

GROUP PROJECT: FINAL REPORT

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PROBLEM STATEMENT

As a real estate company, we are conducting research on restaurant chains designed specifically for the youth market, targeting individuals aged 18-24 in prominent university towns across the United States. The goal is to develop a new chain of restaurants centered on packed meals that cater to students, promoting both convenience and healthy lifestyles. Given the significant impact of the COVID-19 pandemic on operations in 2020, our analysis will focus on February 2020 data as the baseline, representing a period of normal operational activity before the onset of the lockdown. This approach will allow us to identify viable opportunities, and market demands in the pre-pandemic environment, helping us shape a resilient and student-friendly dining concept for college towns.

INITIAL CONSIDERATIONS

1. Key Demographic: 18-24 year olds
2. Areas of Interest:
 - Purdue University - Tippecanoe County (18157)
 - University of Illinois Urbana-Champaign - Champaign County (17019)
 - Pennsylvania State University - Centre County (42027)
 - Indiana University, Bloomington - Monroe County (18105)
 - University of Mississippi - Lafayette County (28071)
3. Research Focus:
 - Market Analysis
 - Location Evaluation
 - Brand Appeal
 - Demand Analysis

RESEARCH & RESULTS

1. Market Analysis

Question: How can population density and income distribution inform the development strategy and pricing for a youth-centered restaurant chain?

Methodology:

1. Population Density of 18-24-Year-Olds:
 - Analyzed the CBG_demographics table for individuals aged 18-24 across five counties by filtering as per the first five characters in the CBG code.
 - Calculated youth density as the percentage of 18-24-year-olds relative to the total population in each CBG.
 - Identified CBGs with youth densities exceeding 80%, indicating areas with a high concentration of university students.
2. Income Bands for High Youth-Density Areas:
 - Filtered income data for CBGs with over 80% youth density in each selected county.
 - Generated bar charts to compare income distributions and identified the most common income band, typically under \$10,000, to gauge student spending power.

Insights:

1. Ideal Locations for Restaurant Development:
 - CBGs with 80%+ youth density provide the most promising locations for targeting the 18-24 demographic.
2. Pricing Strategy Based on Income Bands:
 - The dominant income band is less than \$10,000, and this indicates that many students have limited spending power.
 - Menu pricing and offerings should cater to budget-conscious students, possibly focusing on value-for-money and affordable meal options.
 - A tiered pricing model could be introduced to leverage the income distribution, particularly focusing on the two largest groups (earning less than \$10K and those in the \$20K-\$35K range). Offering both standard and premium versions of dishes would allow the restaurant to attract budget-conscious consumers while also appealing to individuals with moderate incomes, ensuring broader market engagement.

2. Location Evaluation

Question: What geographic areas, within the key university towns, have a high concentration of youth, and which underperforming commercial properties in these areas can be repurposed?

- CBG code of restaurants with the lowest overall footfall (within high footfall region)
- Income band of youth

Methodology:

1. Footfall Analysis: Retrieve details of the bottom 10 restaurants (by footfall) in high youth density areas. These areas are defined as having a youth density ratio of 0.8 or higher.
2. Market Performance: Focus on counties where the overall footfall is above the county average, ensuring the selected regions are commercially active but have underperforming restaurants.
3. Acquisition Strategy: Assess which of these underperforming restaurants are viable for acquisition and repurposing. Restaurants from popular chains might be more inclined to sell, possibly due to plans of relocating or rebranding.
4. Identified specific CBGs with highest youth density ratios and extracted the income band with the highest count for each county

Insights:

1. We have identified several restaurant locations in CBGs (Census Block Groups) with high average foot traffic but surprisingly low performance. Notably, popular chains like Subway and Starbucks are among those underperforming in these high-footfall areas, presenting potential acquisition opportunities for turnaround or repositioning.
2. Since most youth fall into the lower income bracket, typically earning under \$30k, our focus should be on affordable, fast food-style offerings that align with their budget

3. Brand Appeal

Question: What brands are most popular in our target areas, and how can these insights inform the development of our restaurant offerings?

Methodology:

1. Identify Top 20 Restaurants: Aggregated visitor counts to determine the top 20 restaurants in each of the five counties based on highest foot traffic.
2. Filter for Multiple Locations: Narrow down the list to include only those restaurants that have multiple locations within the counties for greater accessibility.
3. Compile Visitor Counts: Compare visitor counts for each filtered restaurant to assess overall popularity and consumer preferences
4. Generate Insights: Analyze the compiled data to derive insights related to brand appeal, dining preferences, and market opportunities

Insights:

1. High Traffic Brands
 - Brands like McDonald's and Starbucks show strong consumer loyalty and multiple locations
 - Their focus on speed and convenience drives high foot traffic
2. Fast Food & Coffee Options
 - Chains such as Chick-fil-A, Wendy's and Starbucks offer quick, affordable meals ideal for busy lifestyles
3. Group Dining Opportunities
 - Family-friendly & spacious dining environments, as seen in restaurants like Olive Garden, encourage social gatherings.
4. Menu Diversity
 - Brands like Panera Bread and Chili's cater to a wide range of options, including vegetarian and health-conscious choices, attracting diverse customers.

4. Demand Analysis

Question: How can we analyze weekly footfall patterns and hourly traffic to determine the busiest demand periods, and use these insights to optimize staff allocation and create targeted promotions to boost attendance during slower periods?

Methodology:

1. Data Extraction:
 - Extract visitor foot traffic data for specific restaurants in February, focusing on targeted locations through selected Census Block Group (CBG) codes.
2. JSON Data Parsing:
 - Use `JSON_EXTRACT_SCALAR` to retrieve daily visit counts (e.g., Monday, Tuesday) stored within a JSON field (popularity by day) and casts each day's data to integer values for aggregation.
 - Parse daily visit counts for each weekday, allowing a detailed breakdown of foot traffic by day.
 - Analyzed foot traffic data using the *popularity_by_hour* field in the 'visits' table to identify peak hours of activity in restaurant hotspot areas (With the date range end set to before March 2020)
 - Filtered on locations with high youth population density to derive insights about peak times, assuming the footfall primarily reflects youth activity.
 - Identified key activity time periods to determine staffing requirements.
3. Filtering for Specific Criteria:
 - Restaurant Names: Use IN clause to restrict the dataset to visits only at specified restaurant chains.

- Location (CBG) Codes: Use the LIKE operator to filter only CBG codes that match selected patterns, narrowing the focus to certain areas.
 - Date Range: Use extract function to find the data only for the month of February.
4. Aggregation:
 - Use SUM to aggregate the parsed daily visit counts, providing total foot traffic for each day of the week across all relevant locations

Insights:

1. Capitalize on Peak Times: Focus promotions and offerings on lunch and brunch, as these are the busiest times, especially in youth-dense areas.
2. Class Break Rush: Anticipate a surge in foot traffic during lunch hours when students are taking breaks between classes. Plan for increased staffing and quick-service options to cater to the rush.
3. Weekend Opportunities: Maximize Fridays and Saturdays by offering social-friendly events or deals, as these days see the highest foot traffic due to student social activities.
4. Plan for Sunday Slowdowns: Expect lower traffic on Sundays as students typically prepare for the week. This can be a great day for quieter events, study-friendly environments, or special meal deals.