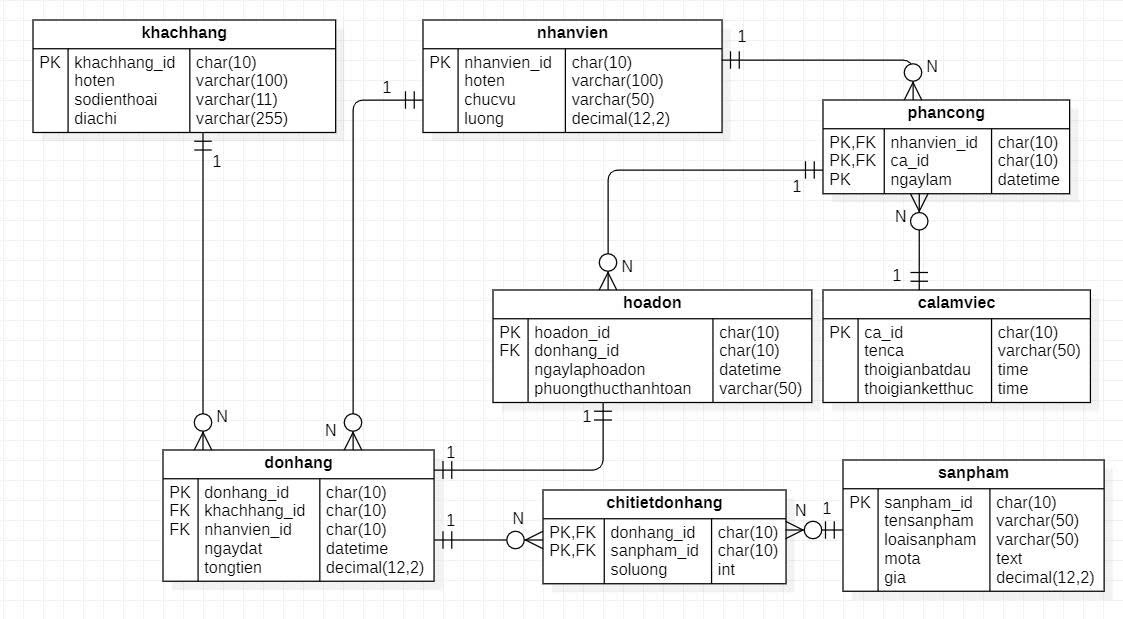
|  |  |  |
| --- | --- | --- |
| Ký hiệu nhóm: hk |  |  |
| **STT** | **Mã sinh viên** | **Họ và tên** |
| 24 | KTPM2211073 | Bùi Quang Huy |
| 31 | KTPM2211021 | Nguyễn Tuấn Kiệt |
| Github: https://github.com/KietTK/DT28-He-thong-quan-ly-quan-cafe.git | | |

