**User view 1:**

UNF:

INVOICE [invoiceNo(PK), invoiceDate, custNo, fName, lName, street, city, postalcode, teamNo, (equipNo, equipDesc), (servCode, servDesc, hourlyCharge, hours)]

1NF:

INVOICE [invoiceNo (PK), equipNo (PK), servCode (PK) , invoiceDate, custNo, fName, lName, street, city, postalcode, teamNo, equipDesc, servDesc, hourlyCharge, hours]

2NF:

INVOICE [invoiceNo (PK), invoiceDate, custNo, fName, lName, street, teamNo]

INVOICE\_EQUIPMENT [invoiceNo (PK), equipNo (PK)]

EQUIPMENT [equipNo (PK), equipDesc]

INVOICE\_SERVICE [invoiceNo (PK), servCode]

SERVICE [servCode (PK), servDesc, hourlyCharge, hours]

3NF:

INVOICE [invoiceNo (PK), invoiceDate, custNo (FK), teamNo(FK)]

CUSTOMER [custNo (PK), fName, lName, postalCode(FK)]

INVOICE\_EQUIPMENT [invoiceNo (PK), equipNo (PK)]

EQUIPMENT [equipNo (PK), equipDesc]

INVOICE\_SERVICE [invoiceNo (PK), servCode (PK), hours]

SERVICE [servCode (PK), servDesc, hourlyCharge]

TEAM [teamNo (PK), teamDescription (PK)]

ADDRESS [postalCode (PK), street, city]

**User view 2:**

UNF:

TEAM [teamNo (PK), teamDesc, (employeePosition, employeeName, employeeNo, ohipNo, phoneNo, startDate, (skillNo, skillName))]

1NF:

TEAM [teamNo (PK), employeeNo (PK), skillNo (PK), employeeSkillDesc, teamDesc, employeePosition, employeeName, ohipNo, phoneNo, startDate]

2NF:

TEAM [teamNo (PK), teamDesc]

EMPLOYEE [employeeNo (PK), employeeName, employeePosition, ohipNo, phoneNo, startDate. TeamNo (FK)]

SKILLS [skillNo (PK), skillDesc]

EMPLOYEE\_SKILLS [employeeNo (PK, FK), skillNo (PK, FK)]

3NF:

TEAM [teamNo (PK), teamDesc]

EMPLOYEE [employeeNo (PK), employeeName, employeePosition, ohipNo, phoneNo, startDate. TeamNo (FK)]

SKILLS [skillNo (PK), skillDesc]

EMPLOYEE\_SKILLS [employeeNo (PK, FK), skillNo (PK, FK)]

**User view 3:**

UNF:

INVOICE [invoiceNo (PK), invoiceDate, custNo, salesAssistantNo, salesAssistantName, (productNo, productClass, productDesc, charge, quantity)]

1NF:

INVOICE [invoiceNo (PK), productNo, custNo, invoiceDate, salesAssistantNo, salesAssistantName, productClass, productDesc, charge, quantity]

2NF:

INVOICE [invoiceNo (PK), invoiceDate, salesAssistantNo, salesAssistantName, custNo]

PRODUCT [productNo (PK), productClass, productDesc, charge]

INVOICE\_PRODUCT [invoiceNo (PK), productNo, quantity]

3NF:

INVOICE [invoiceNo (PK), invoiceDate, custNo, salesAssistantNo (FK)]

SALES\_ASSISTANT [salesAssistantNo (PK), salesAssistantName]

INVOICE\_PRODUCT [invoiceNo (PK, FK), productNo (PK, FK), quantity]

PRODUCT [productNo (PK), charge, productClass, productDesc]

**User view 4:**

UNF:

PRODUCT [productNo (PK), productClass, productClassDesc, productDesc, cost, markUp]

1NF:

PRODUCT [productNo (PK), productClass, productClassDesc, productDesc, cost, markUp]

2NF:

PRODUCT [productNo (PK), productClass, productClassDesc, productDesc, cost, markUp]

3NF:

PRODUCT [productNo (PK), productDesc, cost, markUp, productClass(FK)]

