



CMPE 272

# BNBUDGET: AN AIRBNB MANAGEMENT CLIENT

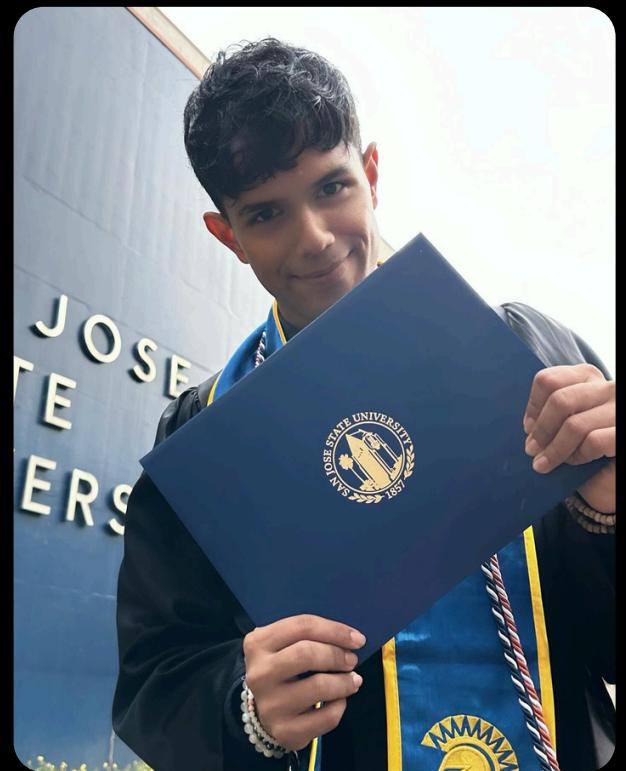


[www.bnbudget.com](http://www.bnbudget.com)



<https://github.com/khushnaiju/BnBudget>

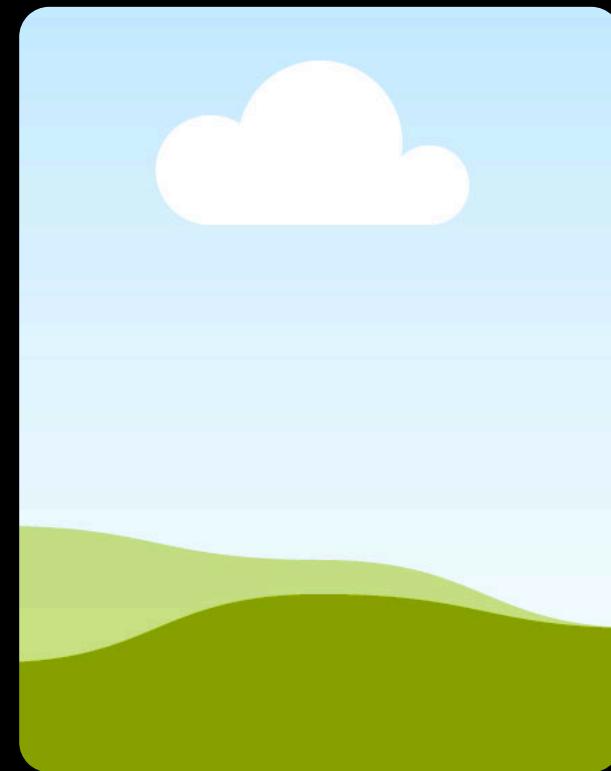
# MEET THE TEAM



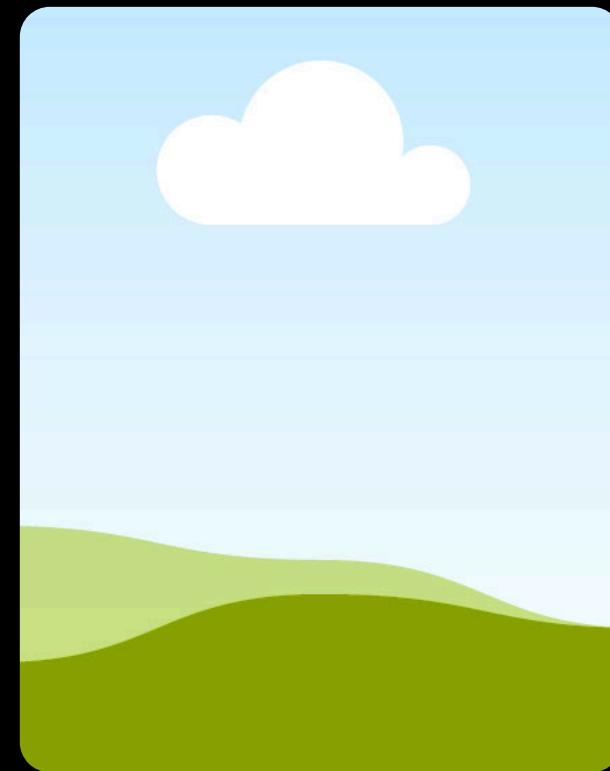
**KHUSH  
NAIDU**  
Lead Engineer - Full-Stack



