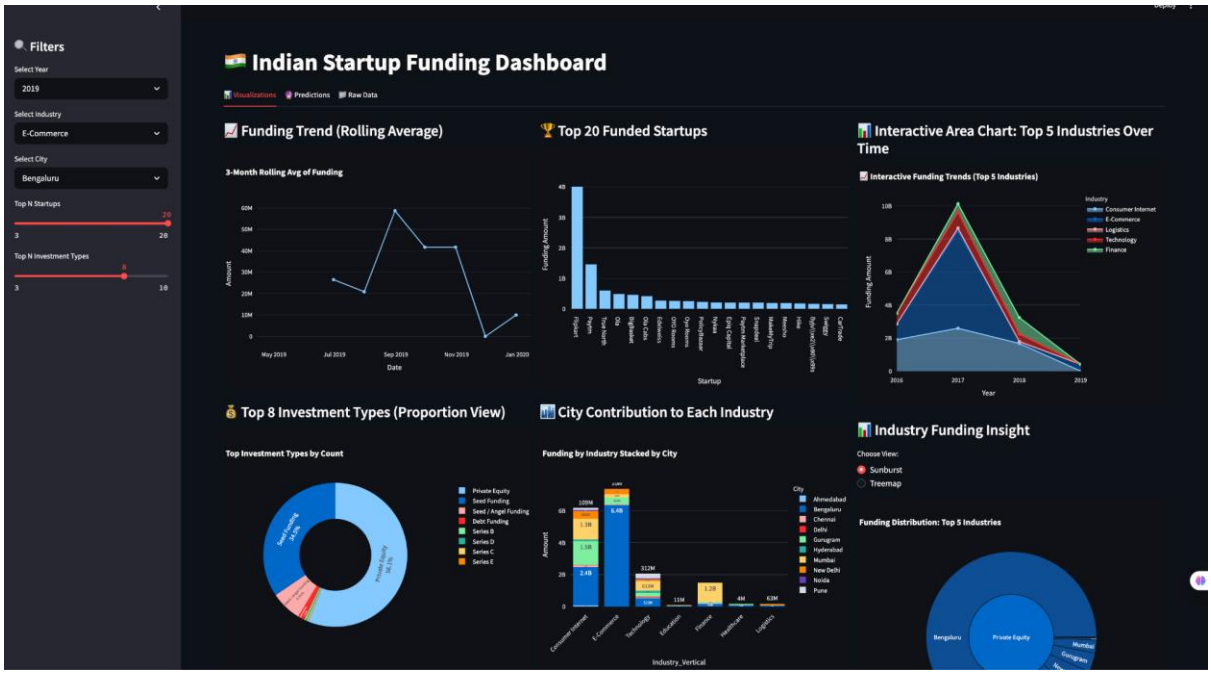
We used **ARIMA** and **Gradient Boosting** models to predict the funding amount for startups in India based on inputs such as **year, industry, city, and investment type**. Given these inputs, the model estimates the expected funding amount for that particular combination. Additionally, the model provides insights into how much each variable—industry, city, and investment type—contributes to or influences the predicted funding amount.

