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import sqlite3
import pandas as pd
import matplotlib.pyplot as plt

# Create and connect to the database
conn = sqlite3.connect("online_sales.db")
cursor = conn.cursor()

# Create the sales table
cursor.execute("""
CREATE TABLE IF NOT EXISTS online_sales (
    order_id INTEGER PRIMARY KEY,
    order_date TEXT NOT NULL,
    amount REAL NOT NULL,
    product_id INTEGER NOT NULL
)
""")

# Insert 50 rows of sample data
sample_data = [
    (1, '2024-01-02', 250.00, 101),
    (2, '2024-01-05', 300.00, 102),
    (3, '2024-01-08', 150.00, 103),
    (4, '2024-01-10', 450.00, 104),
    (5, '2024-01-15', 500.00, 105),
    (6, '2024-01-20', 350.00, 106),
    (7, '2024-01-22', 200.00, 107),
    (8, '2024-01-25', 800.00, 108),
    (9, '2024-01-28', 1000.00, 109),
    (10, '2024-01-30', 400.00, 110),
    (11, '2024-02-02', 600.00, 101),
    (12, '2024-02-05', 450.00, 102),
    (13, '2024-02-08', 300.00, 103),
    (14, '2024-02-10', 700.00, 104),
    (15, '2024-02-12', 1200.00, 105),
    (16, '2024-02-15', 900.00, 106),
    (17, '2024-02-18', 750.00, 107),
    (18, '2024-02-20', 400.00, 108),
    (19, '2024-02-25', 650.00, 109),
    (20, '2024-02-28', 500.00, 110),
    (21, '2024-03-01', 950.00, 101),
    (22, '2024-03-03', 1100.00, 102),
    (23, '2024-03-06', 600.00, 103),
    (24, '2024-03-08', 450.00, 104),
    (25, '2024-03-10', 700.00, 105),
    (26, '2024-03-12', 850.00, 106),
    (27, '2024-03-15', 300.00, 107),
    (28, '2024-03-18', 1200.00, 108),
    (29, '2024-03-22', 500.00, 109),
    (30, '2024-03-28', 1000.00, 110),
    (31, '2024-04-01', 400.00, 101),
    (32, '2024-04-03', 900.00, 102),
    (33, '2024-04-07', 750.00, 103),
    (34, '2024-04-10', 1200.00, 104),
    (35, '2024-04-12', 300.00, 105),
    (36, '2024-04-15', 950.00, 106),
    (37, '2024-04-18', 1100.00, 107),
    (38, '2024-04-20', 600.00, 108),
    (39, '2024-04-25', 450.00, 109),
    (40, '2024-04-28', 700.00, 110),
    (41, '2024-05-01', 850.00, 101),
    (42, '2024-05-05', 300.00, 102),
    (43, '2024-05-07', 1200.00, 103),
    (44, '2024-05-10', 900.00, 104),
    (45, '2024-05-12', 750.00, 105),
    (46, '2024-05-15', 400.00, 106),
    (47, '2024-05-18', 650.00, 107),
    (48, '2024-05-20', 500.00, 108),
    (49, '2024-05-22', 950.00, 109),
    (50, '2024-05-28', 1100.00, 110)
]

# Only insert if table is empty
cursor.execute("SELECT COUNT(*) FROM online_sales")
if cursor.fetchone()[0] == 0:
    cursor.executemany("INSERT INTO online_sales (order_id, order_date, amount, product_id) VALUES (?, ?, ?, ?)", sample_data)
    conn.commit()

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# Query for total revenue and orders per product
query = """
SELECT
    product_id,
    COUNT(order_id) AS total_orders,
    SUM(amount) AS total_revenue
FROM online_sales
GROUP BY product_id
ORDER BY product_id;
"""

df = pd.read_sql_query(query, conn)
print(df)

# Bar chart: revenue per product
df.plot(kind='bar', x='product_id', y='total_revenue', legend=False)
plt.ylabel("Total Revenue")
plt.title("Revenue by Product")
plt.tight_layout()
plt.savefig("product_revenue_chart.png")
plt.show()

conn.close()

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product_id  total_orders  total_revenue
0          101             5          3050.0
1          102             5          3050.0
2          103             5          3000.0
3          104             5          3700.0
4          105             5          3450.0
5          106             5          3450.0
6          107             5          3000.0
7          108             5          3500.0
8          109             5          3550.0
9          110             5          3700.0

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