Cisc 332 Project - Part 3

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Sections

Section 1: All Assumptions

Application Design

- There will be very few administrative users, and at least one will have direct access to the database. Therefore we do not need a front end feature for requesting, adding, or removing admin privileges. If there is a new admin user, they can be upgraded directly in the database.
- Suppliers should NOT be allowed to add reviews on their own properties.
- Suppliers should be allowed to make bookings on their own properties.
- Users can either search by all districts or one, all types or one, all features or one, maximum price or any combination of these.

Overall Database Design

- We chose to give lots of extra space for varchars.
  - We're assuming our database won't be big enough for this excess to matter.
  - Better safe than sorry!
- We're using tables for constant string values, such as booking status type, property type, faculty, and degree type.
  - This will help keep data consistent in our system, and allow us to easily add new types.
- NULL values are generally not allowed unless we have good reason. Columns containing strings will default to an empty string, which, unlike NULL, will not cause type errors when processing in frontend.
- Delete and cancel action actually remove the record from the database, rather than using a "deleted" column.

Bookings

- Bookings have their own id to make them easily searchable.

Rentals

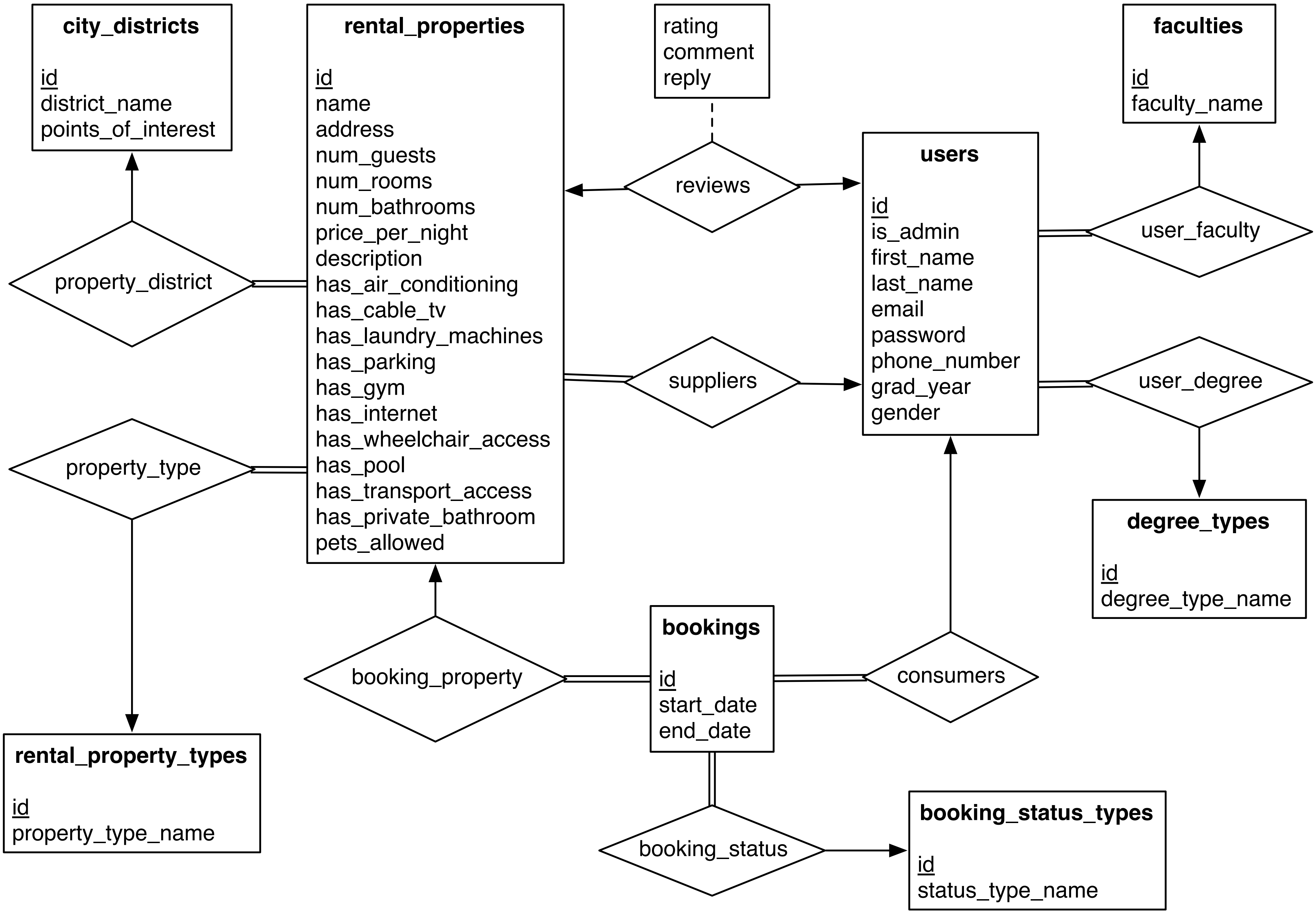
- All properties must be in exactly one district. Districts do not overlap. If the property is on the border of districts, supplier must select one.
  - The same applies to property type and supplier; every property must have exactly one type and supplier.
- price_per_night is in whole Canadian dollars (no cent values are allowed), and represents the price for one day/night (ie noon day 1 to 11am day 2). Total price for a booking will be this value multiplied by the number of days.
- Features are listed as individual boolean columns (which are actually type tinyint), to make them easily searchable. Columns can be easily added and the default value is false.