1. Mô hình ERD



1. File XML

2.1. XML-DTD

<?xml version="1.0" encoding="UTF-8"?>

<!DOCTYPE quanlyquancaphe SYSTEM "quanlyquancaphe.dtd">

<quanlyquancaphe>

    <!-- Khách hàng -->

    <khachhang khachhang\_id="KH01">

        <hoten>Nguyễn Văn An</hoten>

        <sodienthoai>0912345678</sodienthoai>

        <diachi>Hà Nội</diachi>

    </khachhang>

    <khachhang khachhang\_id="KH02">

        <hoten>Trần Thị Mai</hoten>

        <sodienthoai>0987654321</sodienthoai>

        <diachi>Đà Nẵng</diachi>

    </khachhang>

    <khachhang khachhang\_id="KH03">

        <hoten>Lê Hoàng Nam</hoten>

        <sodienthoai>0909123456</sodienthoai>

        <diachi>Hồ Chí Minh</diachi>

    </khachhang>

    <khachhang khachhang\_id="KH04">

        <hoten>Phạm Thùy Dung</hoten>

        <sodienthoai>0934567890</sodienthoai>

        <diachi>Cần Thơ</diachi>

    </khachhang>

    <khachhang khachhang\_id="KH05">

        <hoten>Đỗ Văn Hùng</hoten>

        <sodienthoai>0978123456</sodienthoai>

        <diachi>Huế</diachi>

    </khachhang>

    <khachhang khachhang\_id="KH06">

        <hoten>Ngô Thanh Hà</hoten>

        <sodienthoai>0923456789</sodienthoai>

        <diachi>Bình Dương</diachi>

    </khachhang>

    <khachhang khachhang\_id="KH07">

        <hoten>Vũ Minh Quân</hoten>

        <sodienthoai>0945678901</sodienthoai>

        <diachi>Hải Phòng</diachi>

    </khachhang>

    <!-- Nhân viên -->

    <nhanvien nhanvien\_id="NV01">

        <hoten>Nguyễn Văn Tuấn</hoten>

        <chucvu>Phục vụ</chucvu>

        <luong>7000000</luong>

    </nhanvien>

    <nhanvien nhanvien\_id="NV02">

        <hoten>Trần Thị Hồng</hoten>

        <chucvu>Thu ngân</chucvu>

        <luong>8000000</luong>

    </nhanvien>

    <nhanvien nhanvien\_id="NV03">

        <hoten>Lê Minh Đức</hoten>

        <chucvu>Pha chế</chucvu>

        <luong>10000000</luong>

    </nhanvien>

    <nhanvien nhanvien\_id="NV04">

        <hoten>Phạm Thị Lan</hoten>

        <chucvu>Phụ bếp</chucvu>

        <luong>6000000</luong>

    </nhanvien>

    <nhanvien nhanvien\_id="NV05">

        <hoten>Đỗ Hoàng Long</hoten>

        <chucvu>Quản lý</chucvu>

        <luong>15000000</luong>

    </nhanvien>

    <nhanvien nhanvien\_id="NV06">

        <hoten>Ngô Thị Yến</hoten>

        <chucvu>Tiếp tân</chucvu>

        <luong>6500000</luong>

    </nhanvien>

    <nhanvien nhanvien\_id="NV07">

        <hoten>Vũ Quang Huy</hoten>

        <chucvu>Bảo vệ</chucvu>

        <luong>5000000</luong>

    </nhanvien>

    <!-- Ca làm việc -->

    <calamviec ca\_id="CA01">

        <tenca>Sáng</tenca>

        <thoigianbatdau>07:00</thoigianbatdau>

        <thoigianketthuc>11:00</thoigianketthuc>

    </calamviec>

    <calamviec ca\_id="CA02">

        <tenca>Chiều</tenca>

        <thoigianbatdau>13:00</thoigianbatdau>

        <thoigianketthuc>17:00</thoigianketthuc>

    </calamviec>

    <calamviec ca\_id="CA03">

        <tenca>Tối</tenca>

        <thoigianbatdau>18:00</thoigianbatdau>

        <thoigianketthuc>23:00</thoigianketthuc>

    </calamviec>

    <!-- Phân công -->

    <phancong nhanvien\_id="NV01" ca\_id="CA01">

        <ngaylam>2025-09-01</ngaylam>

    </phancong>

    <phancong nhanvien\_id="NV03" ca\_id="CA02">

        <ngaylam>2025-09-01</ngaylam>

    </phancong>

    <phancong nhanvien\_id="NV02" ca\_id="CA03">

        <ngaylam>2025-09-02</ngaylam>

    </phancong>

    <!-- Sản phẩm -->

    <sanpham sanpham\_id="SP01">

        <tensanpham>Cà phê đen</tensanpham>

        <loaisanpham>Đồ uống</loaisanpham>

        <mota>Cà phê đen đá</mota>

        <gia>25000</gia>

    </sanpham>

    <sanpham sanpham\_id="SP02">

        <tensanpham>Latte</tensanpham>

        <loaisanpham>Đồ uống</loaisanpham>

        <mota>Latte nóng</mota>

        <gia>40000</gia>

