# FitzWay Checkout

## Database Design

### DB Tables

The table structure was designed to enable more than one type of checklist (in case the company decides that they like the functionality and want to implement other checklists). With that in mind I created tables that define the structure of the checklist and ones that contain the actual data.

#### Checklist Definition Tables

* Checklist – table for checklist definition. It contains columns that define the checklist and it’s base metadata (its label, whether it’s searchable and required for saving).
* ChecklistSection – individual items can be broken up into sections. This is the table where the section definitions are kept. There should be at least one section for each checklist type.
* ChecklistItem – the individual checklist items to be filled in or checked off. The item definition allows for items to have multiple combinations of checkboxes, textboxes and dropdown lists. They can also have a preceding checkbox.

#### Checklist Data Tables

* ChecklistRecord – contains the metadata information for each checklist created by a user.
* ChecklistItemRecord – contains the item values of each checklist record. When a new checklist is created a record is created for every item in ChecklistItem.

#### History Tables

* ChecklistRecordHistory – maintains the history of every change to a ChecklistRecord.
* ChecklistItemRecordHistory – maintains a history of every change to a record in ChecklistItemRecord. I believe that anytime a checklist is saved a new record for all items is created in the history table. You might want to change this so that only ones whose values are changed are saved to save space (or even turn this off if it isn’t necessary).

#### Other Tables

* AccessList – Permissions table for users. The Permissions column is a comma delimited list of Locations\_Lkup.PermissionCode(s). User Role defines whether a user has admin, supervisor or technician rights. The values are:
  + 1 – Admin
  + 2 – Supervisor
  + 3 – Technician
* AccessListHistory – keeps track of changes to the AccessList records.
* ChecklistStatus – a lookup table for the different status types.
* Locations\_Lkup – lookup table for the location definitions used in FitzWay Checkout.
  + FullName is the display name for the dealership
  + PermissionCode is a code I created for this application: it’s just the ID followed by the initials from FullName minus Fitzgerald.
  + LocCode and Mall are used to derive Locations\_Lkup.FullName from the Junk.CSV\_VehiclesUSED table
  + State is just there in case it’s convenient in the future

## Code Design

* As I said, originally, I had the idea that the code would allow for multiple checklist definitions (and I think it could still be refactored to accommodate that), but the more that we added Checkout specific functionality, the more difficult it became to keep the code generic to all checklists.
* As I said, I think the code could still be refactored to enable multiple checklist definitions (mainly through the use of the Factory Pattern and a bit of restructuring to class names and which folder they’re located in).
* Controllers: there are three main controllers: Inspections, Supervisor and Admin. Each controller corresponds with one of the three user roles (technician, supervisor, admin). Users with the Admin user role have access to the supervisor and admin controllers.
* Access Control: I wasn’t able to see how access was controlled in the existing code base, so I created added a method in each controller to verify the user’s role. Each method that is accessible from the website checks to see if the user is authorized. If they aren’t, the method returns a forbidden status code.