Reviews

- A user can leave at most one comment/rating on a property, and the supplier can only reply once.
- When giving a review, users must give a rating, but the comment is optional.

Users

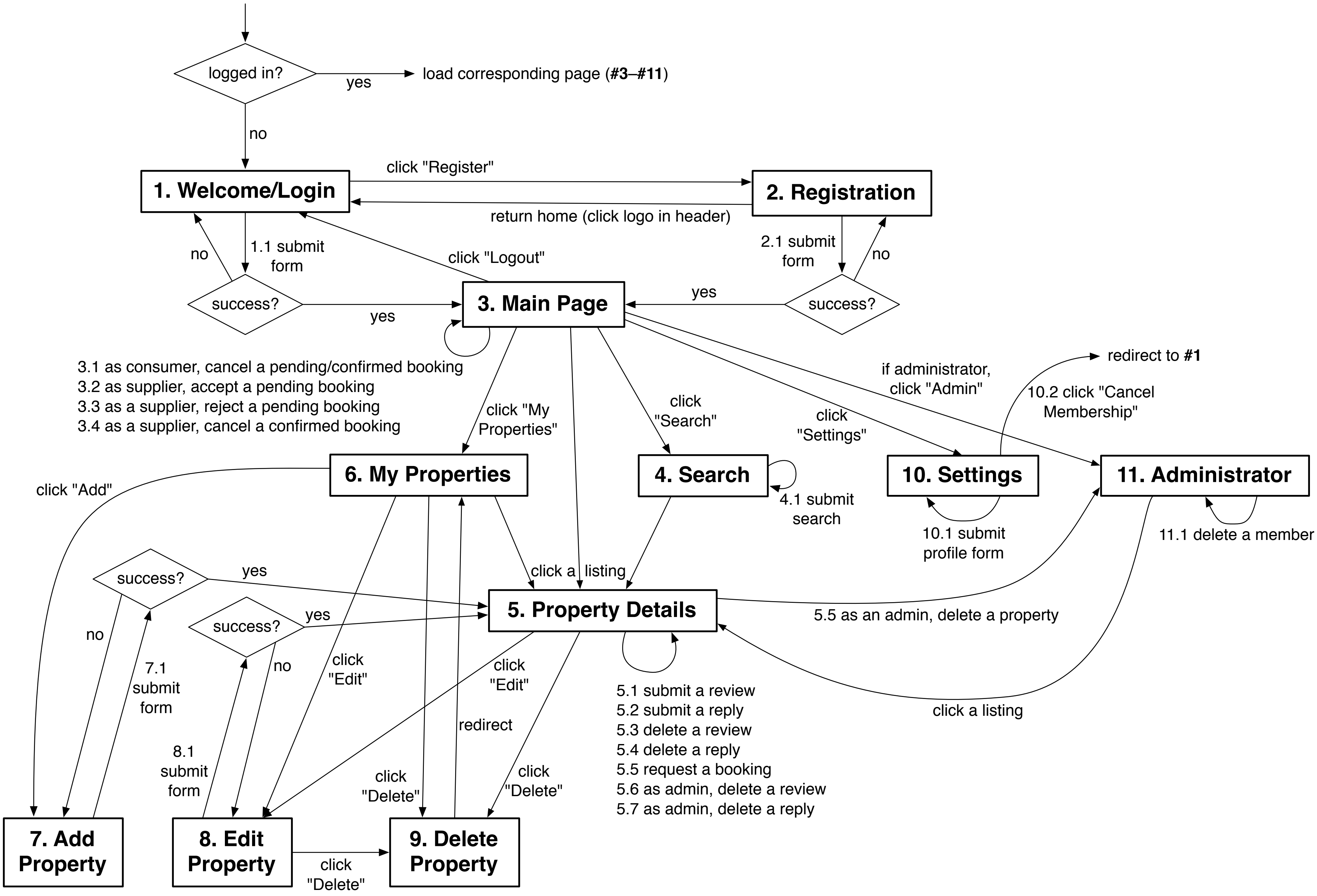
- Longest phone number should be 15 digits, plus 6 digits for extension , and extra space just in case.
- grad_year is the 4 digit number representing the year they graduated (ie 2016). If user has multiple degrees from Queen's we'll use the most recent year.
- Gender is a varchar field to allow for non-binary genders. Users can identify as they wish.


