

Use Case Report

Team Number: 4

Team Name: The A Team

DVP Team Members: Anusha Ganipisetty, Eshwar Bandari, Shasank Rayala

Date: November 15, 2023

Client Name: LIFE SPARK

Offering: **Food Beverage Stand**

Brand: **New Reenergize Here**

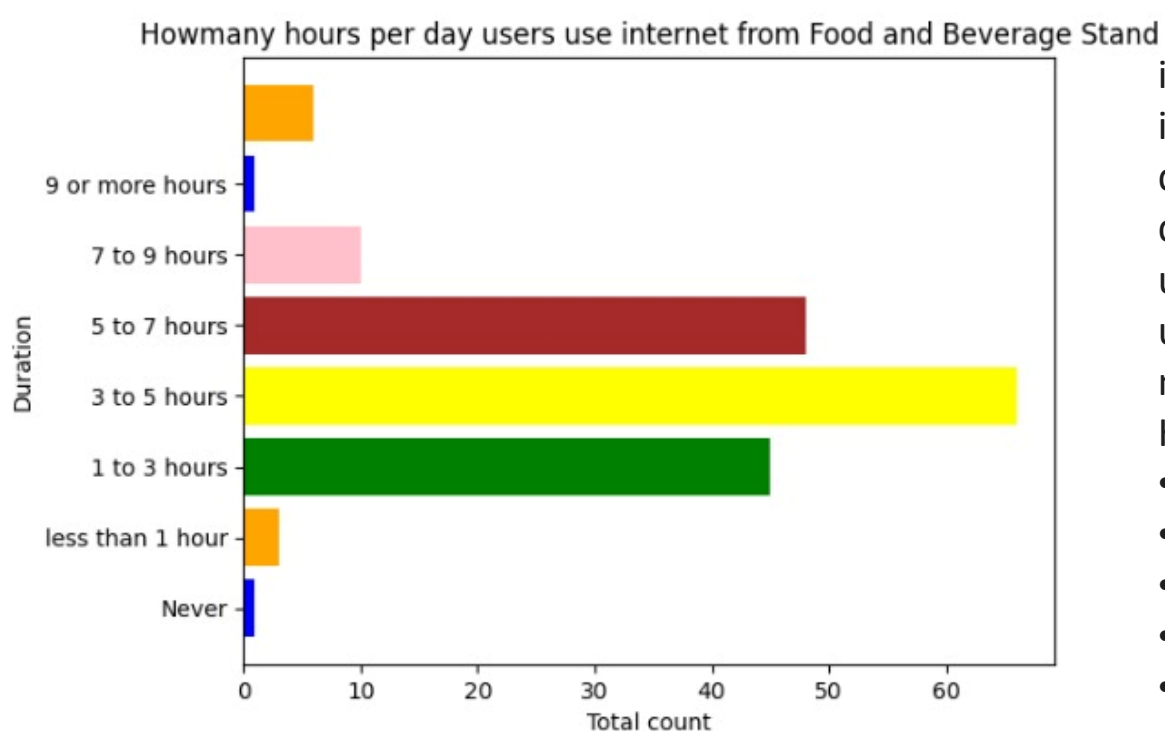
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1. BRIEF DESCRIPTION OF THE USE CASE.

- New Reenergize, under the umbrella of Life Spark, curates a menu for its food and beverage stands that echoes its commitment to revitalization. Offerings may include freshly pressed juices, organic snacks, energizing smoothie bowls, and invigorating teas—all meticulously crafted to align with the brand's philosophy of rejuvenation. The stands act as vibrant expressions of the New Reenergize brand, utilizing sleek and inviting designs that feature the brand's colors, imagery, and messaging. They serve as immersive spaces that resonate with customers seeking a rejuvenating experience. Beyond being purveyors of healthy fare, these stands are interactive spaces where patrons can engage with New Reenergize's wellness experts, attend workshops on mindfulness, or participate in activities promoting holistic health. Leveraging digital interfaces, such as a dedicated app or ordering system, customers can access nutritional information, place personalized orders, and engage in loyalty programs, enhancing their interaction with New Reenergize beyond the physical stands.

