

# Pass Task 2.2 Entity Persistence and ORM

## Task 4. Design justification:

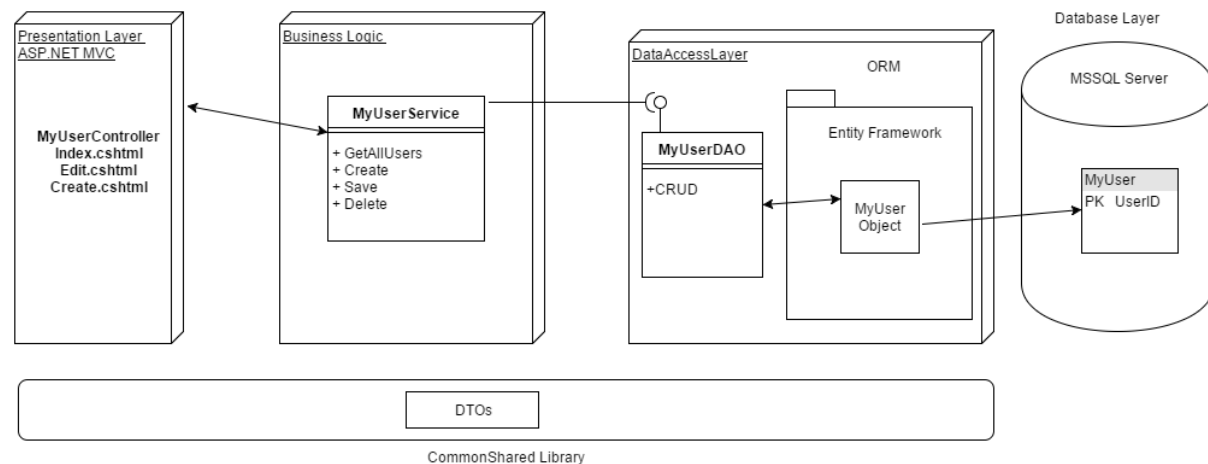


Figure 1. Architecture diagram.

**Database Layer:** This is a MSSQL Server database, effectively SQL Express server which contain the data table MyUser.

**Data Access Layer:** This layer handles all the works related to accessing data. It contains an ORM (effectively Entity Framework) as a mapping between MyUser object and the MyUser table inside the database. It also contains MyUserDao, a data access object which provide the CRUD methods. This DAO exposes an interface to public named: IMyUserDAO. By using the interface to implement the DAO, it will be very easy to change to different implementation of the DAO. For example, when the database table grow very large and the Entity Framework shows inefficient in accessing data <sup>(1)</sup>, we can easily switch the implementation of a DAO into a more effective ORM such as Dapper or even using basic ADO.NET.

**Business Logic Layer:** This layer contains 1 or more service classes which maintain business logics and provide business data to the upper level in the format of data transfer object (DTO). This layer will handle tasks related to the business rules such as: business rule data validation, data processing and manipulating, data mapping from entity object into DTO and vice-versa. This layer use the DAO interface provided by the Data Access Layer to communicate with the persistence storage.

**Presentation Layer:** This layer is also called application layer. It handles all interactions with the users as well as responsible for presenting the data. It can be a console app, mobile app, desktop program or web pages. In my implementation, this is a web application done by using the ASP.NET MVC framework. MyUserController is a Controller of the MVC framework which handles user interaction, load the business data from the service layer and pass it on to the Razor view engine. This engine use the .cshtml files to do the render of html pages. In this case, we have 3 pages: Index.cshtml for user data listing, Create.cshtml for creating new user, and edit.cshtml for editing user information.

**Common Shared Library:** This is a shared library between all layers in this architecture which contains DTO, helper classes, logging tools that can be used by all layers. Data mapping could be considered to put into this layer. However, this library doesn't have any knowledge about Entity Object, the mapping of Entity Object to DTO cannot be put here and have to put into Business Logic Layer.