city_districts
id
district_name
points_of_interest
rental_properties
id
name
address
num_guests
num_rooms
num_bathrooms
price_per_night
description
has_air_conditioning
has_cable_tv
has_laundry_machines
has_parking
has_gym
has_internet
has_wheelchair_access
has_pool
has_transport_access
has_private_bathroom
pets_allowed
rating
comment
reply
reviews
faculties
id
faculty_name
users
id
is_admin
first_name
last_name
email
password
phone_number
grad_year
gender
user_faculty
property_district
suppliers
user_degree
property_type
degree_types
id
degree_type_name
bookings
id
start_date
end_date
booking_property
consumers
rental_property_types
id
property_type_name
booking_status
booking_status_types
id
status_type_name

Section 3: Relational Schema

```
CREATE TABLE `booking_status_types` (
  `id` int(11) unsigned NOT NULL AUTO_INCREMENT,
  `status_type_name` varchar(50) NOT NULL DEFAULT '',
  PRIMARY KEY (`id`)
)

CREATE TABLE `bookings` (
  `id` int(11) unsigned NOT NULL AUTO_INCREMENT,
  `consumer_id` int(11) unsigned NOT NULL,
  `property_id` int(11) unsigned NOT NULL,
  `start_date` date NOT NULL,
  `end_date` date NOT NULL,
  `status_id` int(2) unsigned NOT NULL,
  PRIMARY KEY (`id`),
  KEY `consumer_id` (`consumer_id`),
  KEY `property_id` (`property_id`),
  KEY `status_id` (`status_id`),
  CONSTRAINT `bookings_ibfk_1` FOREIGN KEY (`consumer_id`) REFERENCES `users` (`id`),
  CONSTRAINT `bookings_ibfk_2` FOREIGN KEY (`property_id`) REFERENCES `rental_properties` (`id`),
  CONSTRAINT `bookings_ibfk_3` FOREIGN KEY (`status_id`) REFERENCES `booking_status_types` (`id`)
)

CREATE TABLE `city_districts` (
  `id` int(11) unsigned NOT NULL AUTO_INCREMENT,
  `district_name` varchar(255) NOT NULL DEFAULT '',
  `points_of_interest` text NOT NULL,
  PRIMARY KEY (`id`)
)

CREATE TABLE `degree_types` (
  `id` int(11) unsigned NOT NULL AUTO_INCREMENT,
  `degree_type_name` varchar(50) NOT NULL DEFAULT '',
  PRIMARY KEY (`id`)
)

CREATE TABLE `faculties` (
  `id` int(11) unsigned NOT NULL AUTO_INCREMENT,
  `faculty_name` varchar(50) NOT NULL DEFAULT '',
  PRIMARY KEY (`id`)
)

CREATE TABLE `rental_properties` (
  `id` int(11) unsigned NOT NULL AUTO_INCREMENT,
  `name` varchar(255) NOT NULL,
  `supplier_id` int(11) unsigned NOT NULL,
  `address` varchar(255) NOT NULL,
  `district_id` int(11) unsigned NOT NULL,
  `property_type_id` int(2) unsigned NOT NULL,
  `num_guests` int(10) unsigned NOT NULL DEFAULT '0',
  `num_rooms` int(10) unsigned NOT NULL DEFAULT '0',
  `num_bathrooms` int(10) unsigned NOT NULL,
  `price` int(5) NOT NULL,
  `description` text NOT NULL,
  `has_air_conditioning` tinyint(11) NOT NULL DEFAULT '0',
  `has_cable_tv` tinyint(11) NOT NULL DEFAULT '0',
  `has_laundry_machines` tinyint(11) NOT NULL DEFAULT '0',
  `has_parking` tinyint(11) NOT NULL DEFAULT '0',
  `has_gym` tinyint(11) NOT NULL DEFAULT '0',
  `has_internet` tinyint(11) NOT NULL DEFAULT '0',
  `pets_allowed` tinyint(11) NOT NULL DEFAULT '0',
  `has_wheelchair_access` tinyint(11) NOT NULL DEFAULT '0',
  `has_pool` tinyint(11) NOT NULL DEFAULT '0',
