Hotel Reservation

```python
import datetime

available_rooms = [101, 102, 103, 104, 105]

booked_rooms = {}

def book_room(room_number, start_date, end_date,
                                    customer_name):
    if room_number not in available_rooms:
        print("sorry, that room is not available.")

    else:
        available_rooms.remove(room_number)
        booked_rooms[room_number] = {

        'start_date': start_date,

        'end_date': end_date,

        'customer_name': customer_name

    }

    print(f"Room {room_number} has been booked for
        {customer_name} from {start_date} for
    {end_date}.")

def book_half_room(room_number, start_date, end_date,
                        customer_name):
    if room_number not in available_rooms:
        print("sorry, that room is not available.")

    else:
        available_rooms.remove(room_number)
        booked_rooms[room_number] = {
```

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        'start-date' : start-date,
        'end-date' : end-date,
        'customer-name-1' : customer-name,
        'customer-name-2' : None
    }
    print(f"Half of room {room-number} has been booked
            for {customer-name} from {start-date} to {end-date}")

def allot-half-room(room_number, start-date, end-date,
                    customer-name):
    if room-number not in booked-rooms:
        print("Sorry, that room is not booked.")

    elif booked-rooms[room-number].get('customer-
                    name-2') is not None:
        print("Sorry, that half of the room is already
                        booked")

    else:
        booked-rooms[room-number]['customer-name-2']
                = customer-name

        print(f"The other half of room {room_number}
            has been alloted to {customer-name} from
            {start-date} to {end-date}.")

def book-full-day(room-number, booking-date,
                    customer-name):
    if room-number not in available-room:
        print("Sorry, that room is not available.")
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    else:
        available_rooms.remove(room_number)
        booked_rooms[room_number] = {
            'start_date': booking_date,
            'end_date': booking_date + datetime.timedelta
                                        (days=1),
            'customer_name': customer_name
        }

        Print(f"Room {room_number} has been booked for
            {customer_name} on {booking_date}.")

def cancel_room(room_number):
    if room_number not in booked_rooms:
        Print("Sorry, that room is not booked.")

    else:
        available_rooms.append(room_number)
        del booked_rooms[room_number]

        Print(f"Room {room_number} has been
                                        cancelled.")

def calculate_extra_pay(room_number, end_date):
    if room_number not in booked_rooms:
        Print("Sorry, that room is not booked.")
    elif end_date < booked_rooms[room_number]
                                        ['end_date']:
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    print("sorry, the end date cannot be before the
          original booking end date.")


    else:
        extra_days = (end_date - booked_rooms[room_
                     number]['end_date']).days


    book_full_day (101, datetime.date (2023, 5, 13), "abc")

    book_half_room (102, datetime.date (2023, 5, 14), "abc")

    allot_half_room (102, datetime.date (2023, 5, 14),
                     datetime.date (2023, 5, 15), "abc")

    book_room (103, datetime.date (2023, 5, 16), datime.
              date (2023, 5, 18), "abc")


    Cancel_room (104)

    Calculate_extra_pay (101, datetime.date (2023, 5, 15))
```