**POOJA  
SINGH**  
Backend Dev



**VANISHREE  
RAMAPRASANNA**  
Frontend Dev



**MEGHANA  
KOTI**  
Frontend Dev





# INTRODUCTION

Most Airbnb hosts struggle with fragmented financial tools:

- Income lives on Airbnb.
- Expenses are in receipts, emails, or messy spreadsheets.
- Profitability is unclear — especially after taxes, cleaning, and seasonal shifts.
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As portfolios grow, so do mistakes:

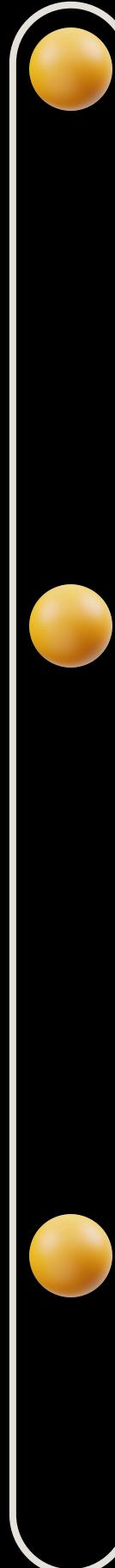
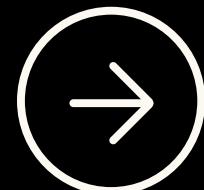
- Missed expenses, lost booking data
- Underpricing in peak seasons
- No visibility into which properties are profitable

Hosts don't need another calendar. They need a CFO.





# PROBLEM STATEMENT



## Lack of Financial Visibility

Most Airbnb hosts rely on disconnected tools – spreadsheets, emails, and Airbnb's limited reports – making it difficult to understand their actual income, expenses, and profitability. Without real-time insight, they risk underpricing or overspending.

## Manual Expense Tracking

Hosts often lose track of receipts and bills related to cleaning, repairs, and utilities. This manual tracking leads to errors, missed deductions, and poor cash flow decisions – especially when managing multiple properties.

## No System for Profit-First Decision Making

There's no built-in way for hosts to know which properties are making money and which are draining resources. Without proper financial tools, scaling becomes chaotic and unsustainable.

# OUR INNOVATIVE SOLUTIONS



## Real Time Financial Tracking

Automatic updates without manual spreadsheets



## Data-Driven Decisions and Profit Optimization

Visual charts enable quick analysis of profitability. View trends over time to adjust pricing and expenses



## Operational Efficiency

Less time spent on bookkeeping. Controlled access, data stored in your environment.

# OUR SERVICES

## PROPERTY DASHBOARD

We give hosts a clean, photo-rich dashboard to view all their properties at a glance — complete with seasonal pricing, current guest status, and financial summaries.

## FINANCIAL ANALYTICS

Metabase dashboard delivers real-time insights:

- Net Income by Month & Property
- Expense Breakdown by Category
- Tax Collected vs Owed
- Occupancy Rate Trends
- Property-Specific P&L Snapshots

## EXPENSE TRACKING

Hosts can add, tag, and manage property-specific expenses. Each entry supports review status, categories, and receipts — no more lost bills or tax write-offs.

## BOOKING MANAGEMENT

We pull in booking data and enrich it with filters, property names, and guest info. Everything is sortable and viewable in a clean, visual interface.

## DIRECT COMPETITOR

### Lodgify and Hostaway

- All-in-one property management platforms
- Offer booking engines, channel managers, automation
- Proprietary and expensive – require monthly subscriptions
- Black-box architecture (no pipeline visibility)
- Built for large property managers or agencies

## INDIRECT COMPETITOR

### Google Sheets / Excel / QuickBooks

- Common DIY tools used by small Airbnb hosts
- Manual entry leads to errors, inconsistency
- Not scalable, lacks pipeline automation
- No real-time data streaming or visual dashboards

# WHY SHOULD YOU USE BNBUDGET

## PLATFORM AGNOSTIC AND FULLY FLEXIBLE

Works with any short-term rental platform – Airbnb, Vrbo, Booking.com, or custom exports. No vendor lock-in: designed to integrate with multiple APIs or data sources

## SEAMLESS AUTOMATION , NO MANUAL OVERHEAD

Automatic ingestion of booking, payout, and expense data via API. Forget spreadsheets and delayed syncing – this app handles it in real-time.