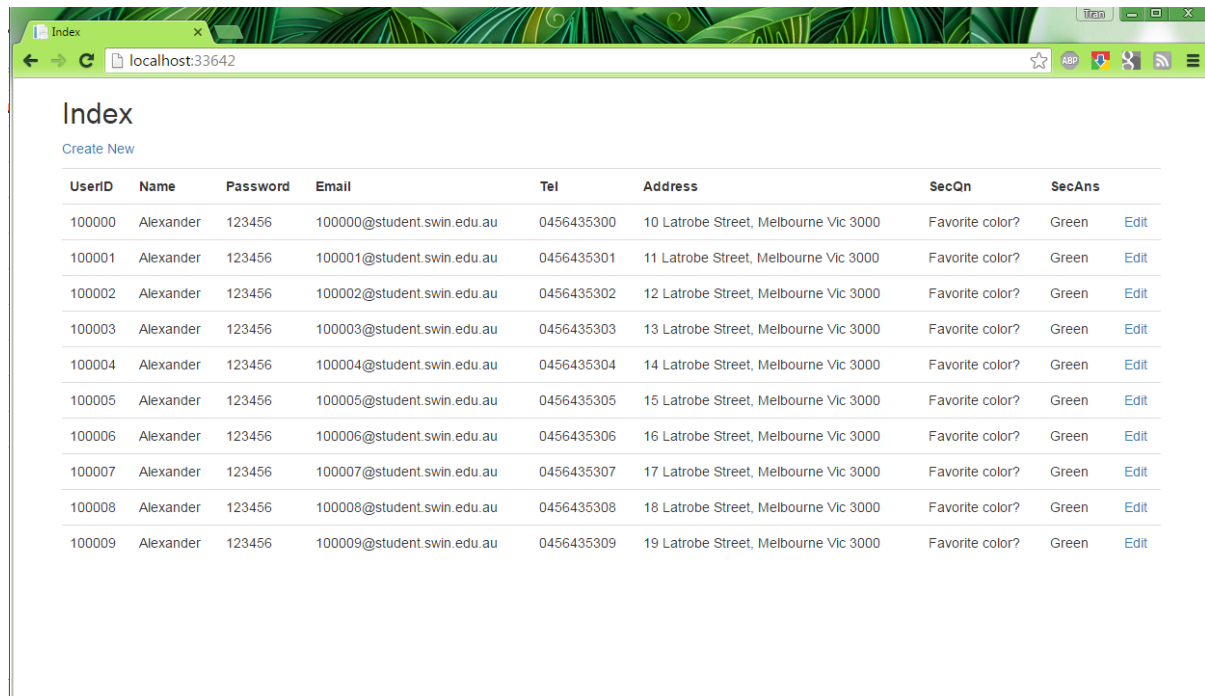
### Task 3. Test cases:

The following test cases have been taken out to make sure that the whole application works as expected:

ID	Test Case Name	Step	Expected Output	Result
01	Get all users	View the page /User	A list of 10 users is displayed on the screen	Pass
02	Get one user	Click to the Edit link of one user in the list	Display the detailed information of that user in a form	Pass
03	Create an user	- Click to the Create New link. - Enter new user information - Click Create	The new user is added to the list. The list is now showing 11 users	Pass
04	Update existing user	- Click to the Edit link of one user in the list - Change one or more detail of the user using the form - Click Save	The updated information of that user should be displayed on the list	Pass
05	Delete existing user	- Click to the Edit link of one user in the list - Click Delete	The user is removed from the list	Pass

