Sales Agent and Pricing Analysis for Entertainment Agency

Data-Driven Insights for Entertainment Agency Growth

Project Information

Project Type	SQL-Based Exploratory Data Analysis (EDA)
Client	TuneWorks - Mid-sized Entertainment Agency
Consulting Firm	McBrainsey & Co.
Team Members	Alizeh Sultan, Yutong Gao, Xiaoyu Ma, Maria Chen, Tony Hung, Shao-Chueh Liu, Mitchell Ma, Joshua Zhang
Project Duration	November 2024
Deliverable Date	November 19, 2024

Executive Summary

TuneWorks, a mid-sized entertainment agency, manages entertainers, clients, and bookings through a small data engineering team. However, they lack an in-house analytics function. Our consulting team at McBrainsey & Co. has been hired to unlock the value of their data through comprehensive SQL-based analysis and deliver actionable insights to improve operations, identify opportunities, and plan for long-term growth.

This project combines independent SQL analysis with AI-assisted exploration using ChatGPT/Gemini to provide TuneWorks with data-driven recommendations for talent management, pricing optimization, client segmentation, and strategic growth initiatives.

Business Challenge

Current State:

TuneWorks collects and stores large volumes of operational data including:

- Entertainer information and performance history
- Agent performance and commission structures
- Customer preferences and booking patterns
- Engagement contracts and pricing data

Key Challenges:

- **Untapped Data Value:** Large volumes of data exist but are not being leveraged for strategic decision-making
- **No Analytics Function:** TuneWorks lacks the in-house capability to perform sophisticated data analysis
- **Limited Insights:** Unable to identify patterns, relationships, and opportunities across entertainers, agents, customers, and engagements
- **Reactive Management:** Business decisions are made based on intuition rather than data-driven evidence

Project Objectives

Our mission is to transform TuneWorks’ raw data into actionable business intelligence:

1. **Data Familiarization:** Thoroughly understand the TuneWorks dataset structure, relationships, and business meaning
2. **Data Quality Assessment:** Identify and address data quality issues including missing values, duplicates, and inconsistencies
3. **Exploratory Analysis:** Discover patterns, trends, and relationships across key business entities (entertainers, agents, customers, engagements)
4. **Business Metrics:** Quantify key performance indicators such as revenue, booking frequency, engagement duration, and entertainer popularity
5. **Strategic Recommendations:** Develop actionable strategies for talent management, pricing optimization, and client segmentation
6. **AI Collaboration:** Compare independent SQL analysis with AI-assisted insights to identify best practices and opportunities

Methodology

This project follows a comprehensive four-phase approach combining traditional SQL analysis with modern AI tools:

Phase 1: Data Familiarization & Documentation

Team: Mitchell Ma, Joshua Zhang

Activities:

- Understand every table and field in the dataset (12 tables total)
- Create comprehensive data dictionary with definitions, types, and business meanings
- Map relationships between tables (Agents ↔ Customers ↔ Engagements ↔ Entertainers)
- Identify unclear or ambiguous fields requiring clarification

Phase 2: Data Preparation & Cleaning

Team: Alizeh Sultan, Yutong Gao, Shao-Chueh Liu

Activities:

- **Evaluate data quality:** Identify missing values, duplicates, and inconsistencies
- **Correct data inconsistencies:** Fix duplicate entries, standardize formats across tables, validate entries
- **Handle missing values and outliers:** Assess sparsity, identify surprising values, determine outlier treatment
- **Assess data completeness:** Reflect on what additional data would improve analysis

Phase 3: Exploratory Analysis & Insight Generation

Team: Tony Hung, Xiaoyu Ma, Maria Chen

Activities:

- **Univariate Analysis:** Calculate summary statistics, create visualizations (histograms, box plots, bar charts)
- **Multivariate Analysis:** Examine relationships between variables using scatter plots, correlation matrices, regression
- **Cross-table Analysis:** Join tables to extract richer insights (agent performance, entertainer popularity, customer preferences)
- **Identify patterns:** Discover trends, outliers, and stories hidden in the data
- **Quantify metrics:** Revenue, booking frequency, engagement duration, customer satisfaction

Phase 4: Synthesis & Recommendations

Team: All Members

Activities:

- Synthesize findings into actionable business strategies
- Distinguish between insights (what we found) and recommendations (what client should do)
- Develop proposals for talent management, pricing adjustments, client segmentation
- Compare independent analysis with ChatGPT/AI-assisted insights
- Prepare executive presentation and technical reports

Dataset Overview

The TuneWorks dataset consists of 12 interconnected tables covering:

Core Business Tables

- **Agents:** Information about agency representatives (11 fields including salary, commission rate)
- **Customers:** Client information and contact details (8 fields)
- **Engagements:** Booking contracts linking customers, agents, and entertainers (9 fields including dates, times, pricing)
- **Entertainers:** Performer information and contact details (10 fields)

Supporting Tables

- **Entertainer_Members:** Maps entertainers to individual members (bands/groups)
- **Entertainer_Styles:** Musical style proficiency for each entertainer
- **Members:** Individual performer details
- **Musical_Preferences:** Customer music style preferences
- **Musical_Styles:** Master list of music genres
- **Time Dimension Tables:** ztblDays, ztblMonths (for temporal analysis)