    </sanpham>

    <sanpham sanpham\_id="SP03">

        <tensanpham>Cappuccino</tensanpham>

        <loaisanpham>Đồ uống</loaisanpham>

        <mota>Cappuccino sữa</mota>

        <gia>45000</gia>

    </sanpham>

    <sanpham sanpham\_id="SP04">

        <tensanpham>Trà sữa</tensanpham>

        <loaisanpham>Đồ uống</loaisanpham>

        <mota>Trà sữa trân châu</mota>

        <gia>35000</gia>

    </sanpham>

    <sanpham sanpham\_id="SP05">

        <tensanpham>Bánh tiramisu</tensanpham>

        <loaisanpham>Bánh ngọt</loaisanpham>

        <mota>Bánh tiramisu cacao</mota>

        <gia>30000</gia>

    </sanpham>

    <!-- Đơn hàng -->

    <donhang donhang\_id="DH01" khachhang\_id="KH01" nhanvien\_id="NV01">

        <ngaydat>2025-09-10</ngaydat>

        <tongtien>65000</tongtien>

    </donhang>

    <donhang donhang\_id="DH02" khachhang\_id="KH03" nhanvien\_id="NV02">

        <ngaydat>2025-09-11</ngaydat>

        <tongtien>75000</tongtien>

    </donhang>

    <!-- Chi tiết đơn hàng -->

    <chitietdonhang donhang\_id="DH01" sanpham\_id="SP01">

        <soluong>1</soluong>

    </chitietdonhang>

    <chitietdonhang donhang\_id="DH01" sanpham\_id="SP05">

        <soluong>1</soluong>

    </chitietdonhang>

    <chitietdonhang donhang\_id="DH02" sanpham\_id="SP02">

        <soluong>1</soluong>

    </chitietdonhang>

    <chitietdonhang donhang\_id="DH02" sanpham\_id="SP04">

        <soluong>1</soluong>

    </chitietdonhang>

    <!-- Hóa đơn -->

    <hoadon hoadon\_id="HD01" donhang\_id="DH01">

        <ngaylaphoadon>2025-09-10</ngaylaphoadon>

        <phuongthucthanhtoan>Tiền mặt</phuongthucthanhtoan>

    </hoadon>

    <hoadon hoadon\_id="HD02" donhang\_id="DH02">

        <ngaylaphoadon>2025-09-11</ngaylaphoadon>

        <phuongthucthanhtoan>Chuyển khoản</phuongthucthanhtoan>

    </hoadon>

</quanlyquancaphe>

2.2. XML-XSD

<?xml version="1.0" encoding="UTF-8"?>

<!DOCTYPE quanlyquancaphe SYSTEM "quanlyquancaphe.dtd">

<quanlyquancaphe>

    <!-- Khách hàng -->

    <khachhang khachhang\_id="KH01">

        <hoten>Nguyễn Văn An</hoten>

        <sodienthoai>0912345678</sodienthoai>

        <diachi>Hà Nội</diachi>

    </khachhang>

    <khachhang khachhang\_id="KH02">

        <hoten>Trần Thị Mai</hoten>

        <sodienthoai>0987654321</sodienthoai>

        <diachi>Đà Nẵng</diachi>

    </khachhang>

    <khachhang khachhang\_id="KH03">

        <hoten>Lê Hoàng Nam</hoten>

        <sodienthoai>0909123456</sodienthoai>

        <diachi>Hồ Chí Minh</diachi>

    </khachhang>

    <khachhang khachhang\_id="KH04">

        <hoten>Phạm Thùy Dung</hoten>

        <sodienthoai>0934567890</sodienthoai>

        <diachi>Cần Thơ</diachi>

    </khachhang>

    <khachhang khachhang\_id="KH05">

        <hoten>Đỗ Văn Hùng</hoten>

        <sodienthoai>0978123456</sodienthoai>

        <diachi>Huế</diachi>

    </khachhang>

    <khachhang khachhang\_id="KH06">

        <hoten>Ngô Thanh Hà</hoten>

        <sodienthoai>0923456789</sodienthoai>

        <diachi>Bình Dương</diachi>

    </khachhang>

    <khachhang khachhang\_id="KH07">

        <hoten>Vũ Minh Quân</hoten>

        <sodienthoai>0945678901</sodienthoai>

        <diachi>Hải Phòng</diachi>

    </khachhang>

    <!-- Nhân viên -->

    <nhanvien nhanvien\_id="NV01">

        <hoten>Nguyễn Văn Tuấn</hoten>

        <chucvu>Phục vụ</chucvu>

        <luong>7000000</luong>

    </nhanvien>

    <nhanvien nhanvien\_id="NV02">

        <hoten>Trần Thị Hồng</hoten>

        <chucvu>Thu ngân</chucvu>

        <luong>8000000</luong>

    </nhanvien>

    <nhanvien nhanvien\_id="NV03">

        <hoten>Lê Minh Đức</hoten>

        <chucvu>Pha chế</chucvu>

        <luong>10000000</luong>

    </nhanvien>

    <nhanvien nhanvien\_id="NV04">

        <hoten>Phạm Thị Lan</hoten>

        <chucvu>Phụ bếp</chucvu>

