

**ONLINE SHOPPING PLATFORM FOR STUDENTS, TEACHERS AT FPTU**

**Software Design Document**

– HoChiMinh, September 2022 –

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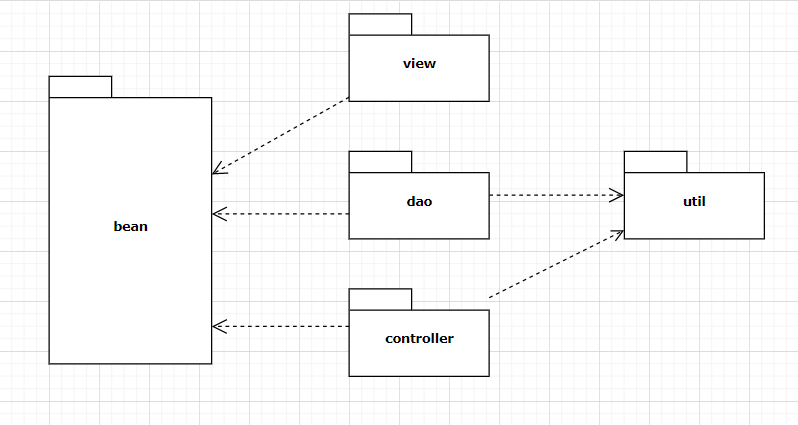
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# I. Overview

## 1. Code Packages/Namespaces

*[Provide the package diagram for each sub-system. The content of this section including the overall package diagram, the explanation, package and class naming conventions in each package. Please see the sample and description table format below – following Java project naming convention]*



***Package descriptions & package class naming conventions***

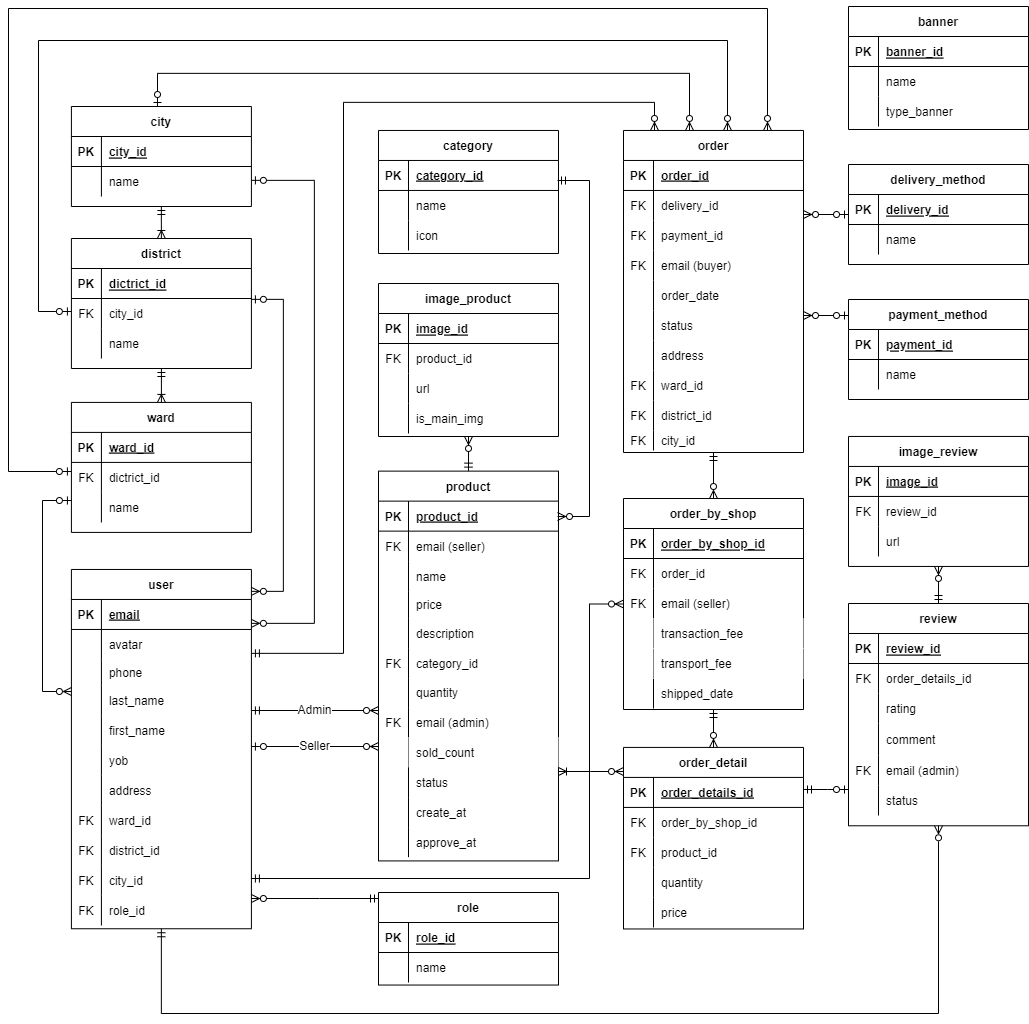
|  |  |  |
| --- | --- | --- |
| **No** | **Package** | **Description** |
| 01 | bean | * Entity class * Classname + “DTO” (ex: ProductDTO.java) |
| 02 | view | * Is used for holds view for user and admin * lowerCase (ex:mainpage.jsp) |
| 03 | controller | * Is used for holds web controllers in MVC 2 models * Classname + “controller” (ex: HomeController.java) |
| 04 | dao | * Is used for holds class * Classname + “DAO” (ex: ProductDAO.java) |
| 05 | util | * The util methods should be moved to a helper or utility class or encapsulated within the class that uses them * Camelcase (ex: myToy.java) |

## 

## 

## 2. Database Schema

*[Provide the tables relationship like example below – following MySQL database naming convention]*