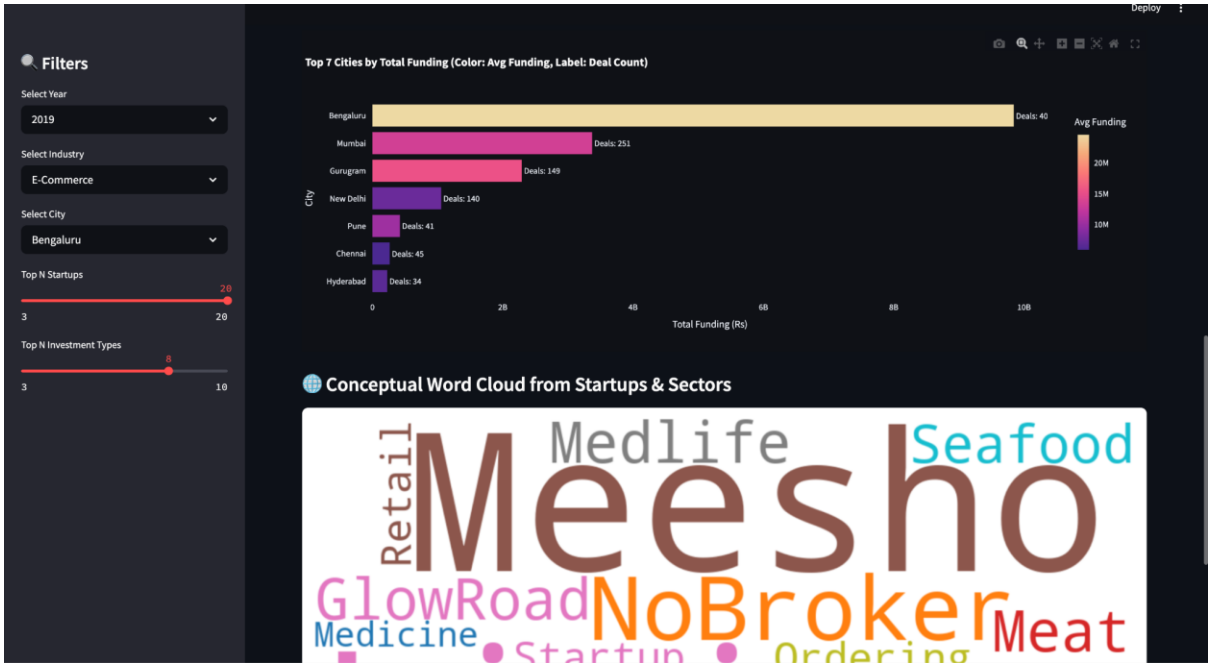
GRAPH INTERACTIVE SLIDERS /FILTERS



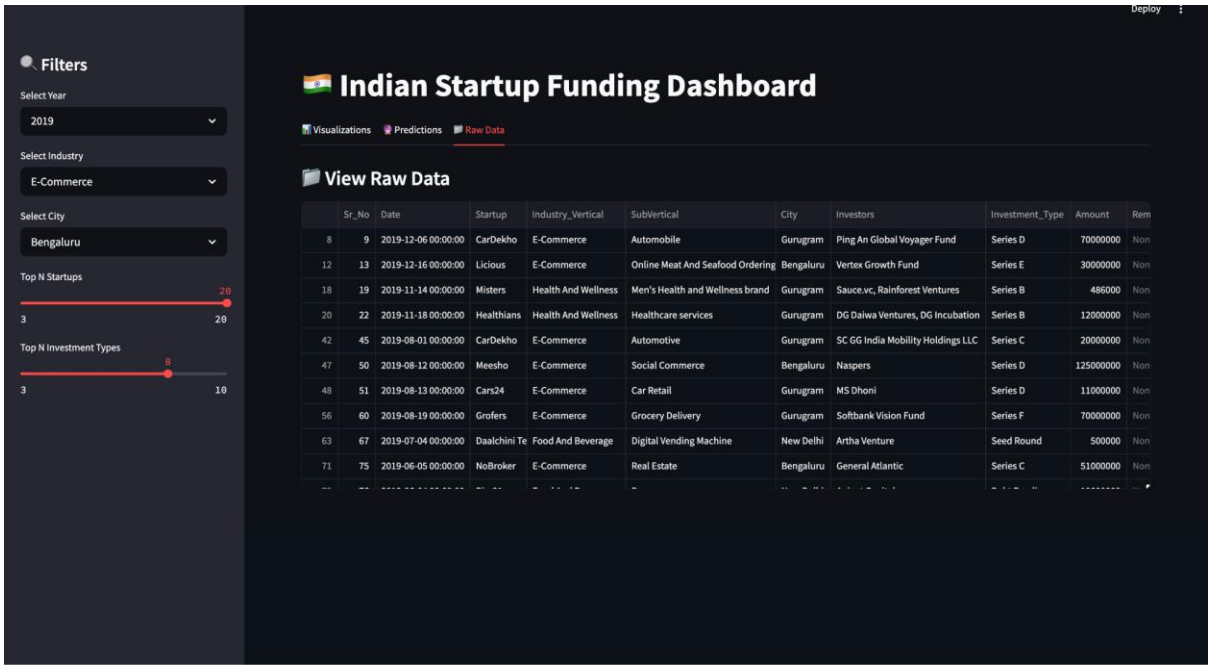
This filter panel provides a **customizable view of startup funding data** based on specific parameters. Users can filter by **Year** (e.g., 2015) to focus on trends from a particular time period. The **Industry filter** allows narrowing down data to sectors such as *Hyperlocal Handyman Services*, while the **City filter** focuses the analysis on a specific location, like *Mumbai*. Additionally, sliders for **Top N Startups** (ranging from 3 to 20) and **Top N Investment Types** (ranging from 3 to 10) enable users to **highlight key players and dominant investment categories**, ensuring a focused and insightful exploration of the dataset.

DASHBOARD OVERVIEW :





DATASET OVERVIEW INCLUDED IN STREAMLIT:



	Sr_No	Date	Startup	Industry_Vertical	SubVertical	City	Investors	Investment_Type	Amount	Rem
8	9	2019-12-06 00:00:00	CarDekho	E-Commerce	Automobile	Gurugram	Ping An Global Voyager Fund	Series D	70000000	Non
12	13	2019-12-16 00:00:00	Licious	E-Commerce	Online Meat And Seafood Ordering	Bengaluru	Vertex Growth Fund	Series E	30000000	Non
18	19	2019-11-14 00:00:00	Misters	Health And Wellness	Men's Health and Wellness brand	Gurugram	Sauce.vc, Rainforest Ventures	Series B	486000	Non
20	22	2019-11-18 00:00:00	Healthians	Health And Wellness	Healthcare services	Gurugram	DG Daiwa Ventures, DG Incubation	Series B	12000000	Non
42	45	2019-08-01 00:00:00	CarDekho	E-Commerce	Automotive	Gurugram	SC GG India Mobility Holdings LLC	Series C	20000000	Non
47	50	2019-08-12 00:00:00	Meesho	E-Commerce	Social Commerce	Bengaluru	Naspers	Series D	125000000	Non
48	51	2019-08-13 00:00:00	Cars24	E-Commerce	Car Retail	Gurugram	MS Dhoni	Series D	11000000	Non
56	60	2019-08-19 00:00:00	Grofers	E-Commerce	Grocery Delivery	Gurugram	Softbank Vision Fund	Series F	70000000	Non
63	67	2019-07-04 00:00:00	Daalchini Te	Food And Beverage	Digital Vending Machine	New Delhi	Artha Venture	Seed Round	500000	Non
71	75	2019-06-05 00:00:00	NoBroker	E-Commerce	Real Estate	Bengaluru	General Atlantic	Series C	51000000	Non