Key Deliverables

1. Technical Report (Internal Use)

Comprehensive documentation including:

- Complete data dictionary (all 12 tables with field definitions)
- All SQL queries and analysis steps
- Data quality assessment and remediation notes
- Analytical thought process and observations
- Data visualizations (charts, tables, plots)

2. ChatGPT/AI Collaboration Report

Documentation of AI-assisted analysis:

- Prompts and responses from ChatGPT/Gemini
- AI-generated SQL queries and results
- Python code for data visualization (Google Colab)
- AI-generated presentation materials

3. Executive Presentation (Client-Facing)

Polished PowerPoint deck for TuneWorks leadership:

- Key findings and actionable recommendations
- KPIs and visual summaries
- Data-backed strategic narrative
- Professional, visually engaging slides

- 6-8 minute presentation (business casual delivery)

4. Key Takeaways: Learning to Work with AI

Comparative reflection covering:

- What ChatGPT/AI did better than manual analysis
- What the team did better than AI
- Lessons learned from combining both approaches
- Best practices for human-AI collaboration in analytics

Expected Outcomes & Impact

Business Value for TuneWorks

- **Data-Driven Decision Making:** Move from intuition-based to evidence-based strategic planning
- **Operational Efficiency:** Identify and optimize underperforming areas (agents, entertainers, pricing)
- **Revenue Growth:** Discover untapped market opportunities and optimize pricing strategies
- **Customer Satisfaction:** Better match entertainers to customer preferences
- **Competitive Advantage:** Leverage analytics capabilities that competitors may lack

Learning Outcomes for Team

- Practical SQL proficiency in complex database analysis
- EDA methodology and best practices
- Data storytelling and executive presentation skills
- AI tool proficiency (ChatGPT/Gemini for data analysis)
- Understanding strengths and limitations of AI vs. human analysis

Project Timeline

Phase	Activities	Deadline
Individual Work	Complete all 4 phases of analysis	November 16, 2024
AI Collaboration	ChatGPT/Gemini analysis & comparison	November 17, 2024
Synthesis	Combine insights, prepare presentation	November 17, 2024

Rehearsal	Practice presentation (in-person meeting)	November 19, 2024 2 PM
Presentation	Deliver to class (6-8 minutes)	November 19, 2024
Deliverables Due	Slides, reports, key takeaways	November 19, 2024
Self-Evaluation	Individual reflection (after watching recording)	December 5, 2024

Tools & Technologies

SQL Analysis

- PostgreSQL database for querying and analysis
- Advanced SQL techniques: joins, aggregations, window functions, CTEs

AI Collaboration

- ChatGPT/Gemini for EDA guidance and query generation
- Python for data visualization (pandas, matplotlib, seaborn)
- Google Colab for running Python code

Presentation & Documentation

- Microsoft PowerPoint for executive presentation
- Microsoft Word/Google Docs for technical reports

Success Criteria

The project will be evaluated on:

Technical Excellence (25%)

- Completeness and accuracy of SQL analysis
- Quality of data dictionary and documentation
- Thoroughness of data quality assessment

Executive Presentation (30%)

- Quality of insights and recommendations
- Professional slide design and visual engagement
- Clear, compelling storytelling
- Time management (6-8 minutes)

AI Collaboration (25%)

- Effective use of AI tools for analysis
- Quality of Python visualizations
- Thoughtful comparison of AI vs. manual approaches

Learning Reflection (10%)

- Understanding of AI strengths and limitations
- Insights on synergies between human and AI analysis

Individual Performance (10%)

- Presentation delivery skills
- Team contribution
- Professionalism and preparedness
- Quality of self-evaluation

Conclusion

This project represents a comprehensive consulting engagement that mirrors real-world analytics practice. By combining traditional SQL analysis with modern AI tools, we will deliver actionable insights that enable TuneWorks to transform their data into competitive advantage. The dual approach—independent human analysis paired with AI collaboration—provides both rigorous validation and innovative perspectives, ensuring our recommendations are both sound and forward-thinking.

Through this engagement, TuneWorks will gain clarity on their operational performance, discover hidden opportunities, and receive a strategic roadmap for data-driven growth. Simultaneously, our team will develop essential analytics skills while learning to effectively collaborate with AI tools—a capability increasingly critical in modern business intelligence.

Appendix

Team Roles & Responsibilities

Team Member	Primary Responsibilities
Mitchell Ma, Joshua Zhang	Phase 1: Data Familiarization & Documentation
Alizeh Sultan, Yutong Gao, Shao-Chueh Liu	Phase 2: Data Preparation & Cleaning

Tony Hung, Xiaoyu Ma, Maria Chen	Phase 3: EDA & Insight Generation
All Team Members	Phase 4: Synthesis & Recommendations

Project Resources

- TuneWorks Entertainment Dataset (12 tables, PostgreSQL)
- EDA Concept Guide (provided by instructor)
- Final Project Case Instructions
- SQL Project Planning Document
- Technical Report Template