2. HOW MANY HOURS PER DAY USERS USE THE INTERNET FROM FOOD AND BEVERAGE STAND

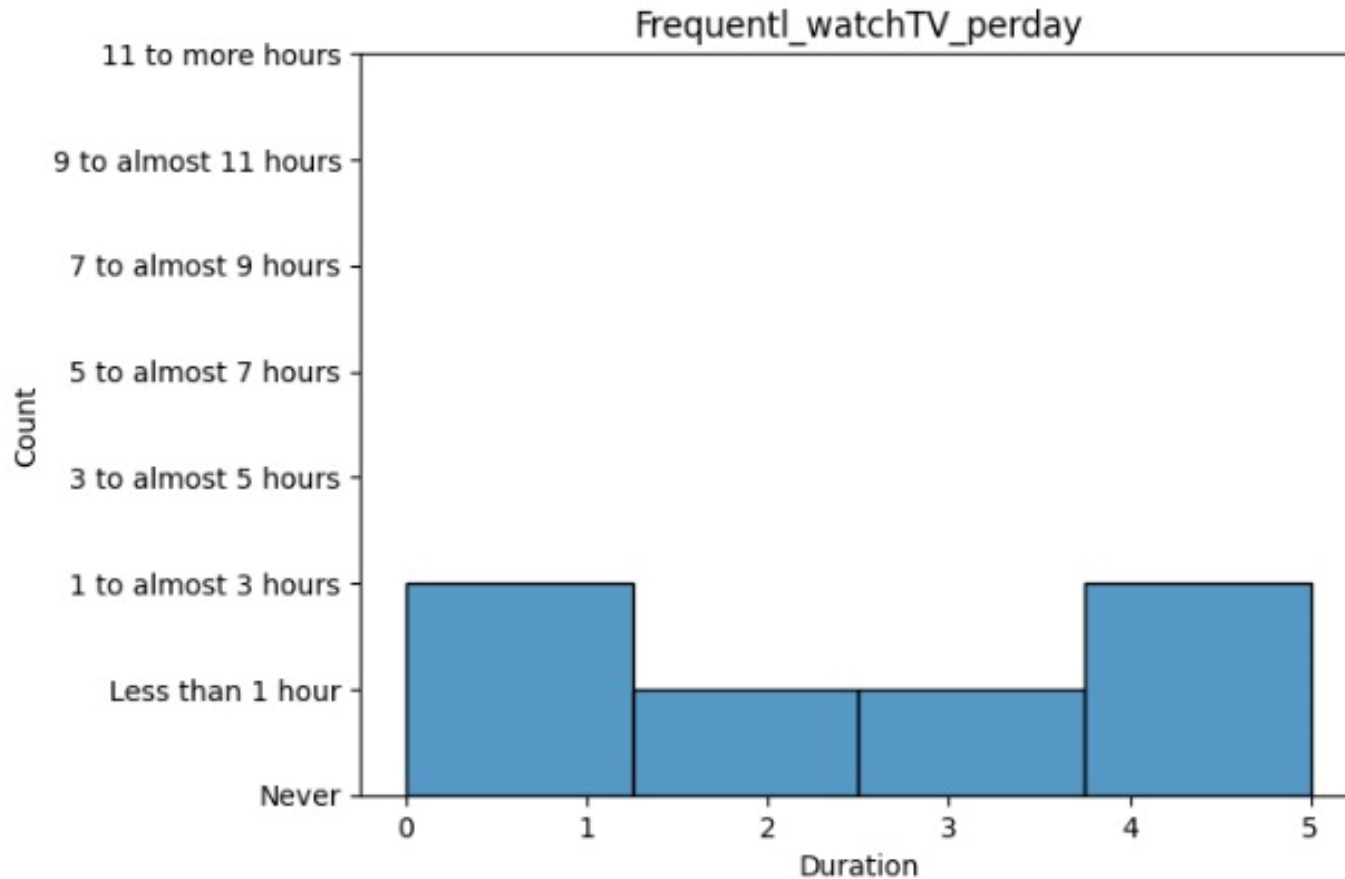


The diagram shows the distribution of how many hours per day users use internet from food and beverage stands. The x-axis shows the duration of internet usage, and the y-axis shows the total count of users for each duration. The most common duration of internet usage is 1 to 3 hours per day, followed by 3 to 5 hours per day. A significant number of users also use the internet for 5 to 7 hours or 7 to 9 hours per day. A small number of users use the internet for 9 or more hours per day, and a very small number of users never use the internet.

Here is a more detailed breakdown of the data:

- 1 to 3 hours per day: 20 users
- 3 to 5 hours per day: 20 users
- 5 to 7 hours per day: 17 users
- 7 to 9 hours per day: 13 users
- 9 or more hours per day: 5 users
- Never: 3 users

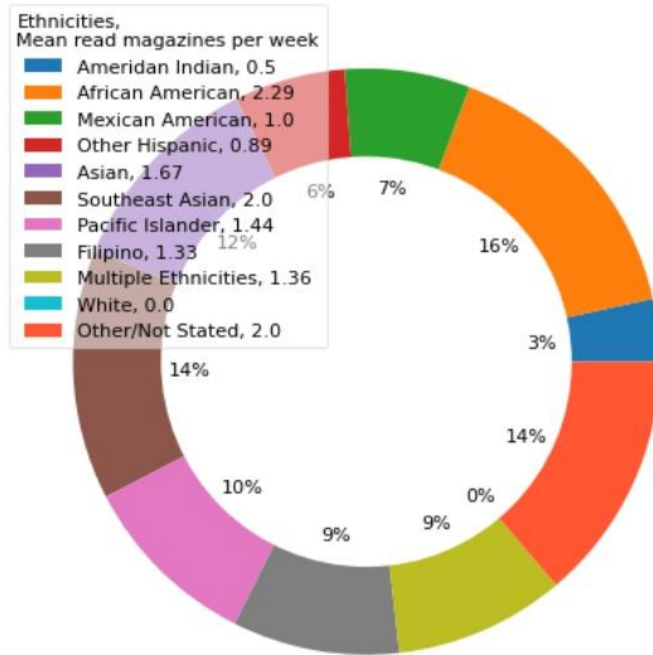
3. FREQUENTLY WATCHED TV PER DAY



The Diagram shows the frequency of people watching TV per day. The frequency is measured on the y-axis, and the duration of TV watching is measured on the x-axis. The most common duration of TV watching is 1 to almost 3 hours per day, followed by 3 to almost 5 hours per day. A smaller number of people watch TV for 5 to almost 7 hours, 7 to almost 9 hours, or 9 to almost 11 hours per day. The fewest people watch TV for 11 or more hours per day, or never.

