SNS COLLEGE OF TECHNOLOGY

Coimbatore-35
An Autonomous Institution

Accredited by NBA – AICTE and Accredited by NAAC – UGC with 'A++' Grade
Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai

DEPARTMENT OF ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING

23AMB201 - MACHINE LEARNING

II YEAR IV SEM

UNIT I – INTRODUCTION

Exercise 5

Programs

5. Implement the python code to compute the population proportions for the given problem

Implement the python code to compute the population proportions for the given problem

```
[64] import matplotlib.pyplot as plt
     from collections import Counter

     # Sample dataset: people's favorite fruit choices
     survey_data = ["Apple", "Banana", "Apple", "Orange", "Banana", "Apple",
                    "Grapes", "Banana", "Apple", "Orange", "Grapes", "Banana"]
```

```
[66] # Count occurrences of each fruit
     fruit_counts = Counter(survey_data)
     fruit_counts
```

```
Counter({'Apple': 4, 'Banana': 4, 'Orange': 2, 'Grapes': 2})
```

Implement the python code to compute the population proportions for the given problem

```
[67] # Total number of survey responses
     total_responses = len(survey_data)
     total_responses
```

```
12
```

```
[70] # Compute population proportions
     population_proportions = {fruit: count / total_responses for fruit, count in fruit_counts.items()}
     population_proportions
```

```
{'Apple': 0.3333333333333333,
 'Banana': 0.3333333333333333,
 'Orange': 0.16666666666666666,
 'Grapes': 0.16666666666666666}
```

Implement the python code to compute the population proportions for the given problem

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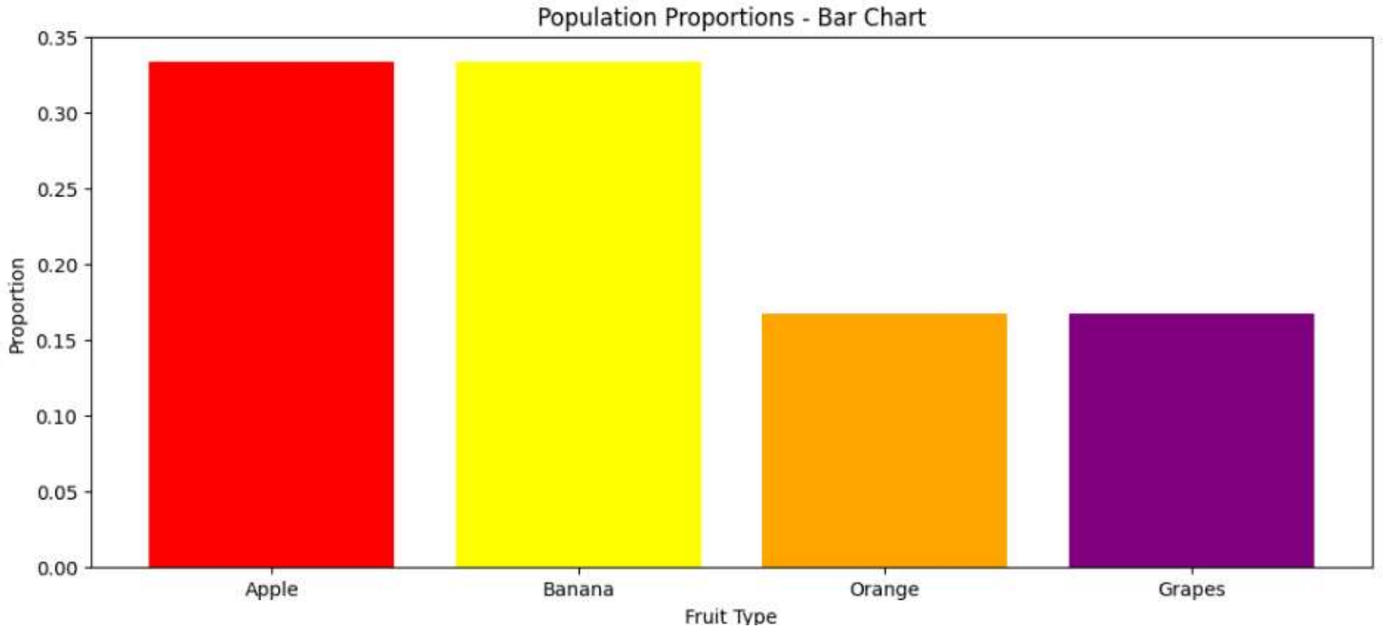
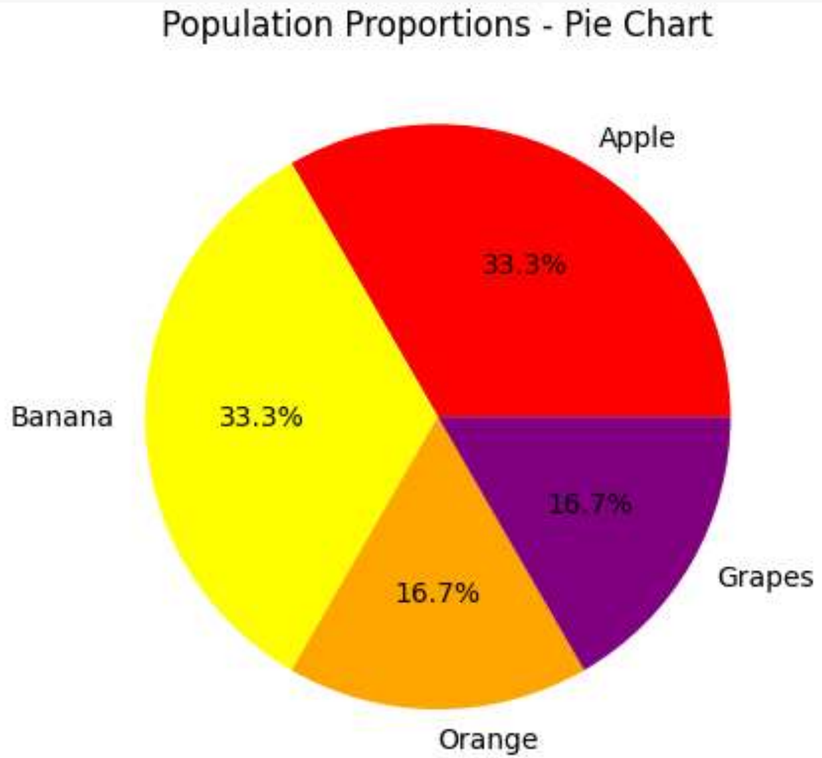
```
[76] # Extract keys and values for visualization
     labels = list(population_proportions.keys())
     proportions = list(population_proportions.values())

     # Create a bar chart
     plt.figure(figsize=(12, 5))

     # Bar Chart
     plt.bar(labels, proportions, color=['red', 'yellow', 'orange', 'purple'])
     plt.xlabel("Fruit Type")
     plt.ylabel("Proportion")
     plt.title("Population Proportions - Bar Chart")
```

Implement the python code to compute the population proportions for the given problem



Implement the python code to compute the population proportions for the given problem

```
# Pie Chart
plt.pie(proportions, labels=labels, autopct='%.1f%%', colors=['red', 'yellow', 'orange', 'purple'])
plt.title("Population Proportions - Pie Chart")
```



References

1. Aurélien Géron "Hands-On Machine Learning with Scikit-Learn and TensorFlow" Publisher(s): O'Reilly Media, Inc 2017.