**1. Calculate Room Price with Discount**

calculate\_price = lambda price, discount: price - (price \* discount / 100)

print("Final Room Price:", calculate\_price(200, 10)) # Example: $200 room with 10% discount

**2. Determine Room Type Based on Capacity**

room\_type = lambda capacity: "Suite" if capacity > 4 else "Deluxe" if capacity > 2 else "Standard"

print("Room Type:", room\_type(3)) # Example: 3 guests -> Deluxe

**3. Check Availability Status**

is\_available = lambda rooms\_left: "Available" if rooms\_left > 0 else "Fully Booked"

print("Room Status:", is\_available(0)) # Example: 0 rooms left -> Fully Booked

**4. Calculate Total Bill (Including Tax and Service Charge)**

total\_bill = lambda price, tax, service: price + (price \* tax / 100) + (price \* service / 100)

print("Total Bill:", total\_bill(500, 5, 10)) # Example: $500 bill, 5% tax, 10% service charge

**5. Filter Available Rooms**

rooms = [("101", True), ("102", False), ("103", True), ("104", False)]

available\_rooms = list(filter(lambda x: x[1], rooms))

print("Available Rooms:", [room[0] for room in available\_rooms]) # Output: ['101', '103']

**6. Sort Rooms by Price (Ascending Order)**

room\_prices = [("Deluxe", 300), ("Suite", 500), ("Standard", 150)]

sorted\_rooms = sorted(room\_prices, key=lambda x: x[1])

print("Sorted Room Prices:", sorted\_rooms)

**7. Generate Customer Loyalty Discount Based on Spending**

loyalty\_discount = lambda spending: 20 if spending > 1000 else 10 if spending > 500 else 5

print("Loyalty Discount:", loyalty\_discount(800)) # Example: $800 spent -> 10% discount

**8. Calculate Number of Nights Stayed**

nights\_stayed = lambda check\_in, check\_out: (check\_out - check\_in).days

from datetime import date

print("Nights Stayed:", nights\_stayed(date(2024, 2, 10), date(2024, 2, 15))) # Output: 5 nights

**9. Filter Customers Who Have Stayed More Than a Certain Nights**

customers = [("Alice", 5), ("Bob", 2), ("Charlie", 7)]

long\_stay\_customers = list(filter(lambda x: x[1] > 3, customers))

print("Long Stay Customers:", [c[0] for c in long\_stay\_customers]) # Output: ['Alice', 'Charlie']

**10. Assign Room Floor Based on Room Number**

floor\_number = lambda room\_number: (room\_number // 100)

print("Floor Number:", floor\_number(305)) # Example: Room 305 -> 3rd floor