Database Portfolio 4 - 18001399

**Physical Design**

tblClient

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Field Name** | **Data Type** | **Field Size** | **Format** | **Key Type** | **Index** | **Required** |
| cid | INT |  |  | PK | YES (NO DUPLICATES) | YES |
| forename | VARCHAR | 35 | LENGTH >=2 |  | NO | YES |
| surname | VARCHAR | 35 | LENGTH >=2 |  | YES (DUPLICATES ALLOWED) | YES |
| addressL1 | VARCHAR | 50 |  |  | NO | YES |
| addressL2 | VARCHAR | 50 |  |  | NO | NO |
| townCity | VARCHAR | 35 |  |  | NO | YES |
| Postcode | VARCHAR | 8 | aaddddaa |  |  | YES |
| email | VARCHAR | 64 |  |  | NO | YES |
| phone | VARCHAR | 15 |  |  | NO | YES |

tblProduct

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Field Name** | **Data Type** | **Field Size** | **Format** | **Key Type** | **Index** | **Required** |
| pid | INT |  |  | PK | YES (NO DUPLICATES) | YES |
| description | VARCHAR |  |  |  | NO | NO |
| saleCost | INT |  |  |  | NO | NO |
| quantityRemaining | INT |  |  |  | YES (DUPLICATES ALLOWED) | YES |

tblOrder

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Field Name** | **Data Type** | **Field Size** | **Format** | **Key Type** | **Index** | **Required** |
| oid | INT |  |  | PK | YES (NO DUPLICATES) | YES |
| cid | INT |  |  | FK | YES (NO DUPLICATES) | YES |
| dateOrdered | DATE |  |  |  | NO | YES |
| dateShipped | DATE |  |  |  | NO | YES |
| paymentMethod | VARCHAR |  |  |  | NO | YES |

tblProductOnOrder

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Field Name** | **Data Type** | **Field Size** | **Format** | **Key Type** | **Index** | **Required** |
| Oid | INT |  |  | FK | YES (NO DUPLICATES) | YES |
| pid | INT |  |  | FK | YES (NO DUPLICATES) | YES |
| quantityOrdered | INT |  |  |  |  | YES |

tblSupplier

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Field Name** | **Data Type** | **Field Size** | **Format** | **Key Type** | **Index** | **Required** |
| sid | INT |  |  | PK | YES (NO DUPLICATES) | YES |
| name | VARCHAR | 50 |  |  | YES (DUPLICATES ALLOWED) | YES |
| addressL1 | VARCHAR | 35 |  |  |  | YES |
| addressL2 | VARCHAR | 35 |  |  |  | NO |
| townCity | VARCHAR | 35 |  |  |  | YES |
| Postcode | VARCHAR | 8 | aaddddaa |  |  | YES |
| email | VARCHAR | 64 |  |  |  | YES |
| phone | VARCHAR | 15 |  |  |  | YES |
| creditAmount | float | 2 |  |  |  | YES |

tblSupplierOfProduct

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Field Name** | **Data Type** | **Field Size** | **Format** | **Key Type** | **Index** | **Required** |
| sid | INT |  |  | FK | YES (NO DUPLICATES) | YES |
| pid | INT |  |  | FK | YES (NO DUPLICATES) | YES |
| unitCost | INT |  |  |  | YES (DUPLICATES ALLOWED) | YES |
| dateShipped | DATE |  |  |  |  | YES |
| quantitySupplied | INT |  |  |  |  | YES |

**SQL Implementation**

CREATE DATABASE PF4;

USE PF4;

CREATE TABLE tblClient(

cid BIGINT PRIMARY KEY NOT NULL AUTO\_INCREMENT,

forename VARCHAR(35) NOT NULL CHECK(LENGTH(NAME) >= 2),

surname VARCHAR(35) NOT NULL CHECK(LENGTH(NAME) >= 2),

addressL1 VARCHAR(50) NOT NULL,

addressL2 VARCHAR(50),

townCity VARCHAR(50) NOT NULL,

postcode VARCHAR(8) NOT NULL CONSTRAINT postcode CHECK (REGEXP\_LIKE(postcode, '[Gg][Ii][Rr] 0[Aa]{2})|((([A-Za-z][0-9]{1,2})|(([A-Za-z][A-Ha-hJ-Yj-y][0-9]{1,2})|(([A-Za-z][0-9][A-Za-z])|([A-Za-z][A-Ha-hJ-Yj-y][0-9][A-Za-z]?))))\s?[0-9][A-Za-z]{2}')),

email VARCHAR(64) NOT NULL,

phone VARCHAR(15) NOT NULL

);

CREATE INDEX idx\_cid ON tblClient(cid);

CREATE INDEX idx\_surname ON tblClient(surname);

CREATE INDEX idx\_postcode ON tblClient(postcode);

CREATE TABLE tblProduct(

pid BIGINT PRIMARY KEY NOT NULL AUTO\_INCREMENT,

description VARCHAR,

postcode VARCHAR(8) NOT NULL CONSTRAINT postcode CHECK (REGEXP\_LIKE(postcode, '[Gg][Ii][Rr] 0[Aa]{2})|((([A-Za-z][0-9]{1,2})|(([A-Za-z][A-Ha-hJ-Yj-y][0-9]{1,2})|(([A-Za-z][0-9][A-Za-z])|([A-Za-z][A-Ha-hJ-Yj-y][0-9][A-Za-z]?))))\s?[0-9][A-Za-z]{2}')),

quantityRemaining INT NOT NULL

);

CREATE INDEX idx\_pid ON tblProduct(pid);

CREATE INDEX idx\_quantityRemaining ON tblProduct(quantityRemaining);

CREATE TABLE tblOrder(

oid BIGINT PRIMARY KEY NOT NULL AUTO\_INCREMENT,

cid BIGINT NOT NULL,

dateOrdered DATETIME NOT NULL,

dateShipped DATETIME NOT NULL,

paymentMethod VARCHAR(20) NOT NULL,

FOREIGN KEY (cid) REFERENCES tblClient(cid) ON DELETE RESTRICT ON UPDATE CASCADE

);

CREATE INDEX idx\_oid ON tblOrder(oid);

CREATE INDEX idx\_pid ON tblOrder(pid);

CREATE TABLE tblProductOnOrder(

oid BIGINT NOT NULL,

pid BIGINT NOT NULL,

quantityOrdered BIGINT NOT NULL,

FOREIGN KEY (oid) REFERENCES tblOrder(oid) ON DELETE RESTRICT ON UPDATE CASCADE,

FOREIGN KEY (pid) REFERENCES tblProduct(pid) ON DELETE RESTRICT ON UPDATE CASCADE

);

CREATE INDEX idx\_oid ON tblProductOnOrder(oid);

CREATE INDEX idx\_pid ON tblProductOnOrder(pid);

CREATE TABLE tblSupplier(

sid BIGINT PRIMARY KEY NOT NULL,

name VARCHAR(50) NOT NULL,

addressL1 VARCHAR(35) NOT NULL,

addressL2 VARCHAR(35),

townCity VARCHAR(35) NOT NULL,

postcode VARCHAR(8) NOT NULL,

email VARCHAR(100) NOT NULL,

phone VARCHAR(15) NOT NULL,

creditAmount FLOAT(2) NOT NULL

);

CREATE INDEX idx\_sid ON tblSupplier(sid);

CREATE INDEX idx\_name ON tblSupplier(name);

CREATE TABLE tblSupplierOfProduct(

sid BIGINT NOT NULL,

pid BIGINT NOT NUll,

unitCost BIGINT NOT NULL,

dateSupplied DATETIME NOT NULL,

quantitySupplied BIGINT NOT NULL,

FOREIGN KEY (sid) REFERENCES tblSupplier(sid) ON DELETE RESTRICT ON UPDATE CASCADE,

FOREIGN KEY (pid) REFERENCES tblProduct(pid) ON DELETE RESTRICT ON UPDATE CASCADE

);

CREATE INDEX idx\_oid ON tblSupplierOfProduct(sid);

CREATE INDEX idx\_oid ON tblSupplierOfProduct(pid);

CREATE INDEX idx\_unitCost ON tblSupplierOfProduct(unitCost);