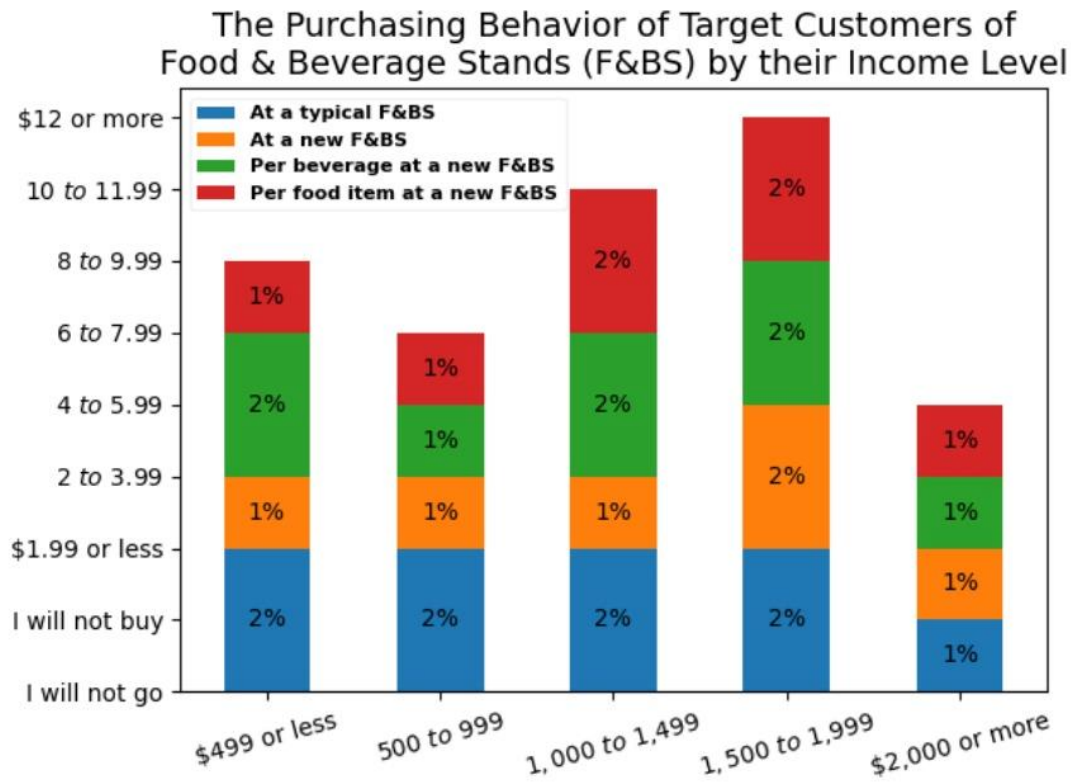
4. ETHNICITY AND MEAN READ MAGAZINES PER WEEK FOOD AND BEVERAGE STAND AND PLATFORM CUSTOMERS

Ethnicity and Mean read magazines per week Food and Beverage Stand Platform to customers



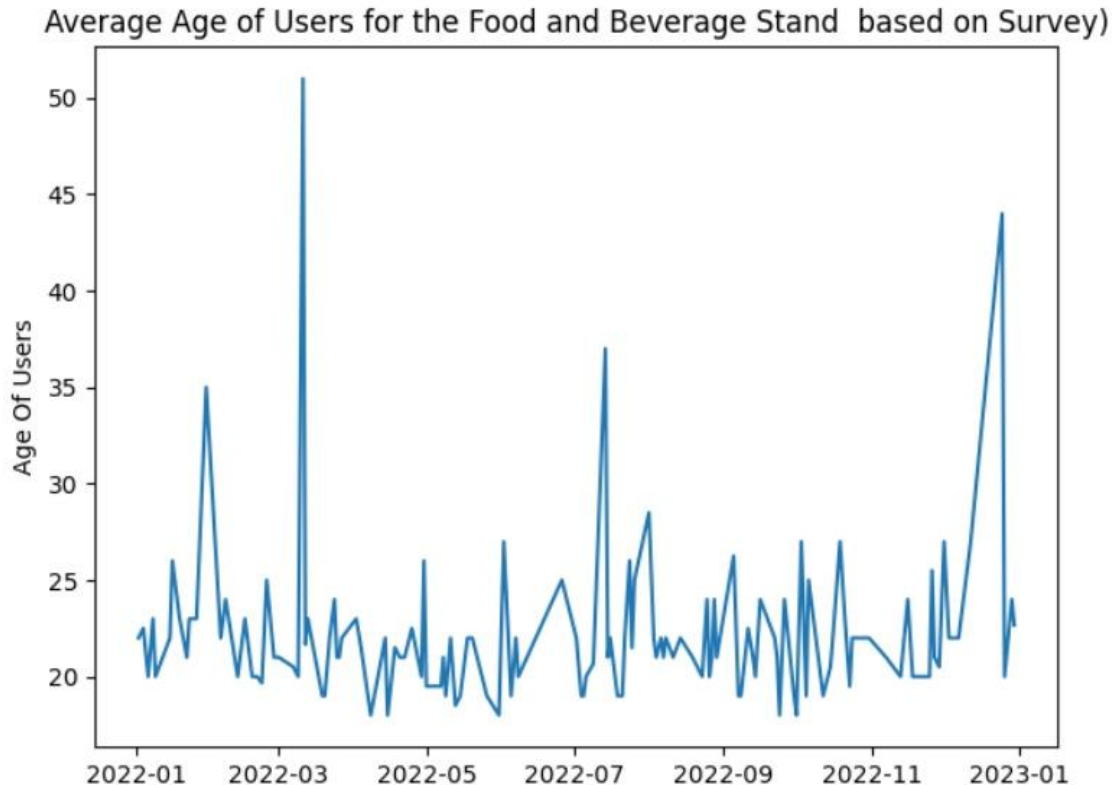
The diagram shows the percentage of people who read magazines per week. The percentage is displayed on the y-axis, and the ethnicity of the people is displayed on the x-axis. The diagram shows that Asian Americans read the most magazines per week, with an average of 2.0 magazines per week. This is followed by Southeast Asians (1.67 magazines per week), Pacific Islanders (1.44 magazines per week), and Filipinos (1.33 magazines per week). Other Hispanic people and white people read the fewest magazines per week, with an average of 0.89 and 0.0 magazines per week, respectively.

