**PART A (Normalization):**

**GTA Landscaping: User View 1**

**Sample 1 (Invoice Statement):**

**UNF:**

INVOICE [**InvNo**, InvDate, WorkTeam, (Equipment), CustNo, CustName, Address, (ServiceCode, ServiceDesc, HourlyCharge, WorkDuration)]

**1NF: (Equipment needs surrogate key: EquipNo; Equipment becomes EquipmentDesc)**

INVOICE [**InvNo**, InvDate, WorkTeam, CustNo, CustName, Address]

INVOICE\_EQUIP [**InvNo (FK), EquipNo**, EquipmentDesc]

INVOICE\_SERVICE [**InvNo (FK), ServiceCode,** ServiceDesc, HourlyCharge, WorkDuration]

**2NF:**

INVOICE [**InvNo**, InvDate, WorkTeam, CustNo, CustName, Address]

INVOICE\_EQUIP [**InvNo (FK), EquipNo (FK)**]

EQUIP [**EquipNo**, EquipmentDesc]

INVOICE\_SERVICE [**InvNo (FK), ServiceCode (FK),** WorkDuration]

SERVICE [**ServiceCode,** ServiceDesc, HourlyCharge]

**3NF:**

INVOICE\_EQUIP [**InvNo (FK), EquipNo (FK)**]

INVOICE\_SERVICE [**InvNo (FK), ServiceCode (FK),** WorkDuration]

INVOICE [**InvNo**, InvDate, WorkTeam, CustNo **(FK)**]

SERVICE [**ServiceCode,** ServiceDesc, HourlyCharge]

EQUIP [**EquipNo**, EquipmentDesc]

CUSTOMER [**CustNo**, CustName, Address]

**Sample 2 (Invoice Statement):**

**UNF:**

INVOICE [**InvNo**, InvDate, WorkTeam, (Equipment), CustNo, CustName, Address, (ServiceCode, ServiceDesc, HourlyCharge, WorkDuration)]

**1NF: (Equipment needs surrogate key: EquipNo; Equipment becomes EquipmentDesc)**

INVOICE [**InvNo**, InvDate, WorkTeam, CustNo, CustName, Address]

INVOICE\_EQUIP [**InvNo (FK), EquipNo**, EquipmentDesc]

INVOICE\_SERVICE [**InvNo (FK), ServiceCode,** ServiceDesc, HourlyCharge, WorkDuration]

**2NF:**

INVOICE [**InvNo**, InvDate, WorkTeam, CustNo, CustName, Address]

INVOICE\_EQUIP [**InvNo (FK), EquipNo (FK)**]

EQUIP [**EquipNo**, EquipmentDesc]

INVOICE\_SERVICE [**InvNo (FK), ServiceCode (FK),** WorkDuration]

SERVICE [**ServiceCode,** ServiceDesc, HourlyCharge]

**3NF:**

INVOICE\_EQUIP [**InvNo (FK), EquipNo (FK)**]

INVOICE\_SERVICE [**InvNo (FK), ServiceCode (FK),** WorkDuration]

INVOICE [**InvNo**, InvDate, WorkTeam, CustNo **(FK)**]

SERVICE [**ServiceCode,** ServiceDesc, HourlyCharge]

EQUIP [**EquipNo**, EquipmentDesc]

CUSTOMER [**CustNo**, CustName, Address]

**GTA Landscaping: User View 2**

**UNF:**

TEAM [**Team#**, Team\_Desc, (Position, EmpName, EmpID, OHIP#, HomePhone#, StartDate, (Skills))]

**1NF: (Position and Skills needs surrogate keys: Position# and Skill#, respectively; Position becomes PositionDesc and Skills becomes SkillsDesc)**

TEAM [**Team#, Position#, Skill#,** TeamDesc, PositionDesc, EmpName, EmpID , OHIP#, HomePhone#, StartDate, SkillsDesc]

**2NF:**

TEAM\_POS\_SKILL **[Team# (FK), Position# (FK), Skill# (FK)**]

TEAM\_POS **[Team# (FK), Position# (FK)**, EmpName, EmpID, OHIP#, HomePhone#, StartDate]

TEAM **[Team#**, TeamDesc]

SKILL **[Skill#**, SkillsDesc]

POS **[Position#**, PositionDesc]

**3NF:**

TEAM\_POS\_SKILL **[Team# (FK), Position# (FK), Skill# (FK)**]

TEAM\_POS **[Team# (FK), Position# (FK)**, EmpID **(FK)**]

TEAM **[Team#**, TeamDesc]

SKILL **[Skill#**, SkillsDesc]

POS **[Position#**, PositionDesc]

EMPLOYEE **[EmpID**, EmpName, OHIP#, HomePhone#, StartDate]

**GTA Landscaping: User View 3**

**UNF:**

PRODUCT\_SALES\_REPORT [**InvoiceID**,(ProdClass, ProdID, Product, Charge, QTY), InvoiceDate, SalesRepNo, SalesRepName, CustNo]

**1NF:**

PRODUCT\_SALES\_REPORT [**InvoiceID, ProdID**, ProdClass, Product, Charge, QTY, InvoiceDate, SalesRepNo, SalesRepName, CustNo]

**2NF:**

PRODUCT\_SALES\_REPORT [**InvoiceID (FK), ProdID (FK)**, QTY]

PRODUCT [**ProdID,** ProdClass, Product, Charge]

INVOICE [**InvoiceID,** InvoiceDate, SalesRepNo, SalesRepName, CustNo]

**3NF:**

PRODUCT\_SALES\_REPORT [**InvoiceID (FK), ProdID (FK)**, QTY]

PRODUCT [**ProdID,** ProdClass, Product, Charge]

INVOICE [**InvoiceID,** InvoiceDate, SalesRepNo **(FK)**, CustNo]

SALESREP [**SalesRepNo**, SalesRepName]

**GTA Landscaping: User View 4**

**UNF:**

Product\_Report [**ID**, Class, Classification, Description, Cost, Markup]

**1NF:**

Product\_Report [**ID**, Class, Classification, Description, Cost, Markup]

**2NF:**

Product\_Report [**ID**, Class, Classification, Description, Cost, Markup]

**3NF:**

Product\_Report [**ID**, Class **(FK)**, Description, Cost ]

Class [**Class**, Classification, Markup]

**GTA Landscaping: User View 5**

**UNF:**

INVENTORY [**Product\_ID,** Description, Inventory, Aisle#, Supplier]

**1NF:**

INVENTORY [**Product\_ID,** Description, Inventory, Aisle#, Supplier]

**2NF:**

INVENTORY [**Product\_ID,** Description, Inventory, Aisle#, Supplier]

**3NF:**

INVENTORY [**Product\_ID,** Description, Inventory, Aisle#, Supplier]