

Criteria	Very effective	Effective	Ineffective
<b>Final 3NF column shows 3 entities:</b> Invoice InvoiceDetail Customer  It is OK if they list MORE entities, such as Materials and/or Services	These three entities appear in the 3NF column. 10 points each Names can vary but must identify these three entities.  <div>30</div>	Some entities were listed, some were not. 10 points each for those correctly listed.  <div>10 - 20</div>	These three entities were not listed  <div>0</div>
<b>Primary Keys:</b> Final 3NF column has these Primary Keys  <b>Invoice</b> – Invoice Number or ID <b>InvoiceDetail</b> – concatenated Invoice Number + Invoice Detail Line Number <b>Customer</b> - Customer Number or ID	The primary keys for these three entities are correctly defined. 6 points each  <div>18</div>	Some of the keys are correct, some are not. 6 points each.  CustomerName is NOT a valid key.  <div>6 - 12</div>	Keys are wrong, missing, or incorrect.  <div>0</div>
<b>Attributes:</b> Final 3NF shows attributes correctly assigned to entities as shown in the answer set (next page)  The names of the attributes can vary. Ignore spelling and abbreviations variations.	All of the 28 non-key attributes are modeled within the correct entity as shown on the answer set. The order of the attributes and names can vary. 1/2 point each.  <div>14</div>	Some attributes are correctly listed. Some are missing or listed within the wrong entity. 1/2 point each for those correctly listed.  <div>0 - 13</div>	<div>N/A</div>
<b>Format:</b> Student followed instructions and formatted their deliverable as requested (as reflected in the answer set on the next page.	4 columns Unnormalized, 1NF, 2NF, 3NF Entity names are highlighted in yellow. Keys are highlighted in some other color.  <div>8</div>	<div>N/A</div>	Student did not follow instructions. Not all 4 columns present. Entities, Attributes and keys are not properly identified.  <div>0</div>
<b>TOTAL (out of 70):</b>			

repeating  
groups

## Unnormalized

Customer
CustomerID
CustomerName
CustomerAddress1
CustomerAddress2
CustomerCity
CustomerState
CustomerZip
CustomerPhone1
CustomerPhone2
ReferredBy
CustomerSince
CustomerTypeMowing
CustomerTypeLandscaping
CustomerTypeOther
Notes
Invoice
Invoice Number
Invoice Date
Customer Name
CustomerAddress
CustomerCity
CustomerState
CustomerZip
InvoiceTotalAmountDue
InvoiceAmountRemitted
--- InvoiceDetailDate
+ ServicesRendered_MaterialsDelivered
+ Charges
--- Credits
TotalCharges
TotalCredits
CustomerPriorBalance
CustomerTotalNewCharges
CustomerTaxes
CustomerTotalCredits
CustomerTotalAmountDue

## First Normal Form

Customer
CustomerID
CustomerName
CustomerAddress1
CustomerAddress2
CustomerCity
CustomerState
CustomerZip
CustomerPhone1
CustomerPhone2
ReferredBy
CustomerSince
CustomerTypeMowing
CustomerTypeLandscaping
CustomerTypeOther
Notes
Invoice
Invoice Number
Invoice Date
Customer Name
CustomerAddress
CustomerCity
CustomerState
CustomerZip
InvoiceTotalAmountDue
InvoiceAmountRemitted
TotalCharges
TotalCredits
CustomerPriorBalance
CustomerTotalNewCharges
CustomerTaxes
CustomerTotalCredits
CustomerTotalAmountDue
InvoiceDetail
Invoice Number
InvoiceDetailLineNumber
InvoiceDetailDate
ServicesRendered_MaterialsDelivered
Charges
Credits

## Second Normal Form

Customer
CustomerID
CustomerName
CustomerAddress1
CustomerAddress2
CustomerCity
CustomerState
CustomerZip
CustomerPhone1
CustomerPhone2
ReferredBy
CustomerSince
CustomerTypeMowing
CustomerTypeLandscaping
CustomerTypeOther
Notes
Invoice
Invoice Number
Invoice Date
Customer Name
CustomerAddress
CustomerCity
CustomerState
CustomerZip
InvoiceTotalAmountDue
InvoiceAmountRemitted
TotalCharges
TotalCredits
CustomerPriorBalance
CustomerTotalNewCharges
CustomerTaxes
CustomerTotalCredits
CustomerTotalAmountDue
InvoiceDetail
Invoice Number
InvoiceDetailLineNumber
InvoiceDetailDate
ServicesRendered_MaterialsDelivered
Charges
Credits

## Third Normal Form

Customer
CustomerID
CustomerName
CustomerAddress1
CustomerAddress2
CustomerCity
CustomerState
CustomerZip
CustomerPhone1
CustomerPhone2
ReferredBy
CustomerSince
CustomerTypeMowing
CustomerTypeLandscaping
CustomerPriorBalance
CustomerTotalNewCharges
CustomerTaxes
CustomerTotalCredits
CustomerTotalAmountDue
CustomerTypeOther
Notes
Invoice
Invoice Number
Invoice Date
CustomerID
InvoiceTotalAmountDue
InvoiceAmountRemitted
TotalCharges
TotalCredits
InvoiceDetail
Invoice Number
InvoiceDetailLineNumber
InvoiceDetailDate
ServicesRendered_MaterialsDelivered
Charges
Credits