**5. Normalization**

* The following tabular design is 3NF.
* Color Codes for the diagrams:
  + Primary Key: Green
  + Foreign Key: Blue
  + Other Field: White

**5.1. Normalization Results**

**3NF Normalization Results**

**Table:** *Customers*

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Customer# | LastName | FirstName | Email | Address | City | Province | PostalCode |

**Table:** *Transactions*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Transaction# | Customer# | TransactionDate | DeliveryCost | DeliveryDate |

**Table:** *TransactionItems*

|  |  |  |  |
| --- | --- | --- | --- |
| Transaction# | Item# | Product# | Quantity |

**Table:** *Products*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Product# | Name | Cost | Retail | InstrumentType | ManufacturingDate |

**Table:** *Manufacturers*

|  |  |  |
| --- | --- | --- |
| ManufacturerId | Name | Phone# |

**Table:** *Employees*

|  |  |  |  |
| --- | --- | --- | --- |
| EmployeeId | LastName | FirstName | Phone# |

**5.2. Tables Relationships**

|  |  |  |  |
| --- | --- | --- | --- |
| Table Name | Relationship | Cardinality | Table Name |
| Customers | issue | 1:M | Transactions |
| Transactions | holds | 1:M | TransactionItems |
| TransactionItems | has | M:1 | Products |
| Manufacturers | produces | 1:M | Products |
| Employees | deals with | 1:M | Customers |

**5.3. Choice of Database Management System**

- Oracle’s DBMS is the choice for the development of MuzarMusic’s database. Oracle DBMS is a robust and proven system that provides all the necessary tools, security, and integrity to manage MuzarMusic’s needs.

- A developed physical database for MuzarMusic has been made using the software SQL Developer. The file ***“Project\_MuzarMusic\_Phase4\_TableCreation.sql”*** performs all the queries for table creations and constraint implementations.