## DYNAMIC REPORTING WITH INSTANT VISUALS

Live dashboards powered by Metabase: track income, expenses, and profits instantly. No waiting on manual imports or end-of-month summaries

## ACTIONABLE FINANCIAL INTELLIGENCE

Automatically generated insights and reports help you optimize spending and maximize returns. Visual breakdowns of profitability, cost centers, and trends

# BEHIND THE CURTAIN

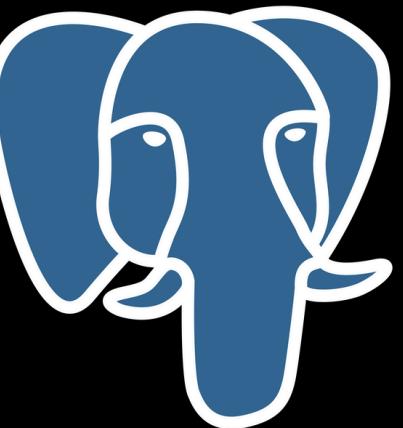
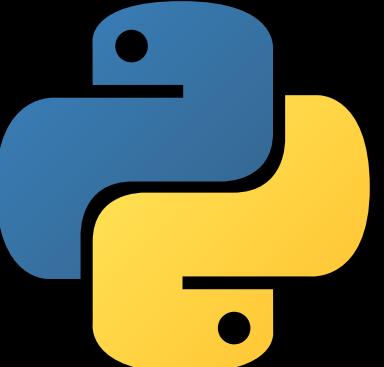
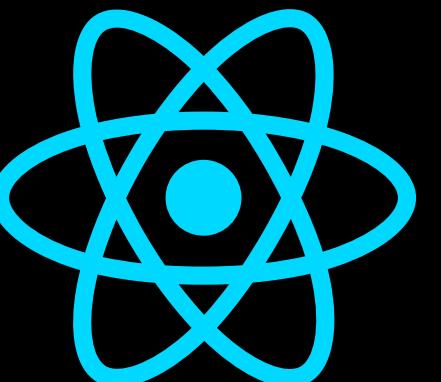


*A BRIEF LOOK AT OUR  
ARCHITECTURE AND  
TECH STACK*



# FULL STACK FOUNDATION

- Frontend: React + Vite (deployed via Vercel with global CDN for Demo)
- Backend: Flask API + PostgreSQL (Dockerized, scalable)
- Authentication: Stateless, email-based for demo simplicity



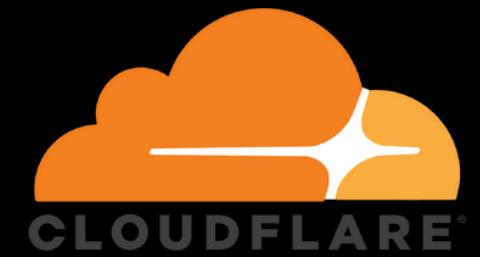
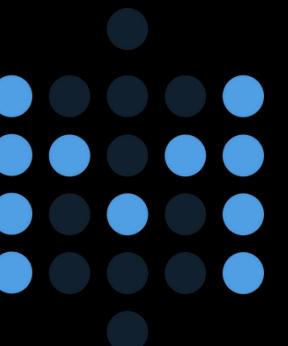
# REAL-TIME PIPELINE

- Apache Kafka Simulation:
  - Bookings and expenses flow through live event streams
  - Consumers instantly write to the database
  - Synthetic data mimics real-world hosting activity



# ENTERPRISE-READY INTEGRATIONS

- Metabase: Embedded dashboards for deep insights
- AWS: RDS + EC2 (optional cloud backend deployment)
- Cloudflare Tunnel: Secure, HTTPS backend access



# TIME FOR A LIVE DEMO



1. Scan the QR code
2. Login as one of our current owners:
  - a. Email: jenningslarry@yahoo.com
  - b. Password: bnbudget123
3. Enjoy playing around with our dashboards!



\*Vercel deployment is only live for the demo during class time, ec2 server will be turned off after presentation, for test purposes please clone the repo and run locally

# FUTURE WORK

## Apache Airflow Integration

Automate data ingestion, cleanup, and report generation with scheduled DAGs – making the entire pipeline fully autonomous.