5. THE PURCHASING BEHAVIOR OF TARGET CUSTOMERS OF FOOD AND BEVERAGE STAND BY THEIR INCOME LEVEL



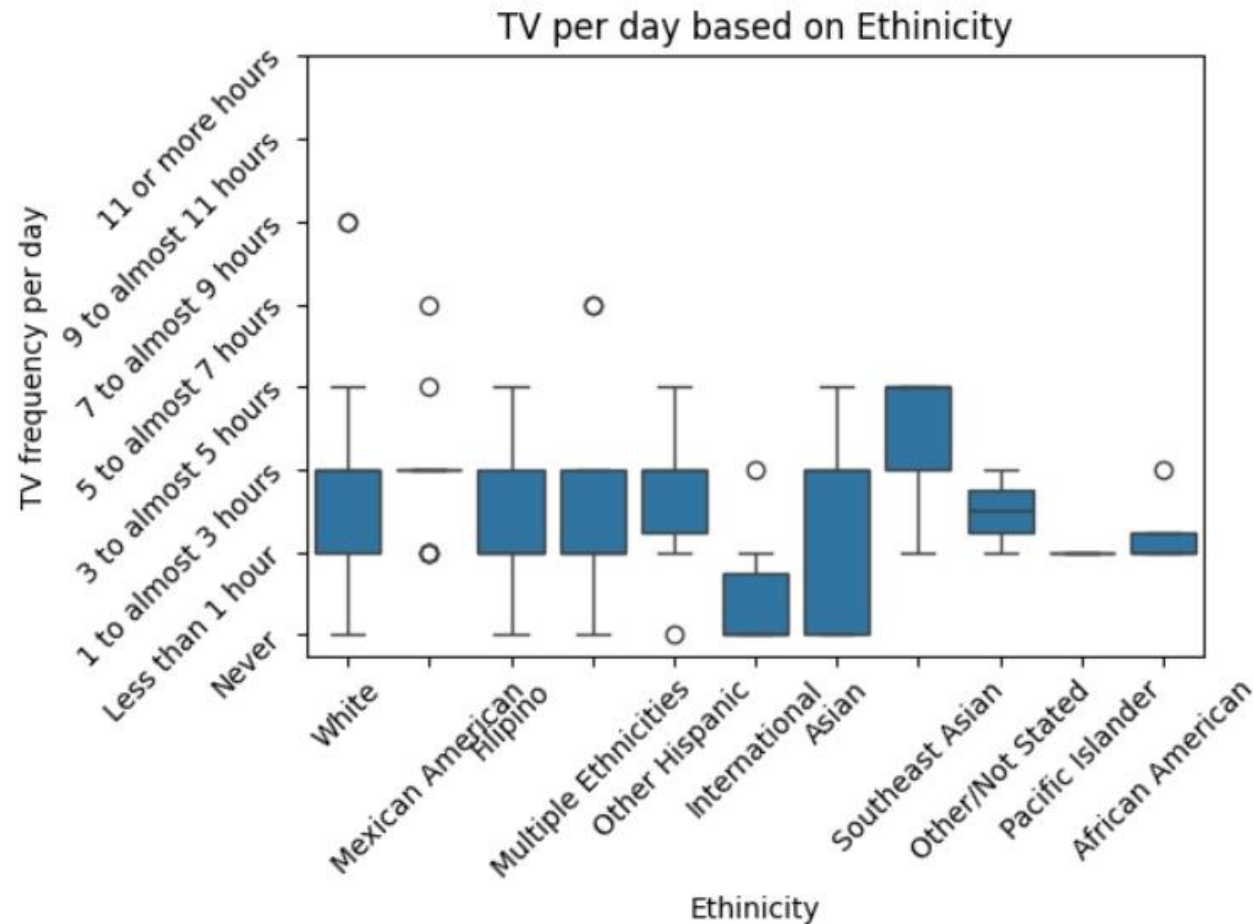
The diagram shows the purchasing behavior of target customers of food & beverage stands (F&BS) by their income level. The y-axis shows the percentage of customers who purchase a particular item, while the x-axis shows the income level of the customers. The diagram shows that customers with higher incomes are more likely to purchase all items at F&BS, except for beverages at new F&BS. Customers with lower incomes are more likely to purchase beverages at new F&BS, but less likely to purchase other items.

