**Scenario**: You’re developing a customer feedback analyzer for a business. Users can input feedback text, and the app should categorize it as positive, negative, or neutral based on keywords. It should count feedback in each category, providing a summary for business insights.

* **Tasks**:
  1. What variables will you need to store each piece of feedback and its category?
  2. How could conditional statements detect keywords to classify feedback?
  3. Would using only conditionals without functions make this program harder to modify or expand? Explain.
  4. Discuss how tuple assignment could organize each feedback entry with its category.
* **Deliverables**:
  1. Feedback Analyzer Code: A Python program that classifies feedback based on keywords and summarizes results.
  2. Learning Outcomes: Students will learn text classification, condition-based logic, and tuple grouping for text data.

Here's a Python solution for the customer feedback analyzer:

# Initialize feedback categories and counters

feedback\_categories = ["positive", "negative", "neutral"]

positive\_keywords = ["good", "great", "excellent", "love"]

negative\_keywords = ["bad", "terrible", "awful", "hate"]

neutral\_keywords = ["okay", "fine", "average"]

feedback\_data = []

positive\_count = 0

negative\_count = 0

neutral\_count = 0

# Function to classify feedback

def classify\_feedback(text):

global positive\_count, negative\_count, neutral\_count

text = text.lower()

if any(keyword in text for keyword in positive\_keywords):

feedback\_data.append((text, "positive"))

positive\_count += 1

elif any(keyword in text for keyword in negative\_keywords):

feedback\_data.append((text, "negative"))

negative\_count += 1

else:

feedback\_data.append((text, "neutral"))

neutral\_count += 1

# Function to display summary

def display\_summary():

print("Feedback Summary:")

print(f"Positive: {positive\_count}")

print(f"Negative: {negative\_count}")

print(f"Neutral: {neutral\_count}")

print("Feedback Data:")

for text, category in feedback\_data:

print(f"{text}: {category}")

# Main program loop

while True:

print("\nOptions:")

print("1. Enter feedback")

print("2. Display summary")

print("3. Exit")

choice = input("Choose an option: ")

if choice == "1":

feedback\_text = input("Enter feedback: ")

classify\_feedback(feedback\_text)

elif choice == "2":

display\_summary()

elif choice == "3":

break

else:

print("Invalid option. Please choose again.")

Learning Outcomes

1. Text classification: Classify feedback based on keywords.

2. Condition-based logic: Use conditional statements to detect keywords.

3. Tuple grouping: Organize feedback data with categories using tuples.

Discussion

Variables: feedback\_data stores feedback text and categories. positive\_count, negative\_count, and neutral\_count track category counts.

Conditional statements: Detect keywords to classify feedback.

Using only conditionals: Without functions, the code would become lengthy and harder to modify or expand. Functions (classify\_feedback, display\_summary) improve organization and reusability.

Tuple assignment: Organizes each feedback entry with its category, e.g., (text, category).

This program provides a basic feedback analyzer. You can enhance it by:

- Adding more keywords and categories

- Implementing machine learning algorithms for more accurate classification

- Integrating with databases for storing and retrieving feedback data

- Creating visualizations for feedback summaries