Prompt

I am programming MongoDB.

I have a databases “sample\_airbnb”. Within the database there is a collection.

1. sample\_airbnb
   * listingsAndReviews

Can you help me check my query inb MongoCompass if it programmed correctly?

# Task 4

Here is task:

“The current daily rate for the listing named “Be Happy in Porto” is $30.00. Fabio, the owner,

computes the average daily rate of similar properties in the area. For similarity comparison, he

uses the property type and the number of bedrooms of the properties in the same market, i.e.

he only considers the properties that are same type as his property and also having the same

number of rooms as his. Then, he decides to set his property’s daily rate 10% lower than the

average daily rate.

Write a MongoDB statement to change the daily rate of the afore-mentioned listing.”

## Here is my pipeline

Go to the aggregation pipeline.

Stage 1: $match

{ name: "Be Happy in Porto"}

Stage 2: $Lookup

{

from: "listingsAndReviews",

let: {

property\_type: "$property\_type",

bedrooms: "$bedrooms",

market: "$address.market"

},

pipeline: [

{

$match: {

$expr: {

$and: [

{

$eq: [

"$property\_type",

"$$property\_type"

]

},

{

$eq: ["$bedrooms", "$$bedrooms"]

},

{

$eq: ["$address.market", "$$market"]

}

]

}

}

},

{

$group: {

\_id: null,

avg\_price: {

$avg: "$price"

}

}

}

],

as: "avgPriceData"

}

Stage 3: $set

{

new\_price: {

$round: [

{

$multiply: [

{

$arrayElemAt: [

"$avgPriceData.avg\_price",

0

]

},

0.9

]

},

2

]

}

}

Stage 4: $merge

{

into: {

db: "sample\_airbnb",

coll: "listingsAndReviews"

},

on: "\_id",

whenMatched: [

{

$set: {

price: "$new\_price"

}

}

],

whenNotMatched: "discard"

}

Does this satisfy the requirements?

## My revised answer

Here are the fields in the collection.

A screenshot of a computer

Description automatically generated

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Can you list in in a few words each (5 words) where Data Model/ Functionality, Relational Database Document Databases, Graph Databases, key-value stores, wide-column stores should be used.

# Task 2.1

## Initial collection information:

I am programming in MongoDB. I am using the database “sample\_airbnb”. Within this database I have the collection “listingsAndReviews”.

Within this collection I have the following fields. NOTE I am listing the key pair with the data type but not sample data.

{

\_id: String,

listing\_url: String,

name: String,

summary: String,

space: String,

description:String,

neighbourhood\_overview:String,

notes:String,

transit:String,

access:String,

interaction:String,

house\_rules:String,

property\_type:String,

room\_type:String,

bed\_type:String,

minimum\_nights:String,

maximum\_nights:String,

cancellation\_policy:String,

last\_scrapped:Date,

calendar\_last\_scraped:Date,

first\_review:Date,

last:review:Date,

accommodates:Int32,

bedrooms:Int32,

beds:Int32,

number\_of\_reviews:Int32,

bathooms:Decimal128,

amenities:Array,

price:Decimal128,

security\_deposit:Decimal128,

cleaning\_fee:Decimal128,

extra\_people:Decimal128,

guests\_included:Decimal128,

images:Object,

host:Object,

address:Object,

availability:Object,

review\_scores:Object,

reviews:Array,

}

Can you help me with a task? Just give a small response.

## Task information

Here is the task I have been assigned:

Task 2: Extend the AirBnB database

The current sample database consists of only one document collection, which comprises of information on listings and reviews. It is built on “embedded” data model, where each document outlines information on listings and for each listing, additional information such as user reviews and hosts’ details are “embedded”.

In this task, you are required to extend the database to allow taking bookings of listings. The specifications for the extended system is outlined below.

For simplicity, assume that listings can only be booked for whole days, and no hourly bookings are accepted.

At the moment, listings can be booked into the future, as far as 31 December 2026. Bookings are made by registered clients of the AirBnB system. Each client has a unique client\_ID generated by the system.

