MINISTRY OF SCIENCE AND EDUCATION NATIONAL TECHNICAL UNIVERSITY “KHARKIV POLYTECHNIC INSTITUTE”

DEPARTMENT OF SOFTWARE ENGINEERING AND MANAGEMENT INFORMATION TECHNOLOGIES

Report from lab#1

Discipline “Fundamentals of Database”

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**Goal:** State the laboratory practice problem. Study and analyze the subject area. Select main database objects based on analysis.

**Simplified description of the subject area**

1. Product information

Includes product name, unique product identifier (ID, Stock Keeping Unit, etc.), product measurement unit (item, box, kg, etc.), and other. Products are grouped into various product groups (e.g. grocery, perfumery, household chemicals, etc.).

It is assumed that each product belongs to a single product group.

2. Supplier information

Includes information about business entities on the market that offer products interested for the current enterprise. Suppliers can be both legal entities and individual entrepreneurs. Supplier information includes name, individual tax number, number of the VAT payer certificate (for legal entities); last name, first name, and second name, number of the registration certificate (for individual en-trepreneurs; address, phone number (for both types of business entity), and oth-er.

3. Price information

Same products might be offered by various suppliers. Moreover, each supplier can offer the same products with various prices (retail, wholesale, etc.)

depending on the purchase amount, contract conditions, etc.

4. Supply information

Each supply is based on contract concluded between the supplier and en-terprise. For each supply the following information is known: supplier, supply date, total cost, and supplied products information. Supplied products infor-mation includes product name, number of items, and price per item. The costs of supplied products might be different than standard prices offered by supplier (special discounts might be applied for a particular customer, the price for the certain product types might be assigned individually, etc.).

**Create Entities ( tables ) :**

**1. Product groups**

1.1. Product group ID

1.2. Product group Name

**2. Product measurement units**

2.1. Product measurement unit ID

2.2. Product measurement unit name

**3. Products**

3.1. Product ID

3.2. Product name

3.3. Product group

3.4. Product measurement unit

**4. Product price types**

4.1. Product price type

4.2. Product price type name

**5. Suppliers**

5.1. Supplier ID

5.2. Supplier name (for legal entity)

5.3. Individual tax number (for legal entity)

5.4. Number of the VAT payer certificate (for legal entity)

5.5. Last name, first name, second name (for individual entrepre-neur)

5.6. Number of the registration certificate (for individual entrepre-neur)

5.7. Address

5.8. Phone number

**6. Market prices**

6.1. Product

6.2. Supplier

6.3. Price type

6.4. Price value

6.5. Price offer condition

**7. Supply contracts**

7.1. Contract ID

7.2. Supply date

7.3. Supplier

7.4. Comment (some additional information)

**8. Supplied products**

8.1. Contract ID

8.2. Products

8.3. Supplied amount

8.4. Price per item



**Create Relationships**

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Create alternate keys

It is common when during data modeling it is required to define another one or several alternate keys besides the PK. As usual, alternate keys are poten-tial keys that were not selected as primary. Having alternate keys allows to con-trol unique attributes that does not belong to the PK. Let’s assume that individu-al entrepreneurs are required to be stored with unique last name, first name, and second name, as well as with unique registration certificate number.

**Finished model :**