***Table descriptions & package class naming conventions are as below***

| **No** | **Table** | **Description** |
| --- | --- | --- |
| 1 | user | - Primary keys: email  - Foreign keys: ward\_id, district\_id, city\_id, role\_id  - Contains information of all accounts logged into the shop |
| 2 | role | - Primary keys: role\_id  - Assign roles to accounts such as admin, sub-admin, user |
| 3 | product | - Primary keys: product\_id  - Foreign keys: email(seller), category\_id, email(admin)  - Contains information about all products posted by the user for sale |
| 4 | order | - Primary keys: order\_id  - Foreign keys: delivery\_id, payment\_id, email(buyer), ward\_id, district\_id, city\_id  - Contains information about the products ordered by the user (paid/unpaid) |
| 5 | order\_detail | - Primary keys: order\_detail\_id  - Foreign keys: order\_by\_shop\_id, product\_id  - Contains detailed information about the products the user has ordered (including the purchase price) |
| 6 | order\_by\_shop | - Primary keys: order\_by\_shop\_id  - Foreign keys: order\_id, email (seller)  - Order product list in cart by store and store payment information |
| 7 | category | - Primary keys: category\_id  - Contains kinds of products |
| 8 | image\_product | - Primary keys: image\_id  - Foreign keys: product\_id  - Contains the description picture of the product |
| 9 | delivery\_method | - Primary keys: delivery\_id  - Contains shipping methods such as: direct delivery, shipping by ahamove, ... |
| 10 | payment\_method | - Primary keys: payment\_id  - Contains payment types such as: direct payment, paypal payment,... |
| 11 | review | - Primary keys: review\_id  - Foreign keys: email (admin), order\_detail\_id  - Contains buyer feedback on their orders |
| 12 | image\_review | - Primary keys: image\_id  - Foreign keys: review\_id  - Image archive of the review |
| 13 | ward | - Primary keys: ward\_id  - Foreign keys: district\_id  - Contains information about the ward (location) |
| 14 | district | - Primary keys: district\_id  - Foreign keys: city\_id  - Contains information about the district (location) |
| 15 | city | - Primary keys: city\_id  - Contains information about the city (location) |
| 16 | banner | - Primary keys: banner\_id  - Contains slider: url, type (show in website) |

# 

# 

# 

# 

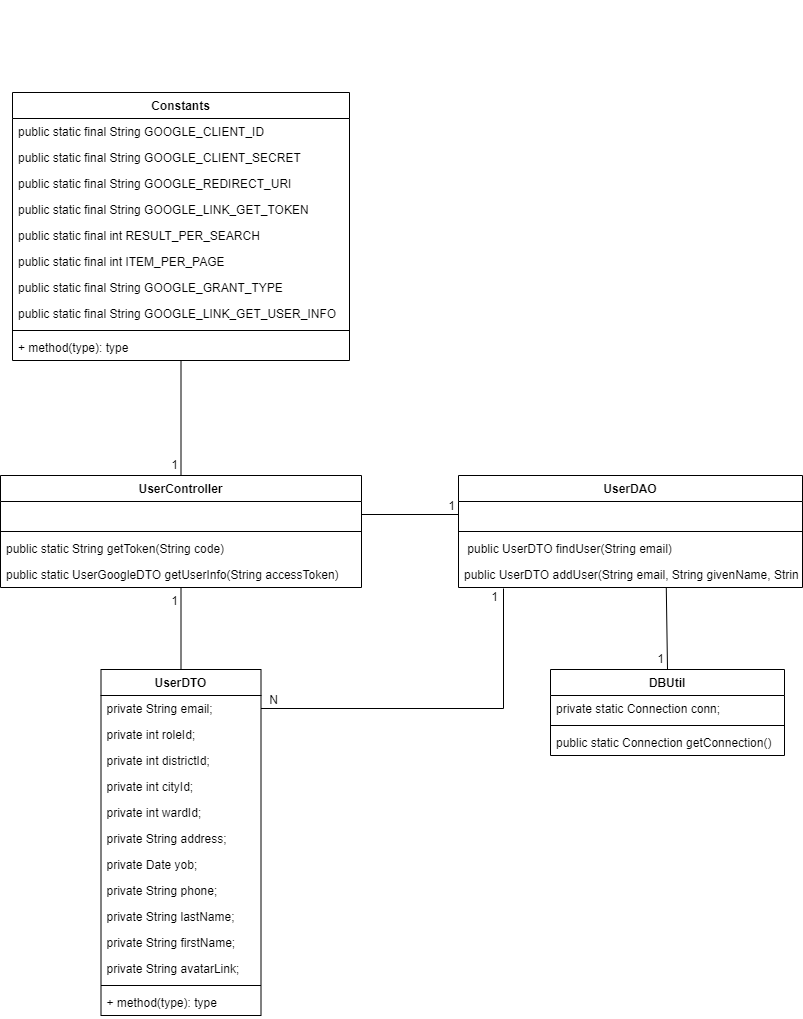
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# II. Code Designs

## 1. <LOGIN >

*[Provide the detailed design for the function <Feature/Function Name1>. It include Class Diagram, Class Specifications, and Sequence Diagram(s)]*

**a. Class Diagram**

*[This part presents the class diagram for the relevant feature]*

### 

### b. Class Specifications

*[Provide the description for each class and the methods in each class, following the table format as below]*

#### UserController Class

*[Provide the detailed description for the class methods]*

|  |  |  |
| --- | --- | --- |
| **No** | **Method** | **Description** |
| *01* | *public static String getToken(String code)* | *return a access token from google server* |
| *02* | *public static UserGoogleDTO getUserInfo(String accessToken)* | *use that access token to get user info from google* |

#### UserDAO Class

*[Provide the detailed description for the class methods]*

|  |  |  |
| --- | --- | --- |
| **No** | **Method** | **Description** |
| *01* | *public UserDTO findUser(String email)* | *return a user if exist in database* |
| *02* | *UserDTO addUser(String email, String givenName, String avatarLink)* | *create a user to database* |

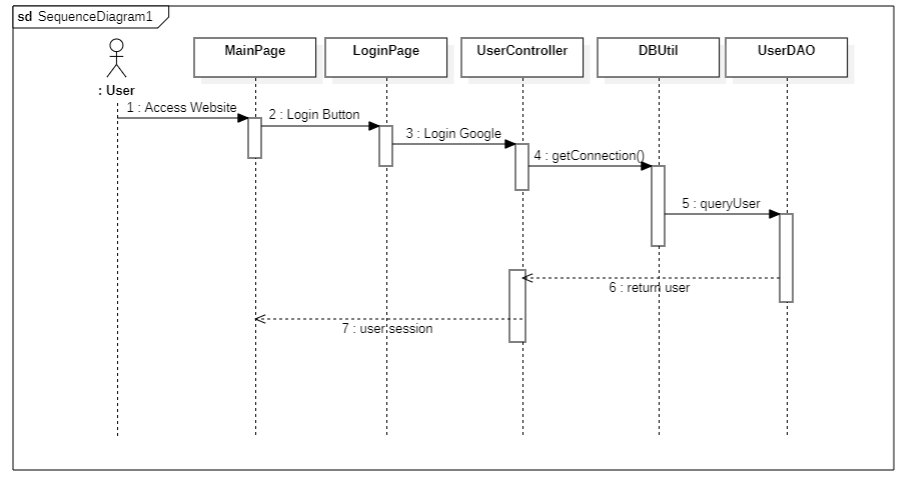
#### 

#### DButil Class

*[Provide the detailed description for the class methods]*

|  |  |  |
| --- | --- | --- |
| **No** | **Method** | **Description** |
| *01* | *public static Connection getConnection()* | *return a database connection* |

### c. Sequence Diagram(s)



### 

### d. Database queries

UserDAO:

SELECT [email], [avatar], [first\_name], [last\_name], [phone], [yob], [address], [ward\_id], [district\_id], [city\_id] , [role\_id]

FROM [user] WHERE email = ?