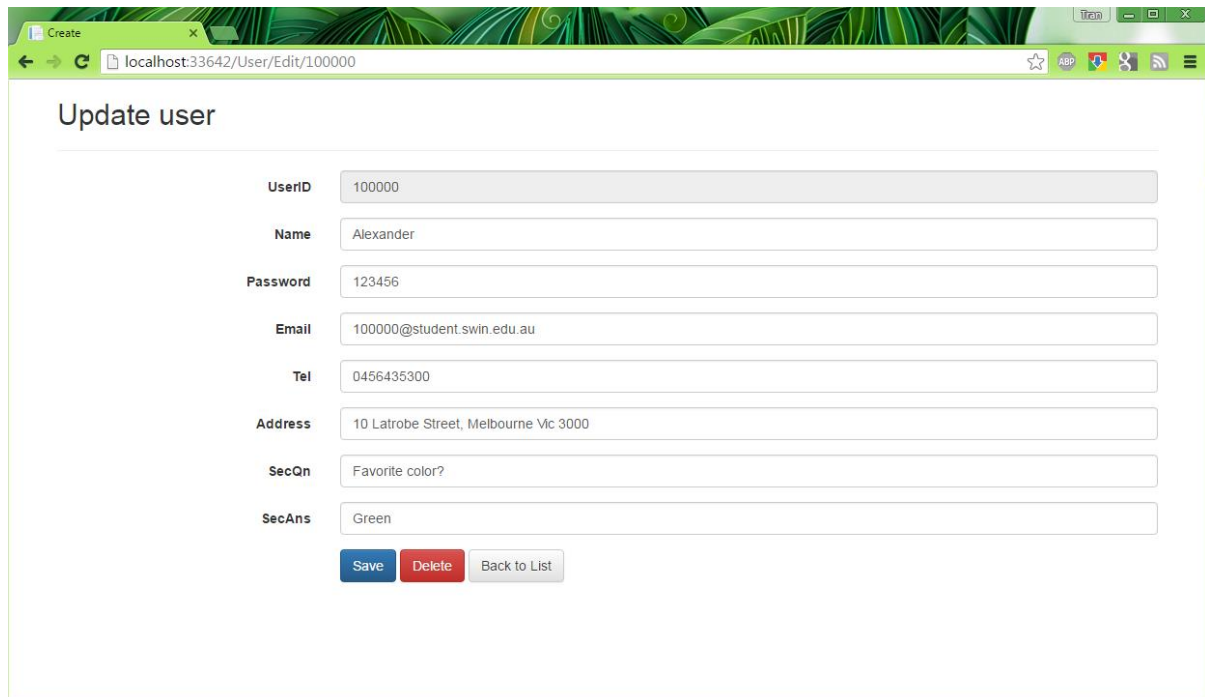
Table 1. Test cases and test results

Test case screen shots and success screen shots:



UserID	Name	Password	Email	Tel	Address	SecQn	SecAns	
100000	Alexander	123456	100000@student.swin.edu.au	0456435300	10 Latrobe Street, Melbourne Vic 3000	Favorite color?	Green	<a href="#">Edit</a>
100001	Alexander	123456	100001@student.swin.edu.au	0456435301	11 Latrobe Street, Melbourne Vic 3000	Favorite color?	Green	<a href="#">Edit</a>
100002	Alexander	123456	100002@student.swin.edu.au	0456435302	12 Latrobe Street, Melbourne Vic 3000	Favorite color?	Green	<a href="#">Edit</a>
100003	Alexander	123456	100003@student.swin.edu.au	0456435303	13 Latrobe Street, Melbourne Vic 3000	Favorite color?	Green	<a href="#">Edit</a>
100004	Alexander	123456	100004@student.swin.edu.au	0456435304	14 Latrobe Street, Melbourne Vic 3000	Favorite color?	Green	<a href="#">Edit</a>
100005	Alexander	123456	100005@student.swin.edu.au	0456435305	15 Latrobe Street, Melbourne Vic 3000	Favorite color?	Green	<a href="#">Edit</a>
100006	Alexander	123456	100006@student.swin.edu.au	0456435306	16 Latrobe Street, Melbourne Vic 3000	Favorite color?	Green	<a href="#">Edit</a>
100007	Alexander	123456	100007@student.swin.edu.au	0456435307	17 Latrobe Street, Melbourne Vic 3000	Favorite color?	Green	<a href="#">Edit</a>
100008	Alexander	123456	100008@student.swin.edu.au	0456435308	18 Latrobe Street, Melbourne Vic 3000	Favorite color?	Green	<a href="#">Edit</a>
100009	Alexander	123456	100009@student.swin.edu.au	0456435309	19 Latrobe Street, Melbourne Vic 3000	Favorite color?	Green	<a href="#">Edit</a>