        <luong>6000000</luong>

    </nhanvien>

    <nhanvien nhanvien\_id="NV05">

        <hoten>Đỗ Hoàng Long</hoten>

        <chucvu>Quản lý</chucvu>

        <luong>15000000</luong>

    </nhanvien>

    <nhanvien nhanvien\_id="NV06">

        <hoten>Ngô Thị Yến</hoten>

        <chucvu>Tiếp tân</chucvu>

        <luong>6500000</luong>

    </nhanvien>

    <nhanvien nhanvien\_id="NV07">

        <hoten>Vũ Quang Huy</hoten>

        <chucvu>Bảo vệ</chucvu>

        <luong>5000000</luong>

    </nhanvien>

    <!-- Ca làm việc -->

    <calamviec ca\_id="CA01">

        <tenca>Sáng</tenca>

        <thoigianbatdau>07:00</thoigianbatdau>

        <thoigianketthuc>11:00</thoigianketthuc>

    </calamviec>

    <calamviec ca\_id="CA02">

        <tenca>Chiều</tenca>

        <thoigianbatdau>13:00</thoigianbatdau>

        <thoigianketthuc>17:00</thoigianketthuc>

    </calamviec>

    <calamviec ca\_id="CA03">

        <tenca>Tối</tenca>

        <thoigianbatdau>18:00</thoigianbatdau>

        <thoigianketthuc>23:00</thoigianketthuc>

    </calamviec>

    <!-- Phân công -->

    <phancong nhanvien\_id="NV01" ca\_id="CA01">

        <ngaylam>2025-09-01</ngaylam>

    </phancong>

    <phancong nhanvien\_id="NV03" ca\_id="CA02">

        <ngaylam>2025-09-01</ngaylam>

    </phancong>

    <phancong nhanvien\_id="NV02" ca\_id="CA03">

        <ngaylam>2025-09-02</ngaylam>

    </phancong>

    <!-- Sản phẩm -->

    <sanpham sanpham\_id="SP01">

        <tensanpham>Cà phê đen</tensanpham>

        <loaisanpham>Đồ uống</loaisanpham>

        <mota>Cà phê đen đá</mota>

        <gia>25000</gia>

    </sanpham>

    <sanpham sanpham\_id="SP02">

        <tensanpham>Latte</tensanpham>

        <loaisanpham>Đồ uống</loaisanpham>

        <mota>Latte nóng</mota>

        <gia>40000</gia>

    </sanpham>

    <sanpham sanpham\_id="SP03">

        <tensanpham>Cappuccino</tensanpham>

        <loaisanpham>Đồ uống</loaisanpham>

        <mota>Cappuccino sữa</mota>

        <gia>45000</gia>

    </sanpham>

    <sanpham sanpham\_id="SP04">

        <tensanpham>Trà sữa</tensanpham>

        <loaisanpham>Đồ uống</loaisanpham>

        <mota>Trà sữa trân châu</mota>

        <gia>35000</gia>

    </sanpham>

    <sanpham sanpham\_id="SP05">

        <tensanpham>Bánh tiramisu</tensanpham>

        <loaisanpham>Bánh ngọt</loaisanpham>

        <mota>Bánh tiramisu cacao</mota>

        <gia>30000</gia>

    </sanpham>

    <!-- Đơn hàng -->

    <donhang donhang\_id="DH01" khachhang\_id="KH01" nhanvien\_id="NV01">

        <ngaydat>2025-09-10</ngaydat>

        <tongtien>65000</tongtien>

    </donhang>

    <donhang donhang\_id="DH02" khachhang\_id="KH03" nhanvien\_id="NV02">

        <ngaydat>2025-09-11</ngaydat>

        <tongtien>75000</tongtien>

    </donhang>

    <!-- Chi tiết đơn hàng -->

    <chitietdonhang donhang\_id="DH01" sanpham\_id="SP01">

        <soluong>1</soluong>

    </chitietdonhang>

    <chitietdonhang donhang\_id="DH01" sanpham\_id="SP05">

        <soluong>1</soluong>

    </chitietdonhang>

    <chitietdonhang donhang\_id="DH02" sanpham\_id="SP02">

        <soluong>1</soluong>

    </chitietdonhang>

    <chitietdonhang donhang\_id="DH02" sanpham\_id="SP04">

        <soluong>1</soluong>

    </chitietdonhang>

    <!-- Hóa đơn -->

    <hoadon hoadon\_id="HD01" donhang\_id="DH01">

        <ngaylaphoadon>2025-09-10</ngaylaphoadon>

        <phuongthucthanhtoan>Tiền mặt</phuongthucthanhtoan>

    </hoadon>

    <hoadon hoadon\_id="HD02" donhang\_id="DH02">

        <ngaylaphoadon>2025-09-11</ngaylaphoadon>

        <phuongthucthanhtoan>Chuyển khoản</phuongthucthanhtoan>

    </hoadon>

</quanlyquancaphe>

1. DTD

<!ELEMENT quanlyquancaphe (khachhang\*, nhanvien\*, calamviec\*, phancong\*, sanpham\*, donhang\*, chitietdonhang\*, hoadon\*)>

<!-- Khách hàng -->

<!ELEMENT khachhang (hoten, sodienthoai, diachi)>

<!ATTLIST khachhang khachhang\_id ID #REQUIRED

>

<!ELEMENT hoten (#PCDATA)>

<!ELEMENT sodienthoai (#PCDATA)>

<!ELEMENT diachi (#PCDATA)>

<!-- Nhân viên -->

<!ELEMENT nhanvien (hoten, chucvu, luong)>

<!ATTLIST nhanvien nhanvien\_id ID #REQUIRED

>

<!ELEMENT chucvu (#PCDATA)>

<!ELEMENT luong (#PCDATA)>

<!-- Ca làm việc -->

<!ELEMENT calamviec (tenca, thoigianbatdau, thoigianketthuc)>

<!ATTLIST calamviec ca\_id ID #REQUIRED

>

<!ELEMENT tenca (#PCDATA)>

<!ELEMENT thoigianbatdau (#PCDATA)>

<!ELEMENT thoigianketthuc (#PCDATA)>

<!-- Phân công -->

<!ELEMENT phancong (ngaylam)>

<!ATTLIST phancong

nhanvien\_id IDREF #REQUIRED

ca\_id IDREF #REQUIRED

>

<!ELEMENT ngaylam (#PCDATA)>

<!-- Sản phẩm -->

<!ELEMENT sanpham (tensanpham, loaisanpham, mota, gia)>

<!ATTLIST sanpham sanpham\_id ID #REQUIRED

>

<!ELEMENT tensanpham (#PCDATA)>

<!ELEMENT loaisanpham (#PCDATA)>

<!ELEMENT mota (#PCDATA)>

<!ELEMENT gia (#PCDATA)>

<!-- Đơn hàng -->

<!ELEMENT donhang (ngaydat, tongtien)>

<!ATTLIST donhang

donhang\_id ID #REQUIRED

khachhang\_id IDREF #REQUIRED

nhanvien\_id IDREF #REQUIRED

>

<!ELEMENT ngaydat (#PCDATA)>

<!ELEMENT tongtien (#PCDATA)>

<!-- Chi tiết đơn hàng -->

<!ELEMENT chitietdonhang (soluong)>

<!ATTLIST chitietdonhang

donhang\_id IDREF #REQUIRED

sanpham\_id IDREF #REQUIRED

>

<!ELEMENT soluong (#PCDATA)>

<!-- Hóa đơn -->

<!ELEMENT hoadon (ngaylaphoadon, phuongthucthanhtoan)>

<!ATTLIST hoadon

hoadon\_id ID #REQUIRED

donhang\_id IDREF #REQUIRED

>

<!ELEMENT ngaylaphoadon (#PCDATA)>

<!ELEMENT phuongthucthanhtoan (#PCDATA)>

1. XSD

<?xml version="1.0" encoding="UTF-8"?>

<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema">

<!-- Kiểu cho số điện thoại: 0 + 9 chữ số -->

<xs:simpleType name="phoneType">

<xs:restriction base="xs:string">

<xs:pattern value="0[0-9]{9}" />

</xs:restriction>

</xs:simpleType>

<!-- Gốc -->

<xs:element name="quanlyquancaphe">

<xs:complexType>

<xs:sequence>

<!-- Khách hàng -->

<xs:element name="khachhang" maxOccurs="unbounded" minOccurs="0">

<xs:complexType>

<xs:sequence>

<xs:element name="hoten" type="xs:string" />

<xs:element name="sodienthoai" type="phoneType" />

<xs:element name="diachi" type="xs:string" />

</xs:sequence>

<xs:attribute name="khachhang\_id" type="xs:ID" use="required" />

</xs:complexType>

</xs:element>

<!-- Nhân viên -->

<xs:element name="nhanvien" maxOccurs="unbounded" minOccurs="0">

<xs:complexType>

<xs:sequence>

<xs:element name="hoten" type="xs:string" />

<xs:element name="chucvu" type="xs:string" />

<xs:element name="luong" type="xs:decimal" />

</xs:sequence>

<xs:attribute name="nhanvien\_id" type="xs:ID" use="required" />

</xs:complexType>

</xs:element>

<!-- Ca làm việc -->

<xs:element name="calamviec" maxOccurs="unbounded" minOccurs="0">

<xs:complexType>

<xs:sequence>

<xs:element name="tenca" type="xs:string" />

<xs:element name="thoigianbatdau" type="xs:string" />

<xs:element name="thoigianketthuc" type="xs:string" />

</xs:sequence>

<xs:attribute name="ca\_id" type="xs:ID" use="required" />

</xs:complexType>

</xs:element>

<!-- Phân công -->

<xs:element name="phancong" maxOccurs="unbounded" minOccurs="0">

<xs:complexType>

<xs:sequence>

<xs:element name="ngaylam" type="xs:date" />

</xs:sequence>

<xs:attribute name="nhanvien\_id" type="xs:IDREF" use="required" />

<xs:attribute name="ca\_id" type="xs:IDREF" use="required" />

</xs:complexType>

</xs:element>

<!-- Sản phẩm -->

<xs:element name="sanpham" maxOccurs="unbounded" minOccurs="0">

<xs:complexType>

<xs:sequence>

<xs:element name="tensanpham" type="xs:string" />

<xs:element name="loaisanpham" type="xs:string" />

<xs:element name="mota" type="xs:string" />

<xs:element name="gia" type="xs:decimal" />

</xs:sequence>

<xs:attribute name="sanpham\_id" type="xs:ID" use="required" />

</xs:complexType>

</xs:element>

<!-- Đơn hàng -->

<xs:element name="donhang" maxOccurs="unbounded" minOccurs="0">

<xs:complexType>

<xs:sequence>

<xs:element name="ngaydat" type="xs:date" />

<xs:element name="tongtien" type="xs:decimal" />

</xs:sequence>

<xs:attribute name="donhang\_id" type="xs:ID" use="required" />

<xs:attribute name="khachhang\_id" type="xs:IDREF" use="required" />

<xs:attribute name="nhanvien\_id" type="xs:IDREF" use="required" />

</xs:complexType>

</xs:element>

<!-- Chi tiết đơn hàng -->

<xs:element name="chitietdonhang" maxOccurs="unbounded" minOccurs="0">

<xs:complexType>

<xs:sequence>

<xs:element name="soluong" type="xs:integer" />

</xs:sequence>

<xs:attribute name="donhang\_id" type="xs:IDREF" use="required" />

<xs:attribute name="sanpham\_id" type="xs:IDREF" use="required" />

</xs:complexType>

</xs:element>

<!-- Hóa đơn -->

<xs:element name="hoadon" maxOccurs="unbounded" minOccurs="0">

<xs:complexType>

<xs:sequence>

<xs:element name="ngaylaphoadon" type="xs:date" />

<xs:element name="phuongthucthanhtoan" type="xs:string" />

</xs:sequence>

<xs:attribute name="hoadon\_id" type="xs:ID" use="required" />

<xs:attribute name="donhang\_id" type="xs:IDREF" use="required" />

</xs:complexType>

</xs:element>

</xs:sequence>

</xs:complexType>

</xs:element>

</xs:schema>