INSERT INTO [user] (email, avatar, last\_name, first\_name, role\_id) VALUES (?, ?, ?, ?, 0)

## 2. <SORT>

### a. Class Diagram

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### b. Class Specifications

#### Homecontroller Class

|  |  |  |
| --- | --- | --- |
| **No** | **Method** | **Description** |
| *01* | *protected void processRequest()* | *handle request from user* |

#### ProductDAO Class

|  |  |  |
| --- | --- | --- |
| **No** | **Method** | **Description** |
| *01* | *public int countProductByCateId(String cateId)* | *return total product where cateId = param* |
| *02* | *public String getFilter(int option, boolean trend)* | *return "order by” sql statement* |
| *03* | *public String getSellerEmailByProductId(String proId)* | *return a email of seller that sell a product which have a id passed in* |
| *04* | *public List<ProductDTO> getProductList(int pageNum, int option, boolean trend, int cateID)* | *return a product list base on page number, sort by option (Use the static int final variable in this class),*  *data trend (desc, asc) where category id = parameter passed in* |
| *05* | *public List<ProductDTO> getProductList(int pageNum, int option, boolean trend)* | *return a product list base on page number, sort by option (Use the static int final variable in this class),*  *data trend (desc, asc)* |
| *06* | *public List<ProductDTO> getProductList(int pageNum, int option, boolean trend, String emailSeller)* | *return a product list base on page number, sort by option (Use the static int final variable in this class),*  *data trend (desc, asc) where email of seller = parameter passed in* |
| *07* | *public List<ProductDTO> getProductList(int size, String productName)* | *get array of product base on product name and size of the array passed in* |

#### 

#### ProductImageDAO Class

|  |  |  |
| --- | --- | --- |
| **No** | **Method** | **Description** |
| *01* | *public List<ProductImageDTO> findAll(int productID)* | *find all product images of the product by productID* |

#### 

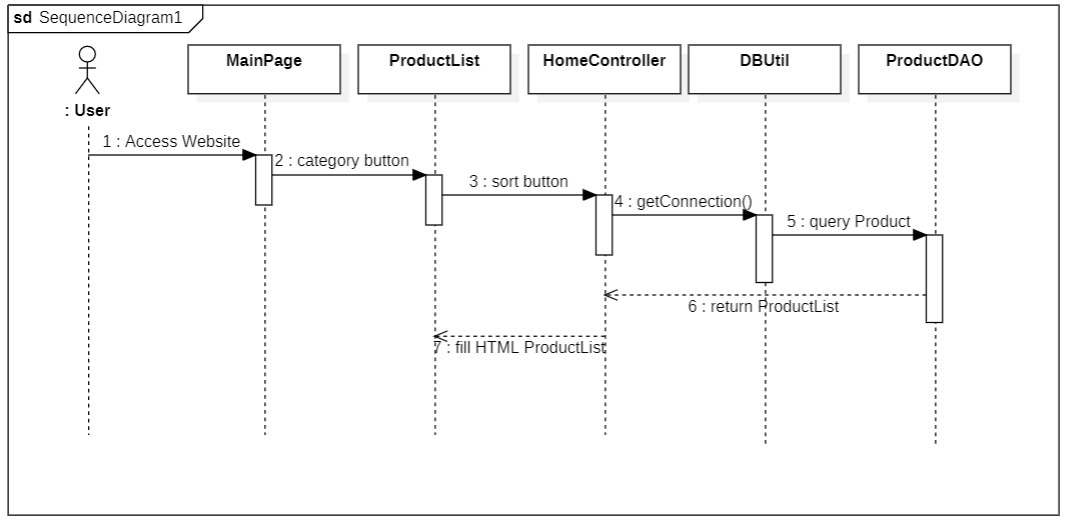
#### DButil Class

|  |  |  |
| --- | --- | --- |
| **No** | **Method** | **Description** |
| *01* | *public static Connection getConnection()* | *return a database connection* |

### 

### c. Sequence Diagram(s)

*[Provide the sequence diagram(s) for the feature, see the sample below]*

**

### d. Database queries

ProductDAO:

SELECT COUNT (product\_id) FROMproduct WHERE category\_id = ?

SELECT email\_seller from product where product\_id = ?

SELECT [product\_id], [email\_seller], [name], [price], [description], [category\_id], [quantity],

[email\_admin], [status], [create\_at], [approve\_at] , [sold\_count]

FROM product WHERE category\_ID = ?

SELECT [product\_id], [email\_seller], [name], [price], [description], [category\_id], [quantity], [email\_admin], [status], [create\_at], [approve\_at], [sold\_count]

FROM product

SELECT product\_id, name, price, quantity, sold\_count

FROM product

WHERE email\_seller = ? AND status = 1 AND quantity > 0

SELECT product\_id, name FROM product

WHERE name LIKE ?

ORDER BY name OFFSET 0 rows FETCH first ? rows only

ProductImageDAO:

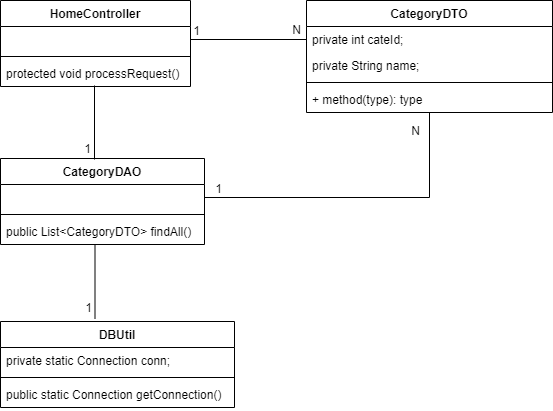
SELECT [image\_id], [url], [is\_main\_img] FROM image\_product WHERE product\_id = ?