## Test ID 01 - Show all users



Update user

UserID: 100000

Name: Alexander

Password: 123456

Email: 100000@student.swin.edu.au

Tel: 0456435300

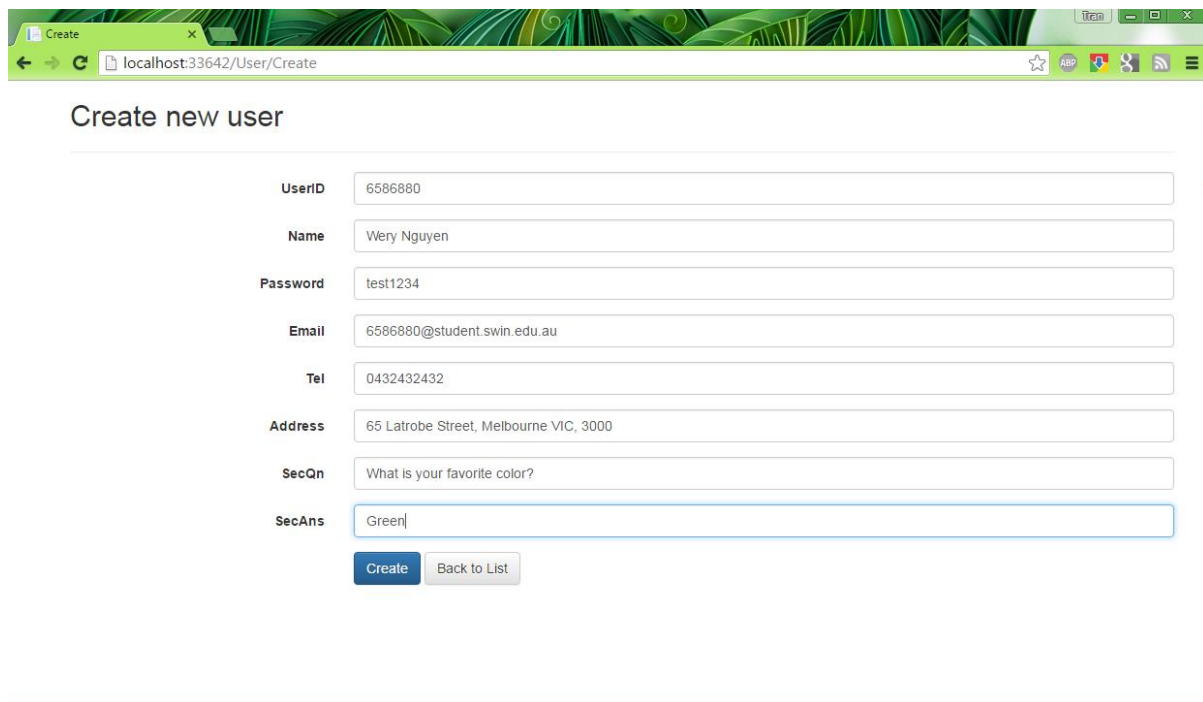
Address: 10 Latrobe Street, Melbourne Vic 3000

SecQn: Favorite color?

SecAns: Green

[Save](#) [Delete](#) [Back to List](#)

## Test ID 02 - Show one user



Create new user

UserID: 6586880

Name: Wery Nguyen

Password: test1234

Email: 6586880@student.swin.edu.au

Tel: 0432432432

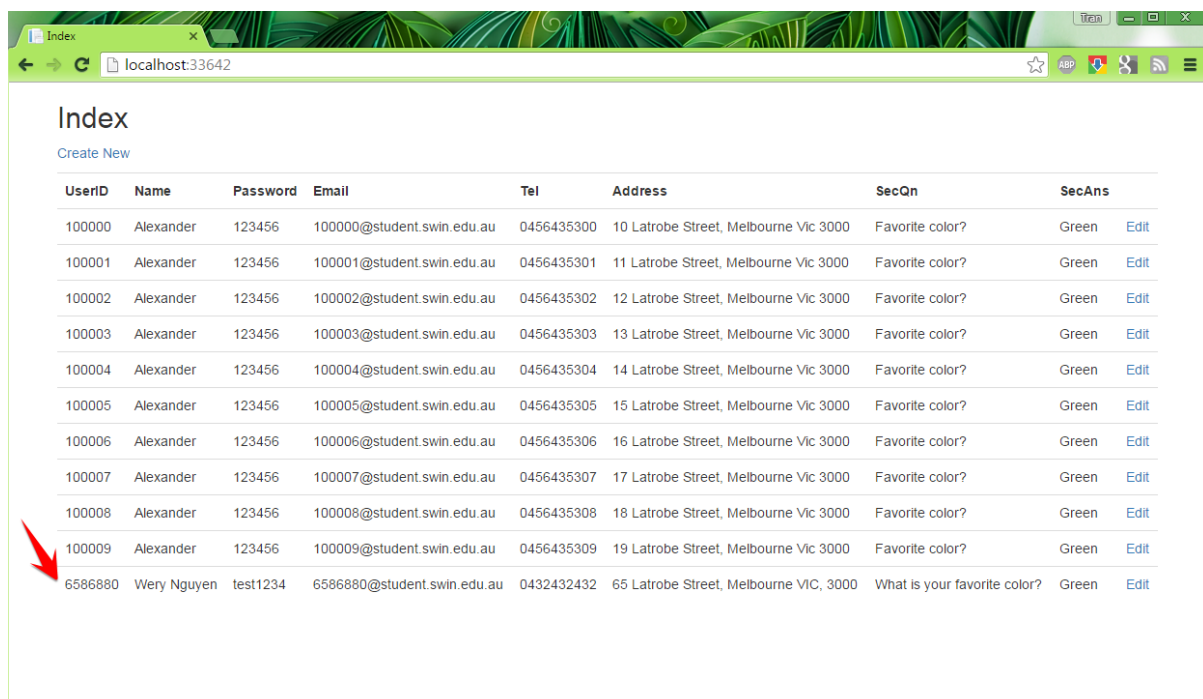
Address: 65 Latrobe Street, Melbourne VIC, 3000