## Live API Integration

Connect directly to Airbnb and other rental platforms to ingest real-time bookings, payouts, and property data – no more synthetic simulation.

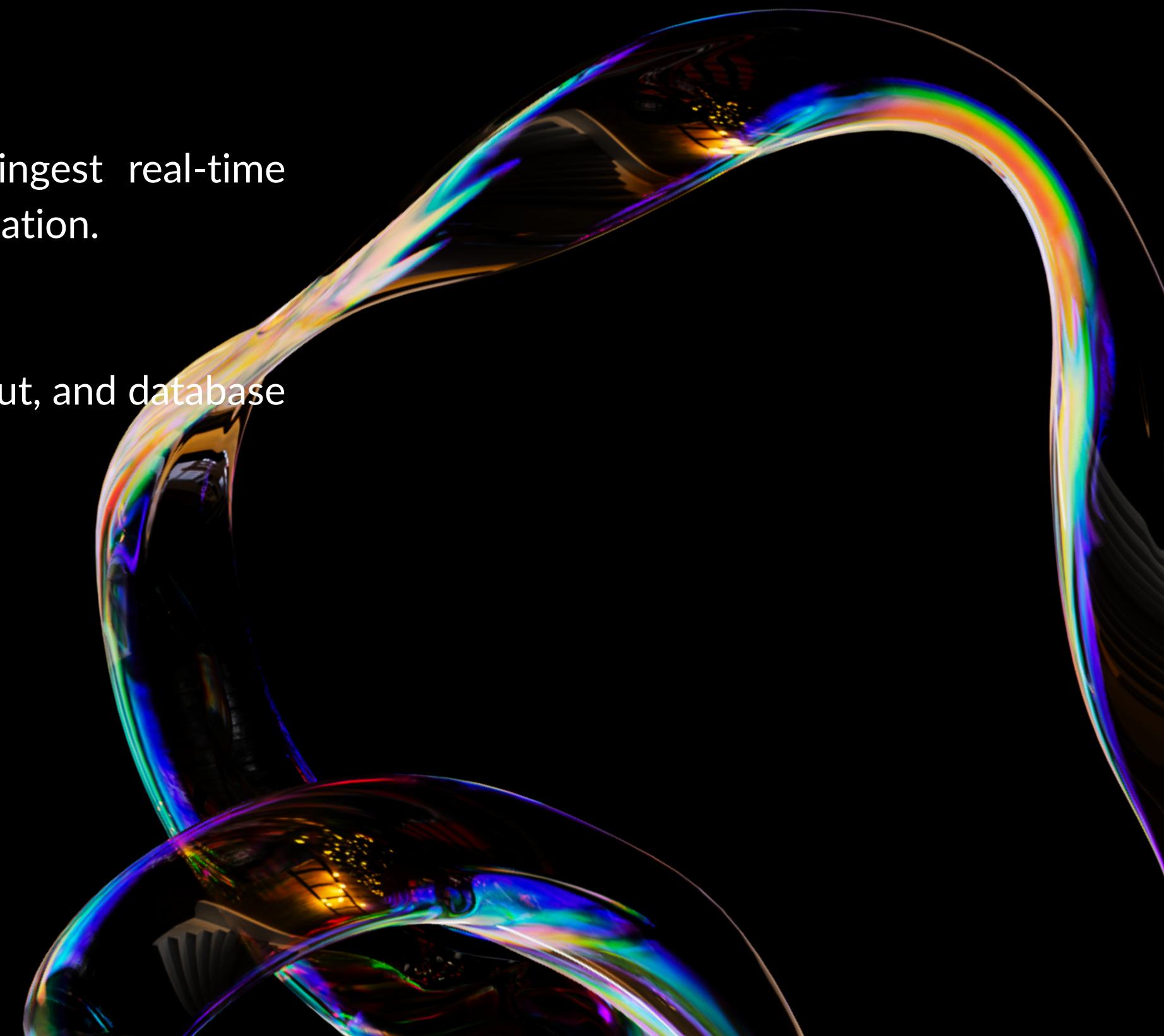
## Grafana + Prometheus

Add observability for monitoring system health, Kafka throughput, and database performance – with real-time dashboards and alerts.

## ML-Driven Insights

Leverage historical data for:

- Predictive pricing
- Occupancy forecasting
- Expense anomaly detection
- Personalized host recommendations



# THANK YOU

for your time and attention