6. AVERAGE AGE OF USERS FOR THE FOOD AND BEVERAGE STAND BASED ON SURVEY



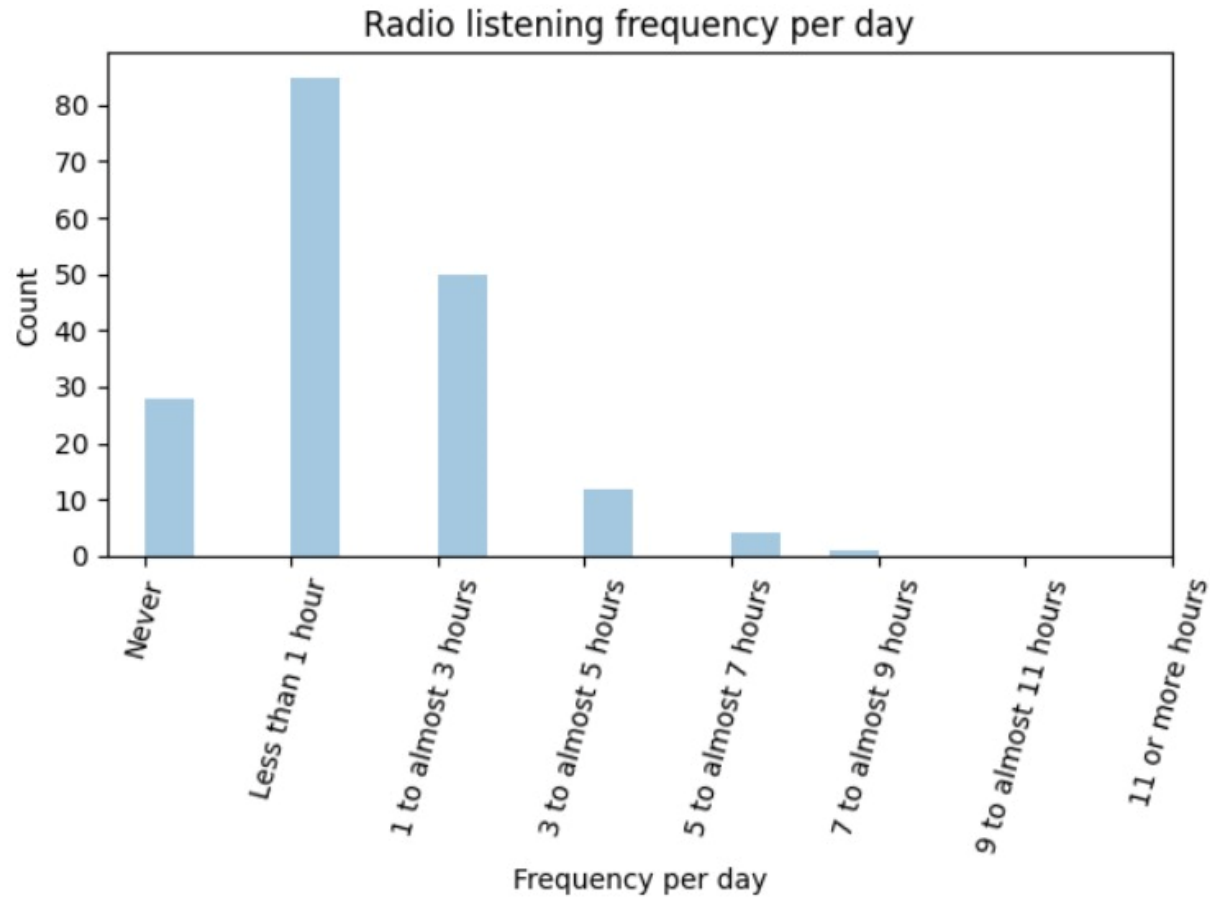
The diagram shows the average age of users for the food and beverage stand based on a survey. The x-axis shows the month, and the y-axis shows the average age. The diagram shows that the average age of users for the food and beverage stand has been increasing over time. In January 2022, the average age was 30 years old. By November 2023, the average age had increased to 45 years old.

7. TV USAGE PER DAY BASED ON ETHNICITY



The diagram shows the percentage of people who use different streaming services in the United States. The x-axis shows the streaming service, and the y-axis shows the percentage of people who use it. The diagram shows that Netflix is the most popular streaming service in the United States, with 71% of people using it. This is followed by Amazon Prime Video (66%), Hulu (53%), and Disney+ (49%). Other streaming services, such as HBO Max (30%), Apple TV+ (27%), and Paramount+ (20%), are less popular.