  `has_transport_access` tinyint(11) NOT NULL DEFAULT '0',
  `has_private_bathroom` tinyint(11) NOT NULL DEFAULT '0',
  PRIMARY KEY (`id`),
  KEY `district_id` (`district_id`),
  KEY `supplier_id` (`supplier_id`),
  KEY `property_type_id` (`property_type_id`),
  CONSTRAINT `rental_properties_ibfk_1` FOREIGN KEY (`district_id`) REFERENCES `city_districts` (`id`),
  CONSTRAINT `rental_properties_ibfk_2` FOREIGN KEY (`supplier_id`) REFERENCES `users` (`id`),
  CONSTRAINT `rental_properties_ibfk_3` FOREIGN KEY (`property_type_id`) REFERENCES
`rental_property_types` (`id`)
)

CREATE TABLE `rental_property_types` (
  `id` int(11) unsigned NOT NULL AUTO_INCREMENT,
  `property_type_name` varchar(50) NOT NULL DEFAULT '',
  PRIMARY KEY (`id`)
)

CREATE TABLE `reviews` (
  `consumer_id` int(11) unsigned NOT NULL,
  `property_id` int(11) unsigned NOT NULL,
  `rating` int(1) unsigned NOT NULL,
  `comment` text NOT NULL,
  `reply` text NOT NULL,
  PRIMARY KEY (`consumer_id`,`property_id`),
  KEY `property_id` (`property_id`),
  CONSTRAINT `reviews_ibfk_1` FOREIGN KEY (`consumer_id`) REFERENCES `users` (`id`),
  CONSTRAINT `reviews_ibfk_2` FOREIGN KEY (`property_id`) REFERENCES `rental_properties` (`id`)
)
```

```
CREATE TABLE `users` (
  `id` int(11) unsigned NOT NULL AUTO_INCREMENT,
  `is_admin` tinyint(1) NOT NULL DEFAULT '0',
  `first_name` varchar(50) NOT NULL,
  `last_name` varchar(50) NOT NULL,
  `email` varchar(100) NOT NULL,
  `password` varchar(255) NOT NULL,
  `phone_number` varchar(30) NOT NULL,
  `grad_year` int(4) NOT NULL,
  `faculty_id` int(2) unsigned NOT NULL,
  `degree_type_id` int(2) unsigned NOT NULL,
  `gender` varchar(255) NOT NULL,
  PRIMARY KEY (`id`),
  KEY `faculty_id` (`faculty_id`),
  KEY `degree_type_id` (`degree_type_id`),
  CONSTRAINT `users_ibfk_1` FOREIGN KEY (`faculty_id`) REFERENCES `faculties` (`id`),
  CONSTRAINT `users_ibfk_2` FOREIGN KEY (`degree_type_id`) REFERENCES `degree_types` (`id`)
)
```


logged in?
yes
load corresponding page (**#3–#11**)
no
1. Welcome/Login
click "Register"
2. Registration
return home (click logo in header)
no
1.1 submit form
click "Logout"
2.1 submit form
no
success?
yes
3. Main Page
yes
success?
3.1 as consumer, cancel a pending/confirmed booking
3.2 as supplier, accept a pending booking
3.3 as a supplier, reject a pending booking
3.4 as a supplier, cancel a confirmed booking
click "My Properties"
click "Search"
click "Settings"
if administrator, click "Admin"
redirect to **#1**
10.2 click "Cancel Membership"
6. My Properties
4. Search
4.1 submit search
10. Settings
11. Administrator
click "Add"
10.1 submit profile form
11.1 delete a member
success?
yes
click a listing
5. Property Details
5.5 as an admin, delete a property
no
success?
yes
7.1 submit form
no
click "Edit"
click "Edit"
click a listing
redirect
5.1 submit a review
5.2 submit a reply
5.3 delete a review
5.4 delete a reply
5.5 request a booking
5.6 as admin, delete a review
5.7 as admin, delete a reply
8.1 submit form
click "Delete"
click "Delete"
7. Add Property
8. Edit Property
click "Delete"
9. Delete Property