# Introduction to ORM

* Stands for Object Relational Mapper
* They are used to translate data from a table structure in SQL into something C# language can understand.
  + C# understands objects well.
  + SQL understands tables well.
  + So ORM can either translate tables into objects or objects into tables.
* The ORM that we will use is Entity Framework Core

# Introduction to Entity Framework Core

* One of the popular ORM for .Net 5.0
* It allows us to work with a database by using C# objects and almost completely remove the need for most of the data-access code you will usually have to write.
  + A framework makes life easier for developers and that is why EF is a framework.
* The purpose we created that RRModel that is a class library in our project so that we can use those models to create tables for us in the database or vice versa.

## Two approaches to EF

* Database first approach
  + This is when you create a database first and then translate the table data structure into object data structure for C#.
* Code first approach
  + This is what we were doing last week essentially.

## Some artifacts you’ll be working with

* DBContext
  + A class in EF core that represents a session with the database and can be used to query and save instances of your entities.
* Connection String
  + Will be used to connect to our database (in our case the azure database)
  + Basically, a long string that has information about our database and how to connect to it.
* Migration
  + They are a snapshot of the database schema/architecture given the current state of your models.
* Entities
  + It is a class in EF core that maps to a database table.
* Relationships
  + They are the same as multiplicity in SQL.
  + They basically tell the relationship between entities/models.

## Eager and Lazy Loading

* Eager Loading
  + The process of querying one type of entity will also load related entities as part of the query.
  + You must use the .Include() method to achieve eager loading.
* Lazy Loading
  + The opposite of Eager loading and it is delaying the loading of related data until it is needed.
  + By default, EF core will implicitly lazy load your queries.

# Introduction to LINQ

* Stands for Language-Integrated Query.
* It is used in C# to essentially retrieve data form different sources and formats.
* The main use of LINQ is to make a consistent language to query data.
* So developers made LINQ to have a universal language to query data from different data sources that might use different language to query data.

## 3 main parts of query operation

* Data source
  + What data that you will perform your query on.
* Query
  + The set of instructions you give to what specific data you want from the data source.
* Execution
  + Executing the query and obtaining the result.

## There are two ways to query using LINQ

* Query syntax
  + Probably the closest thing to SQL
* Method syntax
  + Uses pre-existing methods in LINQ to do query operations.
  + More into the C# side.