## 

## 

## 3. <LOAD CATEGORY>

### a. Class Diagram



### b. Class Specifications

#### Homecontroller Class

|  |  |  |
| --- | --- | --- |
| **No** | **Method** | **Description** |
| *01* | *protected void processRequest()* | *this function is used for handle process from user* |

#### 

#### CategoryDAO Class

|  |  |  |
| --- | --- | --- |
| **No** | **Method** | **Description** |
| *01* | *public List<CategoryDTO> findAll()* | *get all list of categories* |

#### 

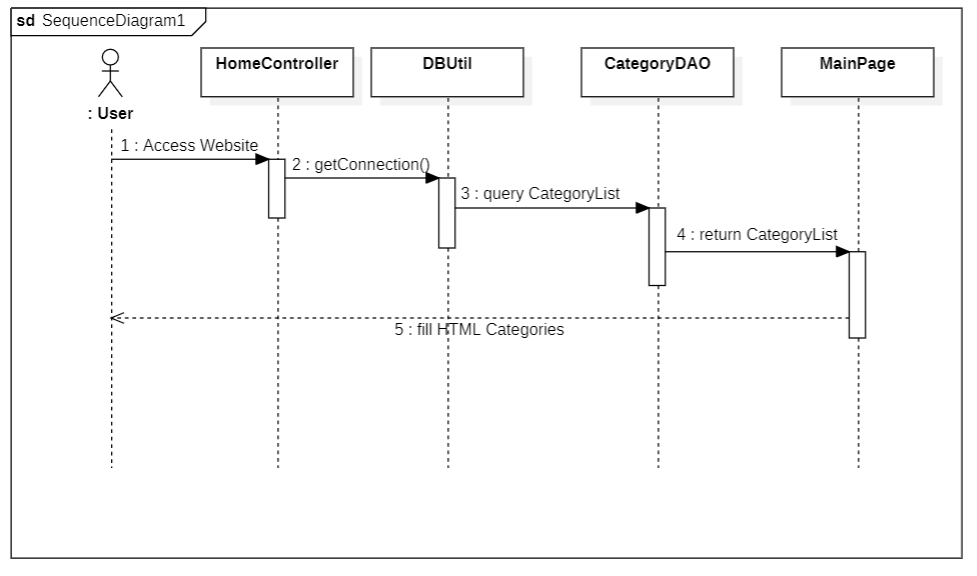
#### DButil Class

|  |  |  |
| --- | --- | --- |
| **No** | **Method** | **Description** |
| *01* | *public static Connection getConnection()* | *return a database connection* |

### 

### c. Sequence Diagram(s)

*[Provide the sequence diagram(s) for the feature, see the sample below*

**

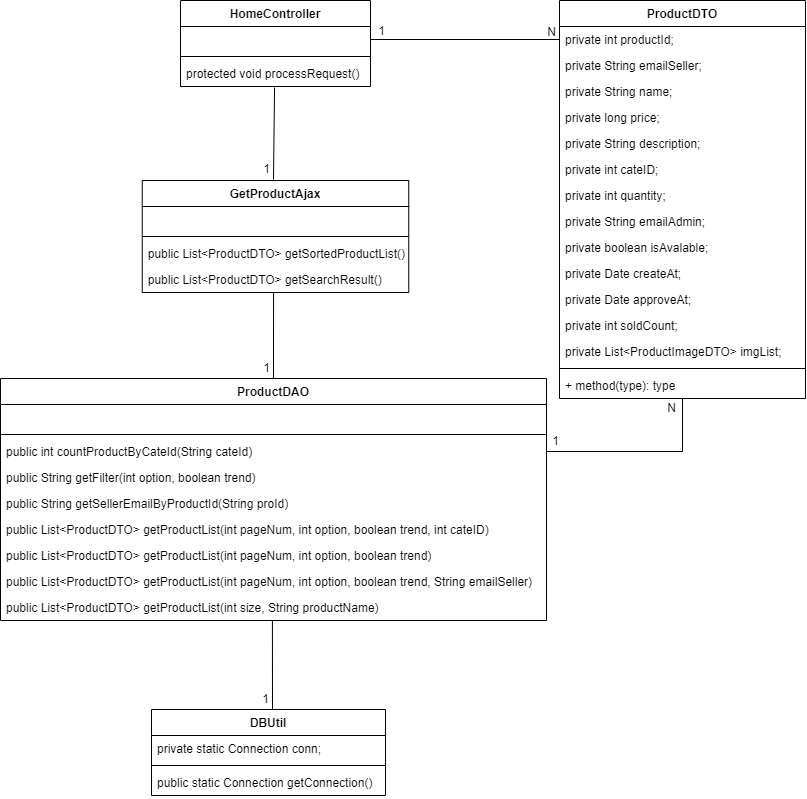
### d. Database queries

CategoryDAO:

SELECT category\_id, name, icon FROM category ORDER BY category\_id ASC

## 4. <SEARCH>

### a. Class Diagram



### 

### 

### 

### 

### b. Class Specifications

#### Homecontroller Class

|  |  |  |
| --- | --- | --- |
| **No** | **Method** | **Description** |
| *01* | *protected void processRequest()* | *this function is used for handle process from user* |

#### 

#### GetProductAjax Class

|  |  |  |
| --- | --- | --- |
| **No** | **Method** | **Description** |
| *01* | *public List<ProductDTO>getSortedProductList()* | *get sorted product list (base on parameter of the request)* |
| *02* | *public List<ProductDTO>getSearchResult()* | *return a list of product(product name and product id) when user typing something to search* |

#### 

#### ProductDAO Class

|  |  |  |
| --- | --- | --- |
| **No** | **Method** | **Description** |
| *01* | *public int countProductByCateId(String cateId)* | *get total product base on category id for paging* |
| *02* | *public String getFilter(int option, boolean trend)* | *return “order by” sql statement* |
| *03* | *public String getSellerEmailByProductId(String proId)* | *return a email of seller that sell a product which have a id passed in* |
| *04* | *public List<ProductDTO> getProductList(int pageNum, int option, boolean trend, int cateID)* | *return a product list base on page number, sort by option (Use the static int final variable in this class),*  *data trend (desc, asc) where category id = parameter passed in* |
| *05* | *public List<ProductDTO> getProductList(int pageNum, int option, boolean trend)* | *return a product list base on page number, sort by option (Use the static int final variable in this class),*  *data trend (desc, asc)* |
| *06* | *public List<ProductDTO> getProductList(int pageNum, int option, boolean trend, String emailSeller)* | *return a product list base on page number, sort by option (Use the static int final variable in this class),*  *data trend (desc, asc) where email of seller = parameter passed in* |
| *07* | *public List<ProductDTO> getProductList(int size, String productName)* | *get array of product base on product name and size of the array passed in* |

