# Tiny URL Solution

## Solution Description

Brief:

The Project is web site for shortening the long entered by user. When generated shortened URL is enter in browser it will redirect to long URL which is mapped to that tiny URL.

## Technology Stacks

* SQL Server
* ASP.NET MVC
* Twitter Bootstrap, HTML 5, CSS3
* Web API
* Dependency Injection
* Entity Framework

## Solution Architecture

URLMapping

TinyURL.DataStore

TinyURL.Api

Request Carrier

Input Long URL

Web Client

TinyURL

Request Carrier

Get LongURL

URLMapping

TinyURL.DataStore

Response Carrier

TinyURL.Api

Input Tiny URL

Web Client

Redirection to long URL

## Application Configuration and Details

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| Project Details |  |
| TinyURL | Database for Storing URL Mapping and Log Messages for exception raised in application. |
| TinyURL.DataStore | Project Entity Framework, interface to communicate with **TinyURL** database |
| TinyURL.API | Web API Project which act as REST based web service exposing services to manage URL mappings, generating shortened URL, and Managing Log Exceptions |
| Web | Web client in MVC provides interface to Users for shortening the long URL |
| Tiny.URL.API.Test | Test Project for testing services from Web API **TinyURL.API** |

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| Project Configuration Set UP | |
| TinyURLDBScripts | Run DB Scripts on SQL to Create the database and tables. |
| TinyURL.API | WebConfig file for the project set the connection string for **TinyURL** database |
| Web | * Set Connection string in WebConfig for **TinyURL** for logging into Database * Set WebApiDomain value as Web Api hosted URL in webconfig file. * Set webApiURL value in tinyUrlService.js(Web/Scripts) for Web Api hosted URL |

## Solution Approach

As per requirement to include Technology stacks like MVC, Web Api, Entity framework solution has different projects and solution implementations.

### Database TinyURL

This contain table tbl\_URLMapping with information of long URL and mapped shortened URL and tbl\_LogMessage contain information for exception, URL where exception is generated.

### TinyURL.DataStore

Entity framework project which interacts with the Database. Contain Service Interface ITinyURLRepository and ILogger, which exposes methods to manage Tiny URL mappings and Logging Exception Messages. The implementation of this method TinyURLRepository contains managing URL mapping into TinyURL Database using Entity Framework. And Logger contains implementation of managing the Logging exception to TinyURL database using Entity Framework.

## TinyURL.Api

Rest based MVC Web API service which exposes services for

1. Generating TinyURL
2. Updating Mapped Tiny URL into Database
3. Getting RedirectURL from Tiny URL

The Project uses Dependency Injection for injecting the implementation instance of ITinyURLGenerator and ITinyURLRepository in controller. When Webapi create the first instance for controller it calls IDependencyResolver’s GetService method resolving the implementation instance that are passed to Controller Constructor.

RequestCarrier and ResponseCarrier contain payload Object are passed with HTTP request and response that is return by web API Controller action method.

Utility contain interface ITinyURLGenerator as service and TinyURLGenerator as implementation of this service interface.

I have used TinyURLGenerator implementation from Google, which create random URL from converting random character as base 32 bit.

### Web

1. Web Client for TinyURL provide interface for user to input long URL and request for tiny URL.
2. Also when tinyURL entered on URL browser it will redirect to long mapped URL.

Web Client Contain Home Controller which redirect to Index page where user can input long URL, Using Jquery Ajax Post request to web api for fetching tinyURL.

Script folder contain

* Ajaxservice.js which implement the functionality for get and post request.
* tinyUrlService.js contain method to post service for tinyURL web request.

Apart from URL contain GlobalExceptionHandlerAttribute for catching and logging global level exception and it will call Logger implementation from TinyURL.DataStore to log exception details in database.