API Technical Details

The api rest is composed by the layers Controllers, Managers and Services. All the layers knows the models and the models are used like data transfer objects between layers and additionally they provide the structure to json objects responses.

The Services layer is used to connect the API with the data base or external services. In this project, I used two services. The first one, the UserService, connect the top layer (Managers) with the database and the second service, ExternalUserDataServices, connect the application with external services to fill the database with users information.

The manager layer contain all the business logic; in this case, I used it to put the sort algorithm and to connect the Controllers with the Services database layer.

The controller layer is the top layer used to receive the requirements and provide the response.

In the startup application, I use the singleton patters to create managers, services and db context.

Quick Sort algorithm

My first idea was use a bubble sort, but when get more information I found it haven’t a good performance. Therefore, I started to surfing on the internet to find a better option. After read about some sort order algorithms, I tried with the quicksort algorithm. I found some C# implementations and I choose the best one to adapt it to my algorithm. The original code was for sort integers 32 bit numbers and I changed it to use objects and order by Unix time in integer 64 bits.

A used about 6Hs. to develop this requirement.