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**Course Title: Basic Python Programming**

**Batch no: BPP-01**

**Project Name:**

**Python project on eligibility of Lotto brand offer according to ages, gender and location.**

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**Date of Performance: 04-11-2024 Date of submission: 07-11-2024**

**1. Why I Take This Topic?**

This topic is relevant because it demonstrates how businesses can analyze customer demographics to tailor their marketing strategies effectively. Understanding eligibility for promotional offers based on demographic factors allows companies to target specific customer segments and maximize engagement.

**2. How Can It Help in Business?**

* **Targeted Marketing**: By identifying which demographics are more likely to engage with a promotion, businesses can create targeted marketing campaigns that appeal directly to those audiences.
* **Resource Allocation**: Companies can allocate their marketing resources more efficiently by focusing on the segments with the highest eligibility and potential conversion rates.
* **Customer Insights**: The insights gained from such analyses can inform product development and promotional strategies, ultimately leading to increased sales and customer satisfaction.

**3. Future Plan About This Topic**

* **Data-Driven Decisions**: Expand the analysis to incorporate real-world customer data to refine eligibility criteria and predictions.
* **Machine Learning Integration**: Implement machine learning models to predict eligibility based on more complex interactions between demographics and purchase behavior.
* **Broader Applications**: Explore the eligibility calculation for other types of offers or programs, potentially integrating additional factors such as spending habits, purchase history, or customer feedback.
* **Feedback Loop**: Create a feedback system to continuously update and refine eligibility criteria based on new data and customer responses to promotions.

**Python code given below:**

**INPUT:**

import pandas as pd  
import numpy as np  
  
# Create mock data for 10 people  
np.random.seed(42)  
data = {  
 'Age': np.random.randint(18, 80, size=10),  
 'Gender': np.random.choice(['Male', 'Female'], size=10),  
 'Location': np.random.choice(['Urban', 'Suburban', 'Rural'], size=10)  
}  
  
# Convert to DataFrame  
df = pd.DataFrame(data)  
def calculate\_eligibility(age, gender, location):  
 eligibility = 50  
  
 # Age-based adjustments  
 if age < 25:  
 eligibility += 10  
 elif age > 60:  
 eligibility += 15  
  
 # Gender-based adjustments  
 if gender == 'Female':  
 eligibility += 5  
 elif gender == "Male":  
 eligibility += 10  
  
 # Location-based adjustments  
 if location == 'Urban':  
 eligibility += 5  
 elif location == 'Rural':  
 eligibility += 10  
  
 # Ensure eligibility is within 0-100%  
 return min(max(eligibility, 0), 100)  
  
# Apply eligibility calculation to each row  
df['Eligibility\_Percentage'] = df.apply(lambda row: calculate\_eligibility(row['Age'], row['Gender'], row['Location']), axis=1)  
  
# Display the results  
print("Lotto Brand Offer Eligibility:")  
print(df[['Age', 'Gender', 'Location', 'Eligibility\_Percentage']])

**OUTPUT:**

Lotto Brand Offer Eligibility:

