Normalization:

User view #1

UNF:

Invoice\_num, Invoice\_date, Customer\_address, Proj\_name, Proj\_type, Proj\_location, emp\_name, emp\_skill, emp\_rate, emp\_date, emp\_hours, emp\_charge, equip\_num, equip\_date, equip\_hours, equip\_rate, equip\_charge

1NF (**Invoice\_Num, Proj\_Name**, **Emp\_Name**, **Equip\_Num** Equip\_Date, Invoice\_Date, Customer\_Address, Proj\_Type, Proj\_Location, Emp\_Skill, Emp\_Rate, Emp\_Date, Emp\_Hours, Emp\_Charge, Equip\_Hours, Equip\_Rate, Equip\_Charge)

2NF:

Table name: Invoice (invoice\_num, invoice\_date)

Table name: Project (proj\_name, cust\_address, proj\_type, proj\_location)

Table name: Employee (emp\_name, emp\_skill, emp\_rate, emp\_date, emp\_hours, emp\_charge)

Transitive: emp\_name -> emp\_skill, emp\_date, emp\_rate, emp\_hours

Table name: Equipment (equip\_num, equip\_date, equip\_hours, equip\_rate, equip\_charge)

Transitive: equip\_num -> equip\_date -> equip\_date

3NF:

Table name: Invoice (invoice\_num, invoice\_date)

Table name: Project (proj\_name, cust\_address, proj\_type, proj\_location)

Table name: Employee (emp\_name, emp\_skill, emp\_rate, emp\_date, emp\_hours, emp\_charge)

Table name: Equipment (equip\_num, equip\_date, equip\_hours, equip\_rate, equip\_charge)

User view #2:

UNF: proj\_num, proj\_name, emp\_id, emp\_name, years\_in\_company

1NF (**proj\_num**, **proj\_name**, **emp\_id,** emp\_name, years\_in\_company)

2NF:

Table name: Project (proj\_num, proj\_name)

Table name: Employee (emp\_id, emp\_name, years\_in\_company)

Transitive: emp\_name -> years\_in\_company

3NF:

Table name: Project (proj\_num, proj\_name)

Table name: Employee (emp\_id, emp\_name, years\_in\_company)

User view #3

UNF: emp\_num, emp\_name, emp\_phone\_number, bene\_num, benefit\_name, start\_date

1NF: (**emp\_num**, **emp\_name**, emp\_phone\_number, **bene\_num**, bene\_name, start\_date)

2NF

Table name: Employee (emp\_num, emp\_name, emp\_phone\_number, start date)

Transitive: emp\_name -> start\_date

Table name: Benefit (bene\_num, bene\_name)

3NF:

Table name: Employee (emp\_num, emp\_name, emp\_phone\_number, start date)

Table name: Benefit (bene\_num, bene\_name)

User view #4

UNF: cust\_type, cust\_subGroup, cust\_name, cust\_phone, cust\_fax

1NF (**cust\_name, cust\_phone,** cust\_type, cust\_subGroup, cust\_fax)

2NF

Table name: Customer type (cust\_type, cust\_subGroup)

Table name: Customer information (cust\_name, cust\_phone, cust\_fax)

Transitive: cust\_name -> cust\_phone -> cust\_type

3NF:

Table name: Customer type (cust\_type, cust\_subGroup)

Table name: Customer information (cust\_name, cust\_phone, cust\_fax)

User view #5

UNF: equip\_class, class\_desc, equip\_num, equip\_desc, equip\_charge, equip\_qty, inv\_num, inv\_date, sales\_rep, cust\_no

1NF: (**equip\_class**, **class\_desc,** **equip\_num**, **equip\_desc**, **inv\_num,** **cust\_no**, equip\_charge, equip\_qty, inv\_date, sales\_rep)

2NF

Table name: Equipment (equip\_class, equip\_num, equip\_desc, equip\_charge, equip\_qty, inv\_date, inv\_num, sales\_rep, cust\_no)

Table name: Class (class\_desc, sales\_rep, cust\_no)

Transitive: cust\_no -> inv\_num -> equip\_num -> equip\_class

Table name: Equipment (equip\_class, equip\_num, equip\_desc, equip\_charge, equip\_qty)

Table name: Class (class\_desc, sales\_rep, cust\_no)

Table name: Invoice (inv\_num, inv\_date, sales\_rep, cust\_no)