SecQn: What is your favorite color?

SecAns: Green

Create Back to List

Test ID 03 – Create new user screen.

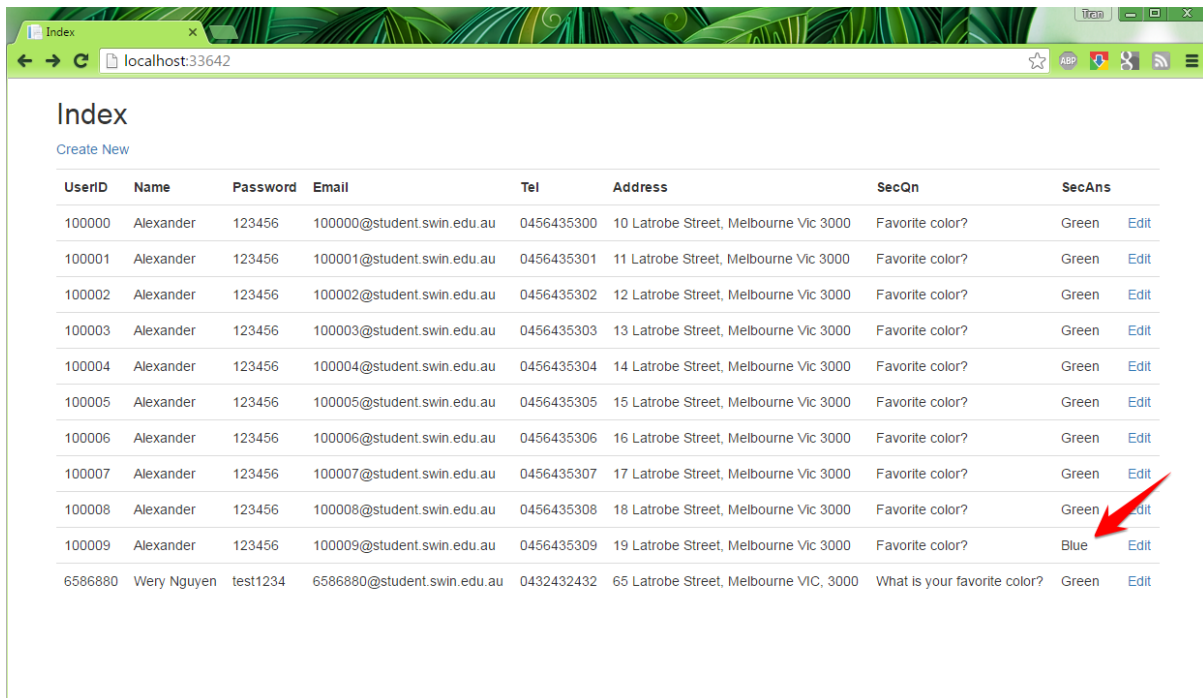


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Create New

UserID	Name	Password	Email	Tel	Address	SecQn	SecAns
100000	Alexander	123456	100000@student.swin.edu.au	0456435300	10 Latrobe Street, Melbourne Vic 3000	Favorite color?	Green Edit
100001	Alexander	123456	100001@student.swin.edu.au	0456435301	11 Latrobe Street, Melbourne Vic 3000	Favorite color?	Green Edit
100002	Alexander	123456	100002@student.swin.edu.au	0456435302	12 Latrobe Street, Melbourne Vic 3000	Favorite color?	Green Edit
100003	Alexander	123456	100003@student.swin.edu.au	0456435303	13 Latrobe Street, Melbourne Vic 3000	Favorite color?	Green Edit
100004	Alexander	123456	100004@student.swin.edu.au	0456435304	14 Latrobe Street, Melbourne Vic 3000	Favorite color?	Green Edit
