import pandas as pd

# Sample hotel booking data (replace with your dataset)

data = {

'booking\_id': [1, 2, 3, 4, 5],

'booking\_date': ['2024-01-10', '2024-02-15', '2024-03-20', '2024-04-05', '2024-05-12'],

'room\_type': ['Standard', 'Suite', 'Standard', 'Suite', 'Deluxe'],

'price': [100, 200, 120, 250, 300],

'cancellation': [False, True, False, False, True]

}

# Convert data to DataFrame

df = pd.DataFrame(data)

# 1. Booking Trends

total\_bookings = len(df)

monthly\_bookings = df['booking\_date'].apply(lambda x: x.split('-')[1]).value\_counts().sort\_index()

print("--- Booking Trends ---")

print("Total bookings:", total\_bookings)

print("Monthly bookings:")

print(monthly\_bookings)

print()

# 2. Revenue Analysis

total\_revenue = df['price'].sum()

print("--- Revenue Analysis ---")

print("Total revenue: $", total\_revenue)

print()

# 3. Occupancy Rates

occupancy\_rate = total\_bookings / total\_revenue \* 100

print("--- Occupancy Rates ---")

print("Occupancy rate: {:.2f}%".format(occupancy\_rate))

print()

# 4. Cancellation Analysis

cancellation\_rate = df['cancellation'].mean() \* 100

print("--- Cancellation Analysis ---")

print("Cancellation rate: {:.2f}%".format(cancellation\_rate))

print()

# You can add more analysis as needed