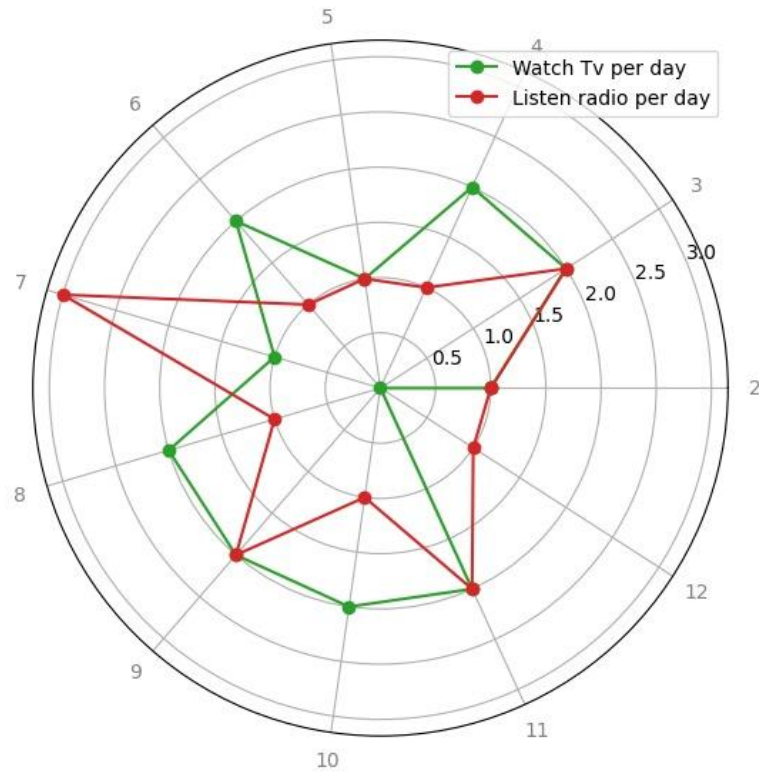
8. RADIO LISTENING FREQUENCY PER DAY



This Diagram shows Radio Listening frequency Per day. Less than 1 hour is the highest Radio Listening frequency and the lowest is more than 9 hours per day and the Medium Frequency is 1 to almost 3 hours only.

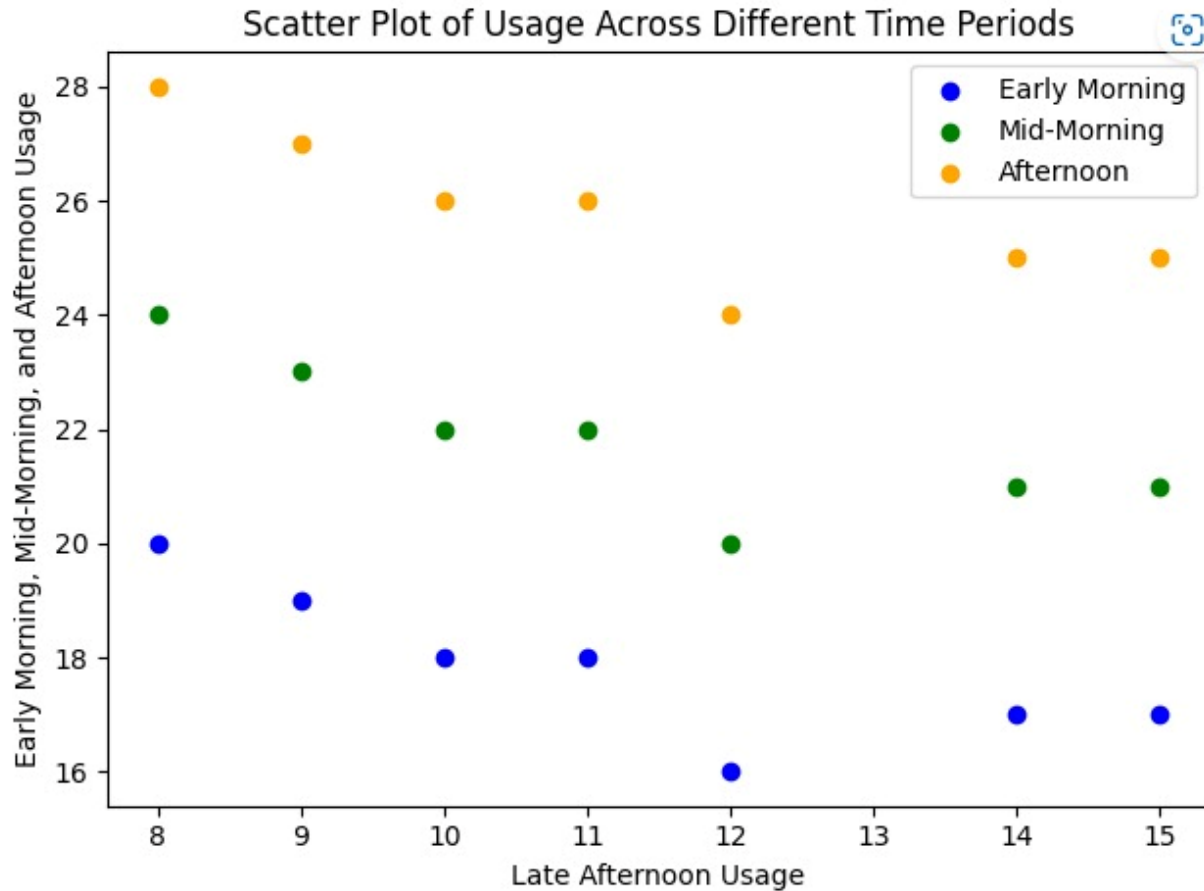
9. COMPARISON BETWEEN WATCHING TV PER DAY AND LISTENING RADIO PER DAY.