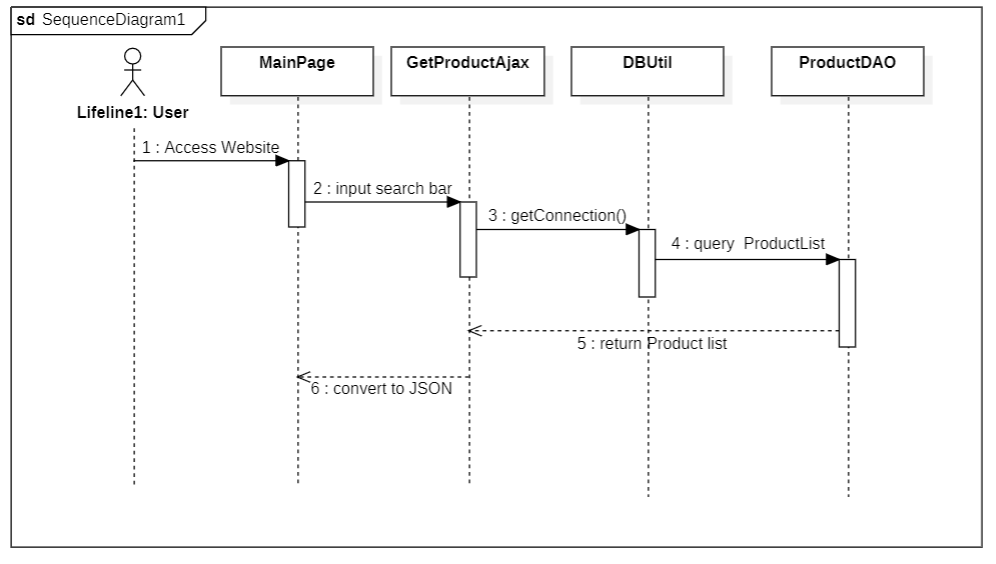
#### 

#### DButil Class

|  |  |  |
| --- | --- | --- |
| **No** | **Method** | **Description** |
| *01* | *public static Connection getConnection()* | *return a sql Connection object* |

### c. Sequence Diagram(s)

*[Provide the sequence diagram(s) for the feature, see the sample below]*

**

### d. Database queries

ProductDAO

SELECT count(product\_id) FROM product WHERE category\_id = ?

SELECT email\_seller FROM product WHERE product\_id = ?

SELECT [product\_id], [email\_seller], [name], [price], [description], [category\_id], [quantity], [email\_admin], [status], [create\_at], [approve\_at] , [sold\_count]

FROM product WHERE category\_ID = ?

SELECT [product\_id], [email\_seller], [name], [price], [description], [category\_id], [quantity], [email\_admin], [status], [create\_at], [approve\_at], [sold\_count]

FROM product

SELECT product\_id, name, price, quantity, sold\_count FROM product

WHERE email\_seller = ? AND status = 1 AND quantity > 0

SELECT product\_id, name

FROM product

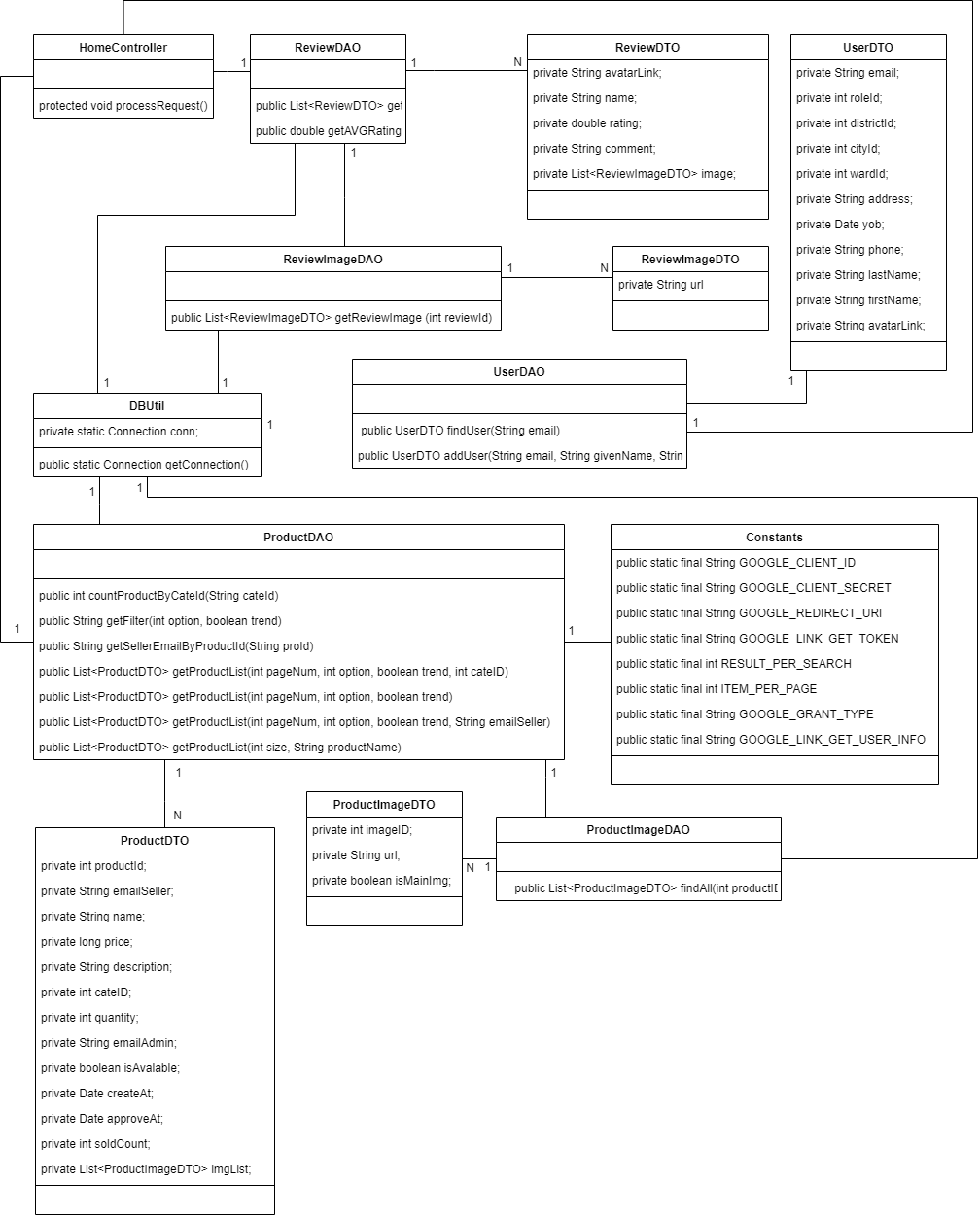
WHERE name LIKE ?