100005	Alexander	123456	100005@student.swin.edu.au	0456435305	15 Latrobe Street, Melbourne Vic 3000	Favorite color?	Green Edit
100006	Alexander	123456	100006@student.swin.edu.au	0456435306	16 Latrobe Street, Melbourne Vic 3000	Favorite color?	Green Edit
100007	Alexander	123456	100007@student.swin.edu.au	0456435307	17 Latrobe Street, Melbourne Vic 3000	Favorite color?	Green Edit
100008	Alexander	123456	100008@student.swin.edu.au	0456435308	18 Latrobe Street, Melbourne Vic 3000	Favorite color?	Green Edit
100009	Alexander	123456	100009@student.swin.edu.au	0456435309	19 Latrobe Street, Melbourne Vic 3000	Favorite color?	Green Edit
6586880	Wery Nguyen	test1234	6586880@student.swin.edu.au	0432432432	65 Latrobe Street, Melbourne VIC, 3000	What is your favorite color?	Green Edit

Test ID 03 - Create one user success

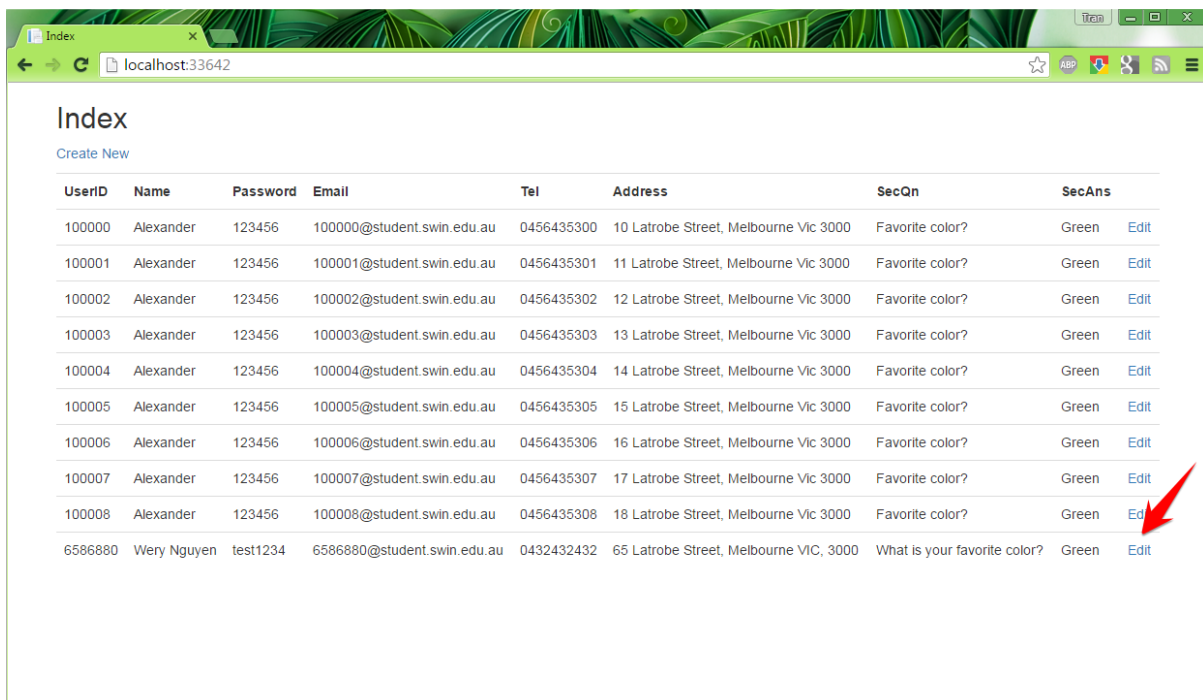


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[Create New](#)