PRODUCT\_CLASS [productClass (PK), productClassDesc]

**User view 5:**

UNF:

PRODUCT [productNo (PK), productDesc, quantity, aisle, supplierNo, supplierName]

1NF:

PRODUCT [productNo (PK), productDesc, quantity, aisle, supplierNo, supplierName]

2NF:

PRODUCT [productNo (PK), productDesc, quantity, aisle, supplierNo, supplierName]

3NF:

PRODUCT [productNo (PK), productDesc, quantity, aisle, supplierNo(FK)]

SUPPLIER [supplierNo (PK), supplierName]

**All 3NF tables**

INVOICE [invoiceNo (PK), invoiceDate, custNo (FK), teamNo(FK)]

CUSTOMER [custNo (PK), fName, lName, postalCode(FK)]

INVOICE\_EQUIPMENT [invoiceNo (PK), equipNo (PK)]

EQUIPMENT [equipNo (PK), equipDesc]

INVOICE\_SERVICE [invoiceNo (PK), servCode (PK), hours]

SERVICE [servCode (PK), servDesc, hourlyCharge]

TEAM [teamNo (PK), teamDescription (PK)]

ADDRESS [postalCode (PK), street, city]

TEAM [teamNo (PK), teamDesc]

EMPLOYEE [employeeNo (PK), employeeName, employeePosition, ohipNo, phoneNo, startDate. TeamNo (FK)]

SKILLS [skillNo (PK), skillDesc]

EMPLOYEE\_SKILLS [employeeNo (PK, FK), skillNo (PK, FK)]

INVOICE [invoiceNo (PK), invoiceDate, custNo, salesAssistantNo (FK)]

SALES\_ASSISTANT [salesAssistantNo (PK), salesAssistantName]

INVOICE\_PRODUCT [invoiceNo (PK, FK), productNo (PK, FK), quantity]

PRODUCT [productNo (PK), charge, productClass, productDesc]

PRODUCT [productNo (PK), productDesc, cost, markUp, productClass(FK)]

PRODUCT\_CLASS [productClass (PK), productClassDesc]

PRODUCT [productNo (PK), productDesc, quantity, aisle, supplierNo(FK)]

SUPPLIER [supplierNo (PK), supplierName]

**FINAL ENTITY SET**

**INVOICE** [invoiceNo (PK), invoiceDate, custNo(FK), departmentNo(FK)]

**SERVICE\_INVOICE** [invoiceNo (PK, FK), servCode (PK, FK), hours]

**PRODUCT\_INVOICE** [invoiceNo (PK, FK), productNo (PK, FK), quantity]

**CUSTOMER** [custNo (PK), fName, lName, postalCode(FK)]

**ADDRESS** [postalCode (PK), street, city]

**EQUIPMENT** [equipNo (PK), equipDesc]

**USED\_EQUIPMENT** [invoiceNo (PK, FK), equipNo (PK, FK)]

**SERVICE** [servCode (PK), servDesc, hourlyCharge]

**EMPLOYEE** [employeeNo (PK), employeeName, ohipNo, phoneNo, startDate, jobNo (FK), departmentNo (FK)]

**SKILLS** [skillNo (PK), skillDesc]

**EMPLOYEE\_SKILLS**[employeeNo (PK, FK), skillNo (PK, FK)]

**DEPARTMENT** [departmentNo (PK), departmentDesc]

**TEAM** [teamNo (PK), teamDesc, departmentNo (FK)]

**TEAM\_INVOICE** [invoiceNo (PK, FK), teamNo (PK, FK), departmentNo (PK, FK)]

**EMPLOYEE\_TEAM** [employeeNo (PK, FK), teamNo (PK, FK), departmentNo (PK, FK)]

**TEAM\_ROLE** [teamNo (PK, FK), jobNo (PK, FK)]

**JOB** [jobNo (PK), jobDesc]

**PRODUCT** [productNo (PK), productDesc, cost, markUp, quantity, aisleNo, productClass(FK), supplierNo(FK)]

**PRODUCT\_CLASS** [productClass(PK), classDescription]

**SUPPLIER** [supplierNo (PK), supplierName]