ORDER BY name OFFSET 0 rows FETCH first ? rows only

## 

## 5. <PRODUCT DETAIL>

### a. Class Diagram



### b. Class Specifications

#### HomeController Class

|  |  |  |
| --- | --- | --- |
| **No** | **Method** | **Description** |
| *01* | *protected void processRequest()* | *take request and redirect to specified product* |

#### 

#### ReviewDAO Class

|  |  |  |
| --- | --- | --- |
| **No** | **Method** | **Description** |
| *01* | *public List<ReviewDTO> getReview(int productId)* | *show all review of product* |
| *02* | *public double getAVGRatingOfProduct(int productId)* | *show average rating of product* |

#### 

#### ReviewImageDAO Class

|  |  |  |
| --- | --- | --- |
| **No** | **Method** | **Description** |
| *01* | *public List<ReviewImageDTO> getReviewImage (int reviewId)* | *get all images of a reviewer for product* |

#### 

#### UserDAO Class

|  |  |  |
| --- | --- | --- |
| **No** | **Method** | **Description** |
| *01* | *public UserDTO findUser(String email)* | *get information of seller* |
|  | *public UserDTO addUser(String email, String givenName, String avatarLink)* | *insert a data user into database* |

#### 

#### ProductDAO Class

|  |  |  |
| --- | --- | --- |
| **No** | **Method** | **Description** |
| *01* | *public int countProductByCateId(String cateId)* | *get total product base on category id for paging* |
| *02* | *public String getFilter(int option, boolean trend)* | *return “order by” sql statement* |
| *03* | *public String getSellerEmailByProductId(String proId)* | *return an email of seller that sell a product which have an id passed in* |
| *04* | *public List<ProductDTO> getProductList(int pageNum, int option, boolean trend, int cateID)* | *return a product list base on page number, sort by option (Use the static int final variable in this class),*  *data trend (desc, asc) where category id = parameter passed in* |
| *05* | *public List<ProductDTO> getProductList(int pageNum, int option, boolean trend)* | *return a product list base on page number, sort by option (Use the static int final variable in this class),*  *data trend (desc, asc)* |
| *06* | *public List<ProductDTO> getProductList(int pageNum, int option, boolean trend, String emailSeller)* | *return a product list base on page number, sort by option (Use the static int final variable in this class),*  *data trend (desc, asc) where email of seller = parameter passed in* |
| *07* | *public List<ProductDTO> getProductList(int size, String productName)* | *get array of product base on product name and size of the array passed in* |

#### 

#### ProductImageDAO Class

|  |  |  |
| --- | --- | --- |
| **No** | **Method** | **Description** |
| *01* | *public List<ProductImageDTO> findAll(int productID)* | *get all images of product* |

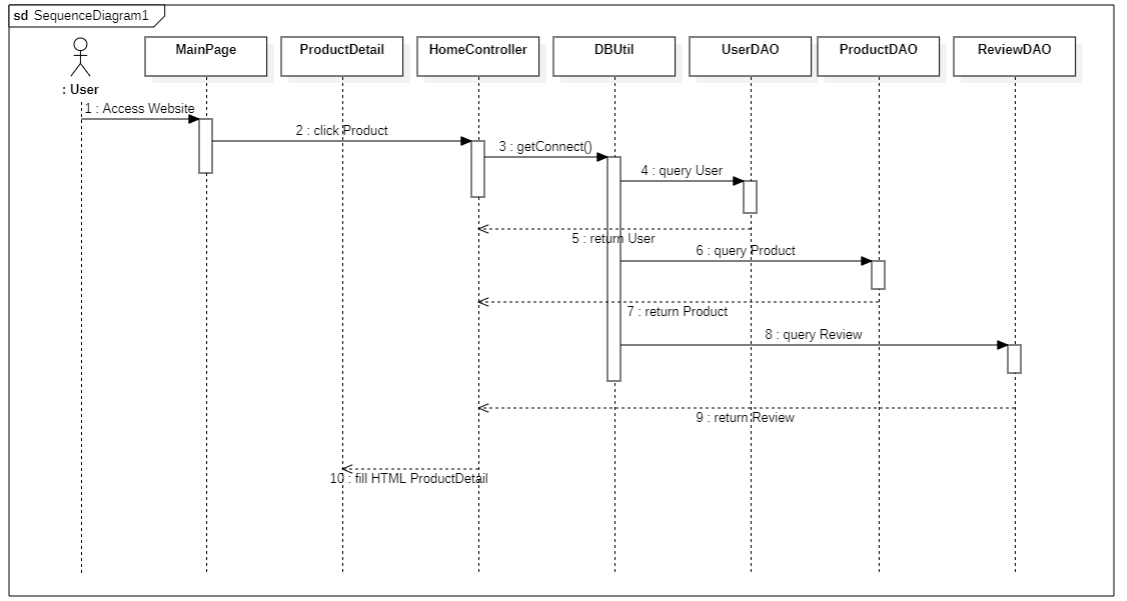
#### 

#### DButil Class

|  |  |  |
| --- | --- | --- |
| **No** | **Method** | **Description** |
| *01* | *public static Connection getConnection()* | *create connection between project and database* |

### c. Sequence Diagram(s)

*[Provide the sequence diagram(s) for the feature, see the sample below]*

**

### 

### d. Database queries

ReviewImageDAO:

SELECT url FROM image\_review WHERE review\_id = ? ORDER BY image\_id

UserDAO:

SELECT [email], [avatar], [first\_name], [last\_name], [phone], [yob], [address], [ward\_id], [district\_id], [city\_id], [role\_id]

FROM [user] WHERE email = ?

INSERT INTO [user] (email, avatar, last\_name, first\_name, role\_id) VALUES (?, ?, ?, ?, 0)

ProductDAO:

SELECT COUNT(product\_id) FROM product WHERE category\_id = ?

SELECT email\_seller FROM product WHERE product\_id = ?

SELECT [product\_id], [email\_seller], [name], [price], [description], [category\_id], [quantity], [email\_admin], [status], [create\_at], [approve\_at] , [sold\_count]

FROM product WHERE category\_ID = ?

