**Step 1: Read the File**

# Step 1: Read the File

# Define the file path

file\_path = "/mnt/data/transactions.txt"

# Read the file contents

with open(file\_path, "r") as file:

transactions = [int(line.strip()) for line in file]

# Display the transactions

transactions

**Explanation:**

1. file\_path = "/mnt/data/transactions.txt"
   * Defines the path to the file that contains transaction data.
2. with open(file\_path, "r") as file:
   * Opens the file in **read mode ("r")**.
   * with ensures the file is automatically closed after reading.
3. transactions = [int(line.strip()) for line in file]
   * Reads each line from the file.
   * .strip() removes any extra whitespace (like newline characters \n).
   * int() converts the line (which is read as a string) into an integer.
   * **List comprehension ([...])** stores all the transaction values in a list.
4. transactions
   * Displays the list of transactions.

**Step 2: Basic Analysis**

**1. Total Sum of Transactions**

# 1. Total Sum of Transactions

total\_sum = sum(transactions)

total\_sum

**Explanation:**

1. sum(transactions)
   * Computes the sum of all transaction values.
2. total\_sum
   * Displays the total sum.

**2. Count of Transactions**

# 2. Count of Transactions

num\_transactions = len(transactions)

num\_transactions

**Explanation:**

1. len(transactions)
   * Counts the number of elements (transactions) in the list.
2. num\_transactions
   * Displays the count.

**3. Average Transaction Value**

# 3. Average Transaction Value

average\_transaction = total\_sum / num\_transactions if num\_transactions > 0 else 0

average\_transaction

**Explanation:**

1. total\_sum / num\_transactions
   * Calculates the average transaction value by dividing the total sum by the count of transactions.
2. if num\_transactions > 0 else 0
   * Prevents division by zero in case there are no transactions.
3. average\_transaction
   * Displays the average transaction value.

**Step 3: Visualizing Transactions**

# Step 3: Visualize Transactions

import matplotlib.pyplot as plt

plt.figure(figsize=(10, 5))

plt.bar(range(len(transactions)), transactions, color='blue')

plt.xlabel("Transaction Index")

plt.ylabel("Amount")

plt.title("Transaction Values Over Time")

plt.show()

**Explanation:**

1. import matplotlib.pyplot as plt
   * Imports the **matplotlib** library, which is used for plotting graphs.
2. plt.figure(figsize=(10, 5))
   * Creates a new figure with a width of **10 inches** and a height of **5 inches**.
3. plt.bar(range(len(transactions)), transactions, color='blue')
   * Plots a **bar chart**.
   * range(len(transactions)): Creates a sequence of indices (0, 1, 2, …) for the x-axis.
   * transactions: Represents the transaction values on the y-axis.
   * color='blue': Colors the bars blue.
4. plt.xlabel("Transaction Index")
   * Labels the x-axis as **"Transaction Index"**.
5. plt.ylabel("Amount")
   * Labels the y-axis as **"Amount"**.
6. plt.title("Transaction Values Over Time")
   * Sets the chart title.
7. plt.show()
   * Displays the plot.