UserID	Name	Password	Email	Tel	Address	SecQn	SecAns	
100000	Alexander	123456	100000@student.swin.edu.au	0456435300	10 Latrobe Street, Melbourne Vic 3000	Favorite color?	Green	<a href="#">Edit</a>
100001	Alexander	123456	100001@student.swin.edu.au	0456435301	11 Latrobe Street, Melbourne Vic 3000	Favorite color?	Green	<a href="#">Edit</a>
100002	Alexander	123456	100002@student.swin.edu.au	0456435302	12 Latrobe Street, Melbourne Vic 3000	Favorite color?	Green	<a href="#">Edit</a>
100003	Alexander	123456	100003@student.swin.edu.au	0456435303	13 Latrobe Street, Melbourne Vic 3000	Favorite color?	Green	<a href="#">Edit</a>
100004	Alexander	123456	100004@student.swin.edu.au	0456435304	14 Latrobe Street, Melbourne Vic 3000	Favorite color?	Green	<a href="#">Edit</a>
100005	Alexander	123456	100005@student.swin.edu.au	0456435305	15 Latrobe Street, Melbourne Vic 3000	Favorite color?	Green	<a href="#">Edit</a>
100006	Alexander	123456	100006@student.swin.edu.au	0456435306	16 Latrobe Street, Melbourne Vic 3000	Favorite color?	Green	<a href="#">Edit</a>
100007	Alexander	123456	100007@student.swin.edu.au	0456435307	17 Latrobe Street, Melbourne Vic 3000	Favorite color?	Green	<a href="#">Edit</a>
100008	Alexander	123456	100008@student.swin.edu.au	0456435308	18 Latrobe Street, Melbourne Vic 3000	Favorite color?	Green	<a href="#">Edit</a>
100009	Alexander	123456	100009@student.swin.edu.au	0456435309	19 Latrobe Street, Melbourne Vic 3000	Favorite color?	Blue	<a href="#">Edit</a>
6586880	Wery Nguyen	test1234	6586880@student.swin.edu.au	0432432432	65 Latrobe Street, Melbourne VIC, 3000	What is your favorite color?	Green	<a href="#">Edit</a>

## Test 04 - Edit one user detail success



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[Create New](#)

UserID	Name	Password	Email	Tel	Address	SecQn	SecAns	
100000	Alexander	123456	100000@student.swin.edu.au	0456435300	10 Latrobe Street, Melbourne Vic 3000	Favorite color?	Green	<a href="#">Edit</a>
100001	Alexander	123456	100001@student.swin.edu.au	0456435301	11 Latrobe Street, Melbourne Vic 3000	Favorite color?	Green	<a href="#">Edit</a>
100002	Alexander	123456	100002@student.swin.edu.au	0456435302	12 Latrobe Street, Melbourne Vic 3000	Favorite color?	Green	<a href="#">Edit</a>
100003	Alexander	123456	100003@student.swin.edu.au	0456435303	13 Latrobe Street, Melbourne Vic 3000	Favorite color?	Green	<a href="#">Edit</a>
100004	Alexander	123456	100004@student.swin.edu.au	0456435304	14 Latrobe Street, Melbourne Vic 3000	Favorite color?	Green	<a href="#">Edit</a>
100005	Alexander	123456	100005@student.swin.edu.au	0456435305	15 Latrobe Street, Melbourne Vic 3000	Favorite color?	Green	<a href="#">Edit</a>
100006	Alexander	123456	100006@student.swin.edu.au	0456435306	16 Latrobe Street, Melbourne Vic 3000	Favorite color?	Green	<a href="#">Edit</a>
100007	Alexander	123456	100007@student.swin.edu.au	0456435307	17 Latrobe Street, Melbourne Vic 3000	Favorite color?	Green	<a href="#">Edit</a>
100008	Alexander	123456	100008@student.swin.edu.au	0456435308	18 Latrobe Street, Melbourne Vic 3000	Favorite color?	Green	<a href="#">Edit</a>
6586880	Wery Nguyen	test1234	6586880@student.swin.edu.au	0432432432	65 Latrobe Street, Melbourne VIC, 3000	What is your favorite color?	Green	<a href="#">Edit</a>

## Test 05 - Delete one user success

## References:

- (1) ORM performance comparison: <https://github.com/StackExchange/dapper-dot-net>