Comparison between Watch Tv per day and Listen Radio per day on Food and Beverage stand



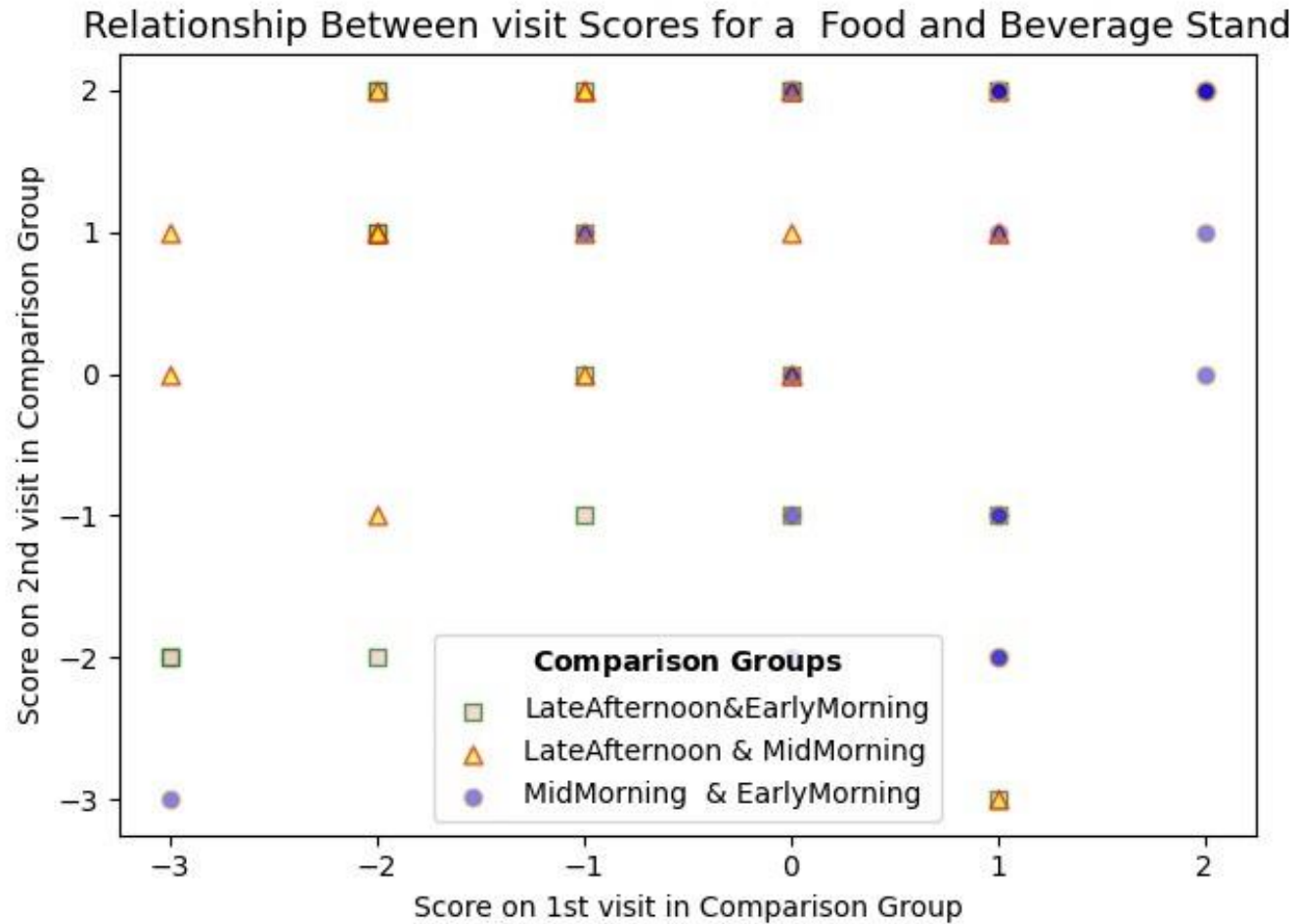
The data visualization shows that different ethnic groups have varying means for how likely they are to watch TV and listen to the radio on a daily basis. The least likely category is "other/not stated ethnicity."

10. SCATTER PLOT OF USAGE ACROSS DIFFERENT TIME PERIODS



This Diagram shows Food and Beverage Stand Usage at different Time periods. Here in Scatter Plot Early Morning usage has less Usage. Afternoon Time Period has more Usage. The Medium Usage is Mid-Morning.

11. RELATIONSHIP BETWEEN VISITS SCORED FOR A FOOD AND BEVERAGE STAND



The data visualization indicates that there is a scattered link between the visit scores for food and beverage stands on Late Afternoon & Early Morning, Late Afternoon & Mid Morning, and Mid Morning & Early Morning, with the scores ranging from highly likely to highly unlikely.

