Normalization Exercise

A Microsoft Access database has been created to store purchase orders by someone unfamiliar with relational database concepts, and it is therefore not normalized. Several new entities and relationships will be required to create the normalized database. Make improvements in the way attributes names have been assigned, and create the relationships necessary to make the database work. Here is an example of a purchase order with data generated from the database.

**VENDOR:** ATL001 **DEPT:** 1200 Machine Shop

ATLAS Tools Ltd.

1234 Main Street **BY:** 1757 George Jones

Vancouver, BC

V5R 6J8 **JOB:** J15766

**CONTACT:** John Smith 604-123-4567

**LINE PART DESCRIPTION QTY PRICE AMOUNT**

1 ABC-5998 Wrench 1 45.00 45.00

2 XHN-6683 Hammer 3 18.00 54.00

3 BBR-5531 Socket 20 4.50 90.00

4 ESA-6028 Saw 2 58.00 116.00

**TOTAL** **305.00**

*P.O. 95005*

**PURCHASE ORDER**

UNF

PO, Date, Vendor#, Vendor\_Name, Address, City, Province, Postal\_Code, Contact, Phone\_Num,

Department#, Department\_Description, Employee#, Employee\_Name, Job#, Job\_Description,

line\_1, Part\_1, Description\_1, Quantity\_1, Price\_1, Amount\_1, line\_2, Part\_2, Description\_2,

Quantity\_2, Price\_2, Amount\_2, ...

1NF:

PO, Date, Vendor\_Num, Vendor\_Name, Vendor\_Address, Vendor\_Contact, Vendor\_Phone, Dept\_Num, Dept\_Description, Employee\_Num, Employee\_Name, Job\_Num, Job\_Description,

PO (PFFK), Line (PK), Part\_Num, Part\_Desciption, Part\_Quantity, Part\_Price, Part\_Amount

2NF:

PO, Date, Vendor\_Num, Vendor\_Name, Vendor\_Address, Vendor\_Contact, Vendor\_Phone, Dept\_Num, Dept\_Description, Employee\_Num, Employee\_Name, Job\_Num, Job\_Description,

PO (PFFK), Line (PK), Part\_Num, Part\_Desciption, Part\_Quantity, Part\_Price, Part\_Amount

3NF:

PO, Date, Vendor\_Num, Dept\_Num, Employee\_Num

PO , line\_num, Part\_num, Quantity, Amount

Part\_num, Part\_Desciption, Part\_Price

Vendor\_Num (PK), Vendor\_Name, Vendor\_Address, Vendor\_Contact, Vendor\_Phone,

Dept\_Num (PK), Dept\_Description,

Employee\_Num (PK), Employee\_Name

Job\_Num, Job\_Description