**Checkout.com .NET Challenge**

**Building a Payment Gateway**

**Solution by Gurdeep Singh**

* **Introduction**
* **Assumptions**
* **Design & Architecture**
  + [**https://mockoon.com/#download**](https://mockoon.com/#download)
  + **Diagrams**
* **Project Structure**
* **Database**
* **Documentation**
* **Application logging** 
  + **Azure App Insights (Sample attached here)**
* **Application metrics**
  + **Azure App Insights**
* **Containerization** 
  + **??**
* **Authentication** 
  + **Basic authentication suing API Secret**
* **API client** 
  + **Postman scripts**
* **Build script / CI** 
  + **??**
* **Performance testing** 
  + **Unit Testing covers this**
* **Encryption** 
  + Two possible ways to encrypt the data in this solution
  + Azure column encryption
  + Encryption via Code
* **Data storage**
  + Used ID (Int) as primary keys as when we have GUID type column as primary key then the clustered Index of type GUID is costly and is memory heavy. More details here in the post.

<https://stackoverflow.com/questions/11938044/what-are-the-best-practices-for-using-a-guid-as-a-primary-key-specifically-rega/11938495>

* **Further development**

1. JSON Web Token(JWT)
2. Caching
3. Load balancing
4. Segragate the Security Server