### Business Rules

* 1. An invoice must only have one customer
  2. A customer can have multiple invoices
  3. A customer can refer multiple customers
  4. A customer can only be referred by one customer
  5. A purchase order must have one supplier
  6. A supplier can have many purchase orders
  7. A purchase order must have many supply’s
  8. A supply can have many purchase orders
  9. A supply must have one preferred supplier
  10. A supplier can be the preferred supplier for many supply’s
  11. An invoice must have one or more products
  12. All ID’s 0 to 99 are reserved, automatically generated ID’s cannot use these numbers
  13. Any entity with a single attribute primary key can have many notes
  14. A note must have an associate entity
  15. A customer or supplier must have at least one address
  16. An address must have at least one customer or supplier
  17. A PO Must have an associated address
  18. A supply must have at least one supplier
  19. A supplier can have multiple supplies

### Entities and Attributes

* 1. Primary Key
  2. Foreign Key
  3. Entities

#### Customer

* + - 1. Customer\_ID
         1. 0 to 2^32 integer
      2. Customer\_LName
         1. 0 to 31 characters
      3. Customer\_FName
         1. 0 to 31 characters
      4. Customer\_Initial
         1. 0 to 1 characters
      5. Customer\_Phone
         1. 16 characters (numbers only)
      6. Customer\_BDay
         1. 01/01/1900 to 31/12/9999
      7. Customer\_Status
         1. 0 to 255 integers
      8. Customer\_Email
         1. 1 to 64 characters

#### Supplier

* + - 1. Supplier\_ID
         1. 0 to 2^32 integer
      2. Supplier\_Company\_Name
         1. 0 to 31 characters
      3. Supplier\_Contact\_LName
         1. 0 to 31 characters
      4. Supplier\_Contact\_FName
         1. 0 to 31 characters
      5. Supplier\_Contact\_Initial
         1. 0 to 1 characters
      6. Supplier\_Phone
         1. 16 characters (numbers only)
      7. Supplier\_Email
         1. 1 to 64 characters

#### Purchase Order

* + - 1. Supplier\_ID
      2. PO\_ID
         1. 0 to 2^32 integer
      3. PO\_Date
         1. 01/01/1900 to 31/12/9999
      4. PO\_Attn\_LName
         1. 0 to 31 characters
      5. PO\_Attn\_FName
         1. 0 to 31 characters
      6. PO\_Attn\_Initial
         1. 0 to 1 characters
      7. PO\_Total\_Cost
         1. $0 to $999,999.00
      8. Customer\_Address\_ID (All PO’s are for customer 0, which is us)
         1. 0 to 255 integer
      9. PO\_Status
         1. 0 to 255 integer

#### Item Purchased

* + - 1. PO\_ID
      2. Supply\_ID
      3. Purchase\_Quantity
         1. 1 to 65536 integer
      4. Purchase\_Cost
         1. $0 to $999,999.00

#### Invoice

* + - 1. Customer\_ID
      2. Invoice\_ID
         1. 0 to 2^32 integer
      3. Invoice\_Date
         1. 01/01/1900 to 31/12/9999
      4. Invoice\_Attn\_LName
         1. 0 to 31 characters
      5. Invoice\_Attn\_FName
         1. 0 to 31 characters
      6. Invoice\_Attn\_Initial
         1. 0 to 1 characters
      7. Invoice\_Total\_Cost
         1. $0 to $999,999.00
      8. Customer\_Address
         1. 0 to 255 integer
      9. Invoice\_Status
         1. 0 to 255 integer

#### Item Sold

* + - 1. Invoice\_ID
      2. Product\_ID
      3. Sales\_Quantity
         1. 1 to 65536 integer
      4. Sales\_Cost
         1. $0 to $999,999.00

#### Product (A produced item)

* + - 1. Product\_ID
         1. 0 to 2^32 integer
      2. Product\_Name
         1. 0 to 31 characters
      3. Product\_Description
         1. 1 to 1024 characters
      4. Product\_Cost
         1. $0 to $999,999.00
      5. Product\_Inventory
         1. 0 to 65535 integer

#### Supply (A purchased item)

* + - 1. Supply\_ID
         1. 0 to 2^32 integer
      2. Supply\_Name
         1. 0 to 31 characters
      3. Supply\_Description
         1. 1 to 1024 characters
      4. Supply\_Cost
         1. $0 to $999,999.00
      5. Supply\_Inventory
         1. 0 to 65535 integer
      6. Preferred\_Supplier (Supplier\_ID)

#### Source

* + - 1. Supply\_ID
      2. Supplier\_ID

#### Referral

* + - 1. Referring\_Customer\_ID
      2. Referred\_Customer\_ID

##### Note

* + - 1. Note\_Entity\_Type
         1. 0 to 255 integer
      2. Note\_Entity\_ID(Based on Note\_Entity\_Type)
         1. 0 to 2^32 integer
      3. Note\_Num
         1. 0 to 2^16 integer
      4. Note\_Description
         1. 1 to 1024 characters
      5. Note\_Date
         1. 01/01/1900 to 31/12/9999

##### Address

* + - 1. Address\_Entity\_Type
         1. 0 to 255 integer
      2. Address\_Entity\_ID(Based on Address\_Entity\_Type)
         1. 0 to 2^32 integer
      3. Address\_ID
         1. 0 to 255 integer
      4. Address\_Line\_1
         1. 0 to 63 characters
      5. Address\_Line\_2
         1. 0 to 63 characters
      6. Address\_City
         1. 0 to 63 characters
      7. Address\_State\_Province\_Region
         1. 0 to 63 characters
      8. Address\_Zipcode
         1. 0 to 15 characters
      9. Address\_Attention
         1. 0 to 128 characters