SELECT [product\_id], [email\_seller], [name], [price], [description], [category\_id], [quantity], [email\_admin], [status], [create\_at], [approve\_at], [sold\_count] FROM product

SELECT product\_id, name, price, quantity, sold\_count FROM product

WHERE email\_seller = ? AND status = 1 AND quantity > 0

SELECT product\_id, name FROM product

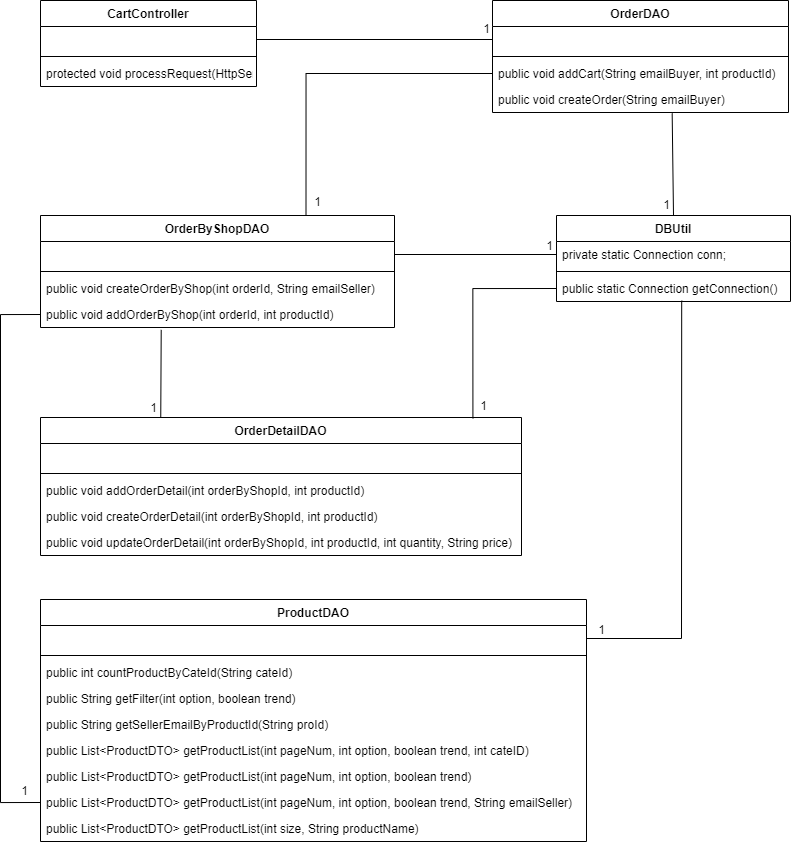
WHERE name LIKE ? ORDER BY name OFFSET 0 rows FETCH first ? rows only

ProductDAO:

SELECT url FROM image\_review WHERE review\_id = ? ORDER BY image\_id

## 6. <BUY PRODUCT>

### a. Class Diagram



### 

### b. Class Specifications

#### CartController Class

|  |  |  |
| --- | --- | --- |
| **No** | **Method** | **Description** |
| *01* | *public List<ProductImageDTO> findAll(int productID)* | *Receive and process requests from users to add products to the order* |

### 

#### OrderDAO Class

|  |  |  |
| --- | --- | --- |
| **No** | **Method** | **Description** |
| *01* | *public void addCart(String emailBuyer, int productId)* | *check the existence or create a new order* |
| *02* | *public void createOrder(String emailBuyer)* | *create a new order* |

### 

#### OrderByShopDAO Class

|  |  |  |
| --- | --- | --- |
| **No** | **Method** | **Description** |
| *01* | *public void createOrderByShop(int orderId, String emailSeller)* | *check the existence or create a new order by shop* |
| *02* | *public void addOrderByShop(int orderId, int productId)* | *create a new order by shop* |

### 

#### OrderDetailDAO Class

|  |  |  |
| --- | --- | --- |
| **No** | **Method** | **Description** |
| *01* | *public void addOrderDetail(int orderByShopId, int productId)* | *check the existence or create a new order detail or update order detail* |
| *02* | *public void createOrderDetail(int orderByShopId, int productId)* | *create a new order detail* |
| *03* | *public void updateOrderDetail(int orderByShopId, int productId, int quantity, String price)* | *update to increase the number of products by 1 in the order* |

### 

#### ProductDAO Class

|  |  |  |
| --- | --- | --- |
| **No** | **Method** | **Description** |
| *01* | *public int countProductByCateId(String cateId)* | *get total product base on category id for paging* |
| *02* | *public String getFilter(int option, boolean trend)* | *return “order by” sql statement* |
| *03* | *public String getSellerEmailByProductId(String proId)* | *return an email of seller that sell a product which have a id passed in* |
| *04* | *public List<ProductDTO> getProductList(int pageNum, int option, boolean trend, int cateID)* | *return a product list base on page number, sort by option (Use the static int final variable in this class),*  *data trend (desc, asc) where category id = parameter passed in* |
| *05* | *public List<ProductDTO> getProductList(int pageNum, int option, boolean trend)* | *return a product list base on page number, sort by option (Use the static int final variable in this class),*  *data trend (desc, asc)* |
| *06* | *public List<ProductDTO> getProductList(int pageNum, int option, boolean trend, String emailSeller)* | *return a product list base on page number, sort by option (Use the static int final variable in this class),*  *data trend (desc, asc) where email of seller = parameter passed in* |
| *07* | *public List<ProductDTO> getProductList(int size, String productName)* | *get array of product base on product name and size of the array passed in* |

#### 

#### DButil Class

|  |  |  |
| --- | --- | --- |
| **No** | **Method** | **Description** |
| *01* | *public static Connection getConnection()* | *create connection between project and database* |

### c. Sequence Diagram(s)

*[Provide the sequence diagram(s) for the feature, see the sample below]*

### 

### 

### d. Database queries

ProductDAO:

SELECT product\_idemail\_seller, name, price, description, category\_id, quantity, sold\_count FROM product WHERE product\_id = ? AND status = 1

SELECT product\_id, name, price, quantity, sold\_count

FROM product WHERE email\_seller = ? AND status = 1 AND quantity > 0

ORDER BY sold\_count DECS OFFSET itemSkipped ROWS FETCH NEXT 8 ROWS ONLY

UserDAO:

SELECT email, avatar, first\_name, last\_name, phone, address, w.name, d.name, c.name

FROM [user] u LEFT JOIN ward w ON u.ward\_id = w.ward\_id

LEFT JOIN district d ON u.district\_id = d.district\_id

LEFT JOIN city c ON u.city\_id = c.city\_id

WHERE email = (SELECT email\_seller

FROM product

WHERE product\_id = ? )

ReviewDAO:

SELECT u.avatar, u.first\_name, u.last\_name, r.comment, r.rating, r.review\_id

FROM [user] u RIGHT JOIN [order] od ON u.email = od.email\_buyer

RIGHT JOIN order\_by\_shop os ON od.order\_id = os.order\_id

RIGHT JOIN (SELECT order\_detail\_id, order\_by\_shop\_id

FROM [order\_detail]