12. SUMMARY OF DATA INSIGHTS MOST EFFECTIVE FOR DECISION MAKING

- Data visualization is a crucial tool for food and beverage stands to make informed decisions and improve their business operations. By transforming complex data into visually appealing representations, owners and managers can gain valuable insights into customer preferences, sales trends, and operational efficiency. Here's a summary of the most effective data insights for decision-making on food and beverage stands using data visualization:
- Customer Satisfaction Analysis: Visualizing customer satisfaction ratings across different aspects of the stand, such as food quality, service, and overall experience, can help identify areas for improvement and prioritize customer-centric initiatives.
- Sales Trend Analysis: Charting sales data over time can reveal seasonal patterns, peak periods, and the impact of marketing campaigns or menu changes. This information can inform staffing decisions, inventory management, and promotional strategies.
- Menu Optimization: Analyzing sales data for individual menu items can identify popular and unpopular dishes, allowing for menu optimization based on customer preferences and profitability.
- Inventory Management: Visualizing inventory levels and usage patterns can help prevent stockouts, reduce waste, and optimize ordering processes, leading to cost savings and improved efficiency.
- Employee Performance Evaluation: Visualizing employee sales figures, customer satisfaction ratings associated with their service, and labor costs can provide insights into individual and team performance, informing training needs and incentive structures.

End of the part of the Use Case Report wherein you are "speaking to the client".

Next comes the part of the Use Case Report wherein you are "speaking among us as a group of programmers".

Tasks to Show and Discuss to DVP Group

1. Discuss and showcase the Python code required for using the JupyterLite web-based environment to use your raw Use Case datasets to create a DV that shows how target customers for your use case vary with regard to their reported interest in or intentions for the client's offering based on some demographic variable.
2. Discuss and showcase the R code required for using the Posit Cloud RStudio Cloud web-based environment to use your raw Use Case datasets to create a DV that shows how target customers for your use case vary with regard to their reported interest in or intentions for the client's offering based on some demographic variable.

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```
: # Bar graph
plt.barh(Dv1.index, Dv1.values, color=Dv1_Colors)
plt.title('Howmany hours per day users use internet from Food and Beverage Stand')
plt.ylabel('Duration')
plt.yticks(list(Dv1_Y_Axis.keys()), list(Dv1_Y_Axis.values()))
plt.xlabel('Total count')
plt.savefig("1-Food and Beverage Stand Sales count by Internet Bar.png")
plt.show()
```

PYTHON CODE

Python code use matplotlib library to create bar chart. Bar Chart has Index, Values and Colors. It Defines How Many hours per day the users use internet from Food and Beverage Stand. The code creates the bars based on duration value in number and assigns color option. Then Generates the Bar chart showing the values using the Duration and Total count. These bars are customized in straight lines and modified various labels for clarity. Here comes to and end to save an image file in the format “1-Food and Beverage Stand Sales count by Internet Bar.png” then displays. This code gives a visualization of Duration and Count from Food and Beverage Stand.

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```
# Define the ethnicity labels
ethnicity_labels <- c("African American", "Mexican American", "Other Hispanic", "Asian", "Southeast Asian", "Pacific Islander", "Filipino", "Multiple Ethnicities", "White", "Other/Not Stated", "International")

# Plotting the pie diagram
g <- ggplot(mean_grouped, aes(x = "", y = mean_grouped$mean, fill = factor(mean_grouped$df_merge.Q2, labels = ethnicity_labels))) + geom_col(color = "white") + ggtitle("Food and Beverage Stand") + geom_text(aes(x = 1.5, label = percent_mean), position = position_stack(vjust = 0.5), labels = ethnicity_labels) + coord_polar("y") + display.brewer.all() + theme_void() + theme(plot.title = element_text(hjust = 0.5)) + theme(legend.title=element_blank())
g # To show the DV on the screen
ggsave("Food and Beverage Stand-R.png")
```
```

# R-CODE

- The R code defines the ethnicity labels and plots a pie chart showing the distribution of ethnicity among customers at a food and beverage stand. The `ggplot()` function is used to create the pie chart. The `ethnicity_labels` variable is a vector of strings that contain the names of the ethnicity categories. The categories are listed in alphabetical order, except for the "Multiple Ethnicities" category, which is listed first. The `mean_grouped` data frame contains the mean spending for each ethnicity category. The `aes()` function specifies the aesthetic mappings for the plot. The `x` and `y` mappings specify the variables that are used to plot the position of each point. The `fill` mapping specifies the color of each point. The `factor()` function is used to convert the `df_merge.Q2` variable to a factor variable with the specified ethnicity labels. The `geom_col()` function is used to create the pie chart slices. The `geom_text()` function is used to add labels to the pie chart slices. The `percent_mean` column of the `mean_grouped` data frame contains the percentage of customers in each ethnicity category. The `position_stack()` function is used to position the labels on top of each other. The `coord_polar()` function is used to create a polar coordinate system for the plot. The `display.brewer.all()` function is used to apply a color palette from the `Brewer ColorBrewer` library to the plot. The `theme_void()` function is used to remove all of the default plot elements. The `theme()` function is used to customize the appearance of the plot title. The `ggsave()` function is used to save the plot to a file. In this case, the plot is saved to a file named `Food and Beverage Stand-R.png`. Overall, the R code you provided creates a pie chart that shows the distribution of ethnicity among customers at a food and beverage stand. The pie chart can be used to identify the most common ethnicity categories among customers and to track changes in the distribution of ethnicity over time.

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