CIS115 – Group Assignment

Normalization

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View 1

**Unnormalized**

Invoice\_ID, Equipment, Customer\_ID, FirstName, LastName, Email, Street, Zip, City, Province, Service, Hourly\_Charge, Work\_Duration, Invoice\_Date, Team\_ID, Email

**1st Normal Form**

Invoices  
Invoice\_ID (PK), Invoice\_Date, Service(PK), Team\_ID, Equipment, Hourly\_Charge, Work\_Duration, Customer\_ID (FK)

Customers  
Customer\_ID (PK), FirstName, LastName, Street, Postal\_Code, City, Province, Email

**2nd Normal Form**

Invoices  
Invoice\_ID (PK), Invoice\_Date, Team\_ID, Hourly\_Charge, Work\_Duration, Customer\_ID(FK)

Customers  
Customer\_ID (PK), FirstName, LastName, Street, Postal\_Code, City, Province, Email

Services  
Service\_Code (PK), Service\_Desc

**3rd Normal Form**

Invoice  
Invoice\_ID (PK), Invoice\_Date, Team\_ID, Customer\_ID(FK)

Customers  
Customer\_ID (PK), FirstName, LastName, Street, Postal\_Code, City, Province, Email

Service\_Invoice  
Invoice\_ID (FK), Service\_Code(FK), Work\_Duration

Services  
Service\_Code (PK), Service\_Desc, Hourly\_Charge

View 2

**Unnormalized**

Team, Position, First\_Name, Last\_Name, Emp\_ID, Emp\_OHIP, Phone, Start\_Date, Skills

**1st Normal Form**

Employees  
Emp\_ID(PK), Position(PK), First\_Name, Last\_Name, Emp\_OHIP, Phone, Start\_Date, Team, Skills

**2nd Normal Form**

Employees  
Emp\_ID(PK), First\_Name, Last\_Name, Emp\_OHIP, Phone, Start\_Date, Team, Skills, Position\_Code(FK)

Position  
Position\_Code(PK), Position\_Desc

**3rd Normal Form**

Employees  
Emp\_ID(PK), First\_Name, Last\_Name, Emp\_OHIP, Phone, Start\_Date, Team\_ID(FK), Position\_Code(FK)

Position  
Position\_Code (PK), Position\_Desc

Skill\_Codes  
Skill\_Code(PK), Description

Skills  
Skill\_Code (FK), Emp\_ID(FK)

Team  
Team\_ID(PK), Team\_Desc

View 3

**Unnormalized**

Product\_Class, Product\_ID, Product\_Desc, Cost, Quantity, Invoice\_ID, Date, Sales Assistant, Customer

**1st Normal Form**

**Order**  
Product\_ID(PK), Product\_Desc, Invoice\_ID(PK), Customer, Sales\_Assistant, Cost, Quantity, Date, Product\_Class

**2nd Normal Form**

**Order**  
Invoice\_ID(PK), Customer, Sales\_Assistant, Date

**Order\_Item**  
Quantity, Order\_ID(FK), Item\_ID(FK)

**Item**  
Product\_ID(PK), Product\_Desc, Product\_Class, Cost

**3rd Normal Form**

**Order**  
Invoice\_ID(PK), Customer, Date, Sales\_Assistant\_ID(FK)

**Order\_Item**  
Quantity, Order\_ID(FK), Item\_ID(FK)

**Sales\_Assistant**  
Sales\_Assistant\_ID(PK), First, Last

**Item**  
Item\_ID(PK), Product\_Desc, Product\_Class, Cost

View 4

**Unnormalized**

Classification, Product\_ID, Product\_Desc, Cost, Markup, Charge

**1st Normal Form**

**Product**  
Classification\_Code(PK), Classification\_Desc, Product\_ID (PK), Product\_Desc, Cost, Markup, Charge

**2nd Normal Form**

**Classification**  
Classification\_Code(PK), Classification\_Desc, Markup

**Product**  
Product\_ID (PK), Product\_Desc, Cost, Classification\_Code (FK), Charge

**3rd Normal Form**

**Classification**  
Classification\_Code(PK), Classification\_Desc, Markup

**Product**  
Product\_ID (PK), Product\_Desc, Cost, Classification\_Code (FK), Charge

View 5

**Unnormalized**

Product\_ID, Product\_Desc, Stock, Aisle#, Supplier

**1st Normal Form**

**Products**  
Product\_ID (PK), Product\_Desc, Stock, Aisle#, Supplier

**2nd Normal Form**

**Products**  
Product\_ID, Product\_Desc, Aisle#, Stock, Supplier\_ID(FK)

**Suppliers**  
Supplier\_ID(PK), Supplier\_Desc

**3rd Normal Form**

**Products**  
Product\_ID, Product\_Desc, Aisle#, Stock, Supplier\_ID(FK)

**Suppliers**  
Supplier\_ID(PK), Supplier\_Desc