WHERE product\_id = ?) o ON os.order\_by\_shop\_id = o.order\_by\_shop\_id

LEFT JOIN review r ON r.order\_detail\_id = o.order\_detail\_id

ORDER BY r.review\_id

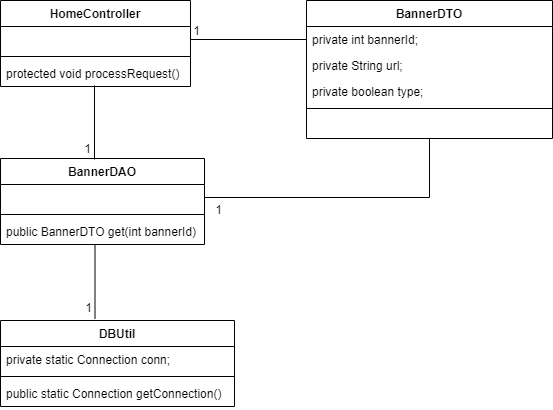
SELECT AVG(r.rating)

FROM [order\_detail] o LEFT JOIN review r ON r.order\_detail\_id = o.order\_detail\_id

WHERE product\_id = ?

## 7. <BANNER>

### a. Class Diagram



### b. Class Specifications

#### HomeController Class

|  |  |  |
| --- | --- | --- |
| **No** | **Method** | **Description** |
| *01* | *protected void processRequest()* | *receive request and redirect to specific page* |

#### 

#### BannerDAO Class

|  |  |  |
| --- | --- | --- |
| **No** | **Method** | **Description** |
| *01* | *public BannerDTO get(int bannerId)* | *get all data of a banner* |

### 

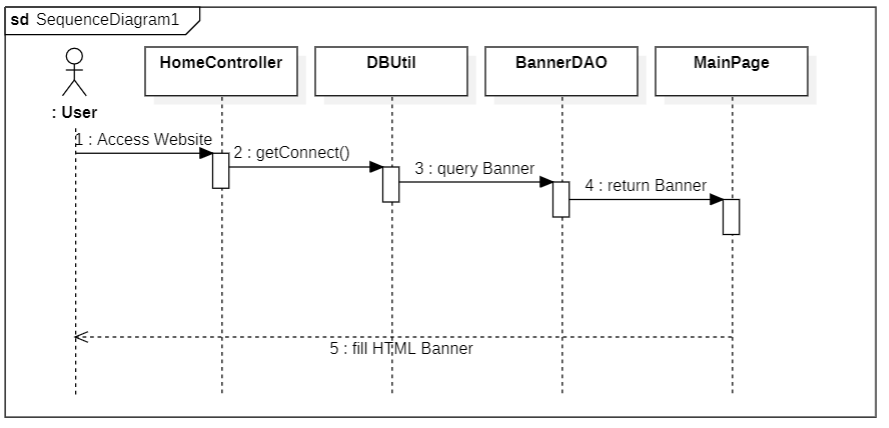
#### DButil Class

|  |  |  |
| --- | --- | --- |
| **No** | **Method** | **Description** |
| *01* | *public static Connection getConnection()* | *create connection between project and database* |

### 

### c. Sequence Diagram(s)

*[Provide the sequence diagram(s) for the feature, see the sample below]*

**

### d. Database queries

BannerDAO:

SELECT banner\_id, url, type\_banner FROM banner WHERE banner\_id = ?

# III. Database Tables

## 1. < city >

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **#** | **Field name** | **Type** | **Size** | **Unique** | **Not Null** | **PK/FK** | **Notes** |
| 1 | city\_id | NVARCHAR | 20 | x | x | PRIMARY KEY |  |
| 2 | name | NVARCHAR | 255 |  | x |  |  |

## 2. < district >

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **#** | **Field name** | **Type** | **Size** | **Unique** | **Not Null** | **PK/FK** | **Notes** |
| 1 | district\_id | NVARCHAR | 20 | x | x | PRIMARY KEY |  |
| 2 | name | NVARCHAR | 255 |  | x |  |  |
| 3 | city\_id | NVARCHAR | 20 |  |  | FOREIGN KEY | FK\_DISTRICT\_RE\_CITY |

## 3. < Ward >

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **#** | **Field name** | **Type** | **Size** | **Unique** | **Not Null** | **PK/FK** | **Notes** |
| 1 | ward\_id | NVARCHAR | 20 | x | x | PRIMARY KEY |  |
| 2 | name | NVARCHAR | 255 |  | x |  |  |
| 3 | district\_id | NVARCHAR | 20 |  |  | FOREIGN KEY | FK\_WARD\_RE\_DISTRICT |

## 4. < Role >

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **#** | **Field name** | **Type** | **Size** | **Unique** | **Not Null** | **PK/FK** | **Notes** |
| 1 | role\_id | INT |  | x | x | PRIMARY KEY | IDENTITY (0,1) |
| 2 | name | NVARCHAR | 10 | x | x |  |  |

## 

## 5. < user >

| **#** | **Field name** | **Type** | **Size** | **Unique** | **Not Null** | **PK/FK** | **Notes** |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | email | VARCHAR | 50 | x | x | PRIMARY KEY |  |
| 2 | avatar | TEXT |  |  | x |  |  |
| 3 | first\_name | NVARCHAR | 40 |  |  |  |  |
| 4 | last\_name | NVARCHAR | 40 |  |  |  |  |
| 5 | phone | VARCHAR | 10 | x |  |  |  |
| 6 | yob | DATE |  |  |  |  |  |
| 7 | address | NTEXT |  |  |  |  |  |
| 8 | ward\_id | NVARCHAR | 20 |  |  | FOREIGN KEY | FK\_USER\_RE\_WARD |
| 19 | district\_id | NVARCHAR | 20 |  |  | FOREIGN KEY | FK\_USER\_RE\_DISTRICT |
| 10 | city\_id | NVARCHAR | 20 |  |  | FOREIGN KEY | FK\_USER\_RE\_CITY |
| 11 | role\_id | INT |  |  |  | FOREIGN KEY | FK\_USER\_RE\_ROLE |

## 6. < category >

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **#** | **Field name** | **Type** | **Size** | **Unique** | **Not Null** | **PK/FK** | **Notes** |
| 1 | category\_id | INT |  | x | x | PRIMARY KEY | IDENTITY (0,1) |
| 2 | name | NVARCHAR | 40 | x | x |  |  |
| 3 | icon | VARCHAR | 100 |  |  |  |  |

## 7. < delivery\_method >

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **#** | **Field name** | **Type** | **Size** | **Unique** | **Not Null** | **PK/FK** | **Notes** |
| 