In addition, they use an email address for login. Bookings are for individual listings, i.e. you cannot book multiple listings in a single booking. Each booking is for a specific period, defined by the arrival date and departure date.

In addition to the listing name, arrival and departure dates, each booking will capture the identification details of the client, such as name, email address, daytime phone number, mobile number, postal address and home address. The other information included in a booking are: the deposit paid at the booking, the balance due, the due date for the balance payment, and number of guests, and for each guest the names and their ages. These other guests are not required to be registered clients of the AirBnB system.

## Sample data:

Here is the sample data:

//Booking 1 for the property, {name:"Be Happy in Porto"}.

Booking\_id:12345,

Arrival Date: 2025-03-11T14:00:00.000+10:00

Departure date: 2025-03-13T10:00:00.000+10:00

Client:

{

name: Brodie Mackrell,

email address: BrodieMackrell@rhyta.com,

daytime phone number: (03) 5352 6218,

mobile number: 0453 526 218,

postal address: 48 Mills Street DALYSTON VIC 3992,

home address: 48 Mills Street DALYSTON VIC 3992

}

depositPaid: $10,

balance due, $20,

balance due date: 2025-03-01T00:00:00.000+10:00

number of guests:2,

Guest:

[

{

name: Brodie,

age:44

},

{

name: John,

Age:44

}

]

//Booking 2 for the property {name:"Be Happy in Porto"}

Booking\_id:12347;

Arrival Date: 2025-11-11T14:00:00.000+11:00

Departure date: 2025-11-14T10:00:00.000+11:00

Client:

{

name: Alexander Kevin,

email address: AlexanderKevin@teleworm.us,

daytime phone number: (08) 9038 8742,

mobile number: 0490 388 742,

postal address: 81 Farrar Parade CARNAMAH WA 6517,

home address: 81 Farrar Parade CARNAMAH WA 6517

}

depositPaid: $30,

balance due:$0,

balance due date: <NULL>

number of guests:3,

Guest:

[

{

name: Alexander,

age: 54

}

{

name: Alexa,

age: 50

}

{

name: Siri,

age: 15

}

]

//Booking 3 for the property {name:"Be Happy in the Heart Of Montreal DT 1MIN to Metro"}

Booking\_id:12346,

Arrival Date: 2025-04-11T14:00:00.000+10:00

Departure date: 2025-04-12T10:00:00.000+10:00

Client:

{

name: Brodie Mackrell,

email address: BrodieMackrell@rhyta.com,

daytime phone number: (03) 5352 6218,

mobile number: 0453 526 218,

postal address: 48 Mills Street DALYSTON VIC 3992,

home address: 48 Mills Street DALYSTON VIC 3992

}

depositPaid: $20,

balance due, $59,

balance due date: 2025-04-01T00:00:00.000+10:00

number of guests:3,

Guest:

[

{name: Brodie,age:44},

{name: John,Age:44},

{name: John Jr, Age:10}

]

Can you help me make either an embedded or referenced approach? Just answer yes or no.

### Embedded approach

Demonstrate how to use this database using an embedded approach using the sample data. Note there are 3 bookings in the sample data. Booking 1 and 2 are for 1 is for the document for the property, {name:"Be Happy in Porto"}. Booking 3 for the property {name:"Be Happy in the Heart Of Montreal DT 1MIN to Metro"}

### Referenced approach

Demonstrate how to use this database using a referenced approach using the sample data. Note there are 3 bookings in the sample data. Booking 1 and 2 are for 1 is for the document for the property, {name:"Be Happy in Porto"}. Booking 3 for the property {name:"Be Happy in the Heart Of Montreal DT 1MIN to Metro"}

## Inserting the client and listings

Adjust the bookings collection insertion based on the data provided.

The client id’s are as follows. **\_id**: ObjectId('670232f5563825de0da55f81’) is for the client Brodie Mackrell. **\_id**: ObjectId('67023660563825de0da55f83’) is for the client Alexander Kevin.

For the collection “listingsAndReviews”:

For Booking 1 and 2, the \_id: “10083468”.

For Booking 3, the\_id is \_id: "25937713".

Adjust the insertions for the Bookings collection.