

Fall 2021 MIS 333K Project: BevoBnB

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Background

You have been asked to help create an IT system for BevoBnB, a (fictitious) small independent lodging marketplace for vacationers in Austin. You will need to create a website that provides functionality for customers (guests), hosts, and corporate administrators.

The system should be a C#-based ASP.NET Core MVC website using a SQL Server Database hosted on one of your team member's Azure account. The website should also be hosted in an Azure account. You should consider adding your team members as administrators to the main Azure account.

Katie and the TAs will be your first contacts for requirements questions. Requirements are subject to change/clarification as the project progresses. Katie will have final say on everything. The Piazza discussion board will be the official medium for communication about requirements. No requirements change/clarification is official unless it has been posted on Piazza and tagged with the "project requirements" label.

Role-Based Access

The BevoBnB site has three user roles (customers, hosts, and administrators). Any given user profile (login/password) can be either a customer, a host, or an administrator. That is, a host or administrator who wants to make a reservation for him/herself must log out of the host site and log in with a separate customer account. You MUST use Microsoft Identity in your project to enable role-based authorization.

Customer Functionality

Customers should be able to create and manage their profile, search for properties, reserve lodging, submit reviews of properties, and view their reservation history. Customers log in to the site with their email and password. Login is not required for any customer pages (i.e. browsing) unless the customer wants to purchase a reservation or see previous reservations. Upon successful login, the customer should be met with a welcome page showcasing all active properties in our database.

Search for Properties

Without being logged in, a customer should be able to search for properties. The property search should meet the following criteria:

1. The customer should be able to search properties by city, state, guest ratings (see below), number of guests, daily price, category (house, condo, etc.), number of bedrooms, number of bathrooms, pets allowed (yes/no), and free parking (yes/no).
2. Search should be as flexible as possible - allow the user to select the criteria and a single value or range of values.
3. The list of categories should reflect the categories in the database. It should not be hard-coded.
4. Users should be able to search all properties by category, and they should only be able to select one category of property at a time. This should match all properties with that category.
5. When searching by guest ratings of a property, the user can specify less than or greater than and a decimal between 1.0 and 5.0 inclusive. This should return items whose average rating matches the specified criteria.
6. Search results should include city, state, category, price, # of bedrooms, # of bathrooms, guest rating.
7. Customers should be able to click on each search result to see the full details (all fields) for the property. This page should have a link to make a reservation for this property.

8. For all queries on all search pages, display a record count. For example, if there are 100 properties in the database, and your search results show 5 properties, the page should display something like "Showing 5 of 100 Properties."
9. The customer should also be able to search for specific dates to check-in and check-out to see the properties that are available for the length of their stay. Date-based search results should include city, state, type of place, price, # of bedrooms, # of bathrooms, guest rating.

Create a Profile

To make a reservation, customers must create a profile on our site. To create an account, the user must provide an email address, password, first and last name, address, phone number and birthday. A customer must be at least 18 years old to create an account. No two customers may have the same email address. Customers should be able to edit their address, phone number and birthday. They can also change their password, as long as they provide the current password. Customers may not change the email address associated with their profile.

Reservation History

Customers should be able to see all their reservations, including past reservations, cancelled reservations, and future reservations. Customers should be able to cancel future reservations, but not change any data related to past reservations.

Customer Email

The system should be able to send messages to the customer's email address. Customers get messages when:

- They create an account
- They make a reservation (i.e. complete checkout). See the checkout section for more information
- A reservation is cancelled by the customer
- A reservation is cancelled by the host

For security purposes, it is recommended that each group create a new Gmail account to send these emails. The subject line of all emails should start with "Team [Number]:" to help the grader find the emails from your team.

Purchase Reservations

Customers should be able to purchase reservations for properties. Purchases are restricted by the following rules:

1. Customers must be logged in with a valid account to make reservations. See above for rules about creating accounts.
2. Customers may not make reservations in which the check-in date is the current date or in which the date has already passed.
3. Customers may not make a reservation for a property that will overlap with another reservation for that same property. For example, if I try to make a reservation for a property with a check-in date of December 3rd and a check-out date of December 8th, but this same property has a reservation with a check-in date of November 28 and a check out date of December 5th, then I may not make this reservation. I should, however, be allowed to make a reservation with a check-in date that is the same as the check-out date of a previous reservation for the same property. That is one reservation ENDS on December 3rd and another reservation STARTS on December 3rd.
4. Customers may purchase reservations for more than one property at a time. However, in a single transaction, the customer may not make reservations that overlap times. For example, if I make a reservation for a property with a check-in date of December 3rd and a check-out date of December 8th, then I may not make another reservation to another property in which the period of stay overlaps with December 3rd through December 8th. I should, however, be allowed to check-in to a property on the same date as I check-out of a different property.

5. After the user has selected all the reservations he or she wishes to purchase, show them a summary screen with the following: check-in date, check-out date, city, state, # of guests, stay price (sum of daily prices), cleaning fee, subtotal, individual reservation total, subtotal of all reservations, tax amount, and grand total. The user should confirm the above information and your system should then mark the order as complete and email the customer with a confirmation of the reservation. You can assume that the money is collected when the user confirms the order. (Processing credit card payments is beyond the scope of this project.)

Reservation Checkout

1. Customers should not be able to move forward with a purchase until they have at least one reservation in their shopping cart. Choosing the checkout option without at least one reservation in the cart should give the customer an error saying that they must choose what to purchase first.
2. Once a customer is ready to checkout and has reservations in the cart, the checkout screen should show them a summary screen with the following: check-in date, check-out date, city, state, # of guests, stay price (sum of daily prices), cleaning fee, subtotal, individual reservation total, subtotal of all reservations, tax amount, grand total.
3. If a customer receives a discount for staying at least a certain number of days, the discount should be automatically factored into the price. The user should see the discount in dollars, so they understand how their total was calculated.
4. Once the user clicks "Confirm," the system should generate a confirmation number for this transaction and send the required confirmation emails. Transaction numbers are consecutive numbers starting with 21901. The system should generate a view that thanks the customer, shows him/her the confirmation number, and present the customer with a link back to the home page.

Canceling Reservations

Reservations may not be modified after checkout. However, they may be cancelled and rebooked at current prices.

A customer may cancel reservations for a property if their check-in date is more than a day ahead, meaning if the check-in date is December 8th, then the customer must cancel their reservation before December 7th at 12:00am. Reservations which have a check-in within this day window or for check-in dates that have passed may not be cancelled. Once a reservation is cancelled, the system should email the customer and the host of that property.

Property Reviews

Customers can review properties at which they are currently staying or places they have stayed in the past. Customers may not write reviews for future reservations. When writing a review, the customer MUST include a rating on a scale from 1-5 (whole numbers only). The customer should also have the option of writing a text review (limited to 280 characters) as well. Customers may only review each property once, even if they have made multiple reservations at that property.

A customer may change their review or rating once it has been submitted (and rating average should be updated accordingly). If a customer changes their review, the host should be able to dispute this review as explained in the Dispute Review section, below.

Ratings are a simple average of customer ratings. They should be carried out to 1 decimal place (e.g. 4.3, 3.2). Display the rating along with the property's other information.

Host Functionality

Hosts can manage their profile, create and manage properties, dispute reviews, cancel future reservations, and view reports.

Create a Profile

To list a property on BevoBnB, a host must create a profile on our site. To create an account, the user must provide an email address, password, first and last name, address, phone number and birthday. A host must be at least 18 years old to create an account. No two users may have the same email address. Hosts should be able to edit their address, phone number and birthday. They can also change their password, as long as they provide the current password. Hosts may not change the email address associated with their profile.

Creating Properties

Hosts can create multiple properties on BevoBnB. To create a property, hosts must give an address, including the street, city, state, and zip, and optional apt. number. Furthermore, hosts must give the category, number of bedrooms, bathrooms, if pets are allowed, if there is free parking, and a guest limit. The host will also need to select the prices for this property according to the rules below. The system will assign a PropertyID, which is a whole number. PropertyIDs begin at 3001 and continue consecutively from there (3002, 3003, etc.). Once a property is created, only the pricing can change. All properties must be approved by a BevoBnB admin before appearing on any customer pages.

Property Prices

Property prices are set by the hosts within these certain parameters:

1. Hosts must set a price for both week nights (Sunday – Thursday) and weekend nights (Friday & Saturday). BevoBnB does not allow for more specific pricing, but the host can change the price as they wish (for new reservations only).
2. Hosts also have the ability to set a discount for customers that reserve for a certain number of nights on a single reservation. For example, hosts can set that if a customer books for at least 4 nights, then they can get a 10% discount for their entire reservation. The host should set the minimum number of nights and the discount percentage for each property. If a host does not set a discount for a property, then there is no discount for customers that book that property.
3. Hosts must also set a cleaning fee for each property. This cleaning fee will be charged once per property per reservation, regardless of the number of nights.
4. All prices (including discounts and cleaning fees) are subject to change by a host. A host should be able to change the weekday price, weekend price, cleaning fee, and discount parameters without having to modify code. Any reservations made before the change in price will be honored – you do not need to charge the customer more for a reservation already purchased. (Hint: Make sure your reports reflect the correct price charged to the customer.)

Making Properties Unavailable

Properties can be made unavailable for reservations for certain dates. If a host makes a property temporarily unavailable, customers should not be able to make reservations for this property during these dates.

Disabling Properties

Should a host decide to *permanently* remove a property from BevoBnB, they should have the ability to mark a property as inactive in our database. Your system should not delete the property because it could result in “orphan” reservations.

Disputing Reviews

Hosts may dispute a review if they deem it untrue or unfair. A dispute should allow the host to write a description of why they deem the review is unfair or untrue. While the review is waiting to be decided on by the administrator, the review should be marked as disputed and the rating should not factor into the host's average. If the administrator agrees with the *host*, the dispute is accepted, and the review should be completely removed from the site. If the administrator agrees with the *guest*, the dispute is rejected, and the review should be factored into the property and the host's average.

Canceling Reservations

A host may cancel reservations if the check-in date for that reservation is more than a day ahead, meaning if the check-in date is December 8th, then the host must cancel their reservation before December 7th at 12:00am. Reservations which have a check-in within this day window or for check-in dates that have passed may not be cancelled. Once a reservation is cancelled, the system should email the customer notifying them that their reservation has been cancelled.

Host Reports

Host reports should only be accessed by users in the host role. BevoBnB should provide hosts with a report that displays information for all properties created by the logged-in host. This single report should list each property's total stay revenue, total cleaning fees collected, total stay revenue and cleaning fees combined, total completed reservations. The total host stay revenue is 90% of the revenue collected for each night stay. (BevoBnB takes a 10% commission on all stay revenue.) Hosts collect 100% of their cleaning fee revenue. The report should be able to be limited by date range. If the cut off dates fall in the middle of a reservation, include the reservation in the report. Reports should be as flexible as possible - allow the user to select the criteria and a single value or range of values.

Administrator Functionality

Administrators can manage users, create other administrators, approve new properties, resolve review disputes, search for properties, make reservations for customers, and view reports.

Managing Users

Administrators can manage other administrators' profiles, which includes the following:

- Hire new administrators. Administrators should create a profile for the new admin. To create an account, the user must provide an email address, password, first and last name, address, phone number and birthday. Administrators must be at least 18 years old.
- Fire existing ones (their information should be kept in the system and can be rehired at a later date). Fired admins should be blocked from logging in and should receive an appropriate error message.
- Rehire fired admins – we'll assume that they accept.
- Modify admin, customer, and host profiles – Admins may modify any field except email on any admin, host, or customer profile. Admins may change admin, host, or customer passwords WITHOUT having the previous password.

Make Reservations

Administrators also can make reservations for customers. When an administrator is making a reservation for a customer, that customer MUST have a profile. When an administrator makes a reservation for a customer, that reservation should show up in the customer's reservation history. All discounts and cancellation policies still apply to reservations purchased through an administrator.

Search for Properties

Admins should be able to search for places to stay just like the customer can. The only difference between the admin side and customer side searching is that employees do not need the option to purchase reservations or have an option to review properties (but they must be able to see the reviews/ratings).

Add Property Categories

Admins should be able to create new categories for properties. The starting categories are apartment, cabin, condo, hotel, and house. However, since the business is expanding, admins may want to add to this list. Make sure that all other pages on the site (search, reports, etc.) would reflect a newly added category.

Resolve Review Disputes

Admins should be able to moderate review disputes. Admins should be presented with the review in question as well as the description of the dispute. The admin should then be able to make the decision to either accept the review as fair or to side with the dispute. See above for more details about how disputes are resolved.

Admin Reports

Admin Reports should allow admin to see the total commission BevoBnB earned, total number of reservations, average commission per reservation, and total number of properties. These reports should only be accessible to administrators. The report should be able to be limited by date range. If the cut off dates fall in the middle of a reservation, include the reservation in the report. Reports should be as flexible as possible - allow the user to select the criteria and a single value or range of values.

Data

We will provide you with seed data for the database in the form of Excel spreadsheets. This seed data (and ONLY this seed data) MUST be pre-loaded on your site when grading begins, or we will not be able to accurately grade your project. See Canvas for the seed data.

Your system should NOT allow any user to *delete* properties, reservations, or user accounts. In the event that one of these entities is no longer valid, they should be marked as inactive in the database. Deleting these records could lead to "orphan" data in related tables.

Project Logistics

Milestones

There are 7 project milestones due throughout the semester to help you keep on track for the final due date and to allow Katie to give and receive feedback about how your project is going. Collectively, these milestones are worth 5% of your overall course grade. The milestones are listed in the table below. More details (and possibly updated due dates) are available on Canvas. Remember, all MIS 333K dates and times are in Austin time.

Milestone #	Description	Due Date
1	Course Setup/Syllabus Quiz	5:00pm August 31
2	Project Requirements Quiz	11:00am September 28
3	Team Selection	5:00pm September 30
4	Process Flow Diagram (Show Property Search Through Checkout)	5:00pm October 8
5	Class Diagram (Show ALL model classes)	5:00pm October 22
6	Peer Evaluation #1	5:00pm October 22
7	Peer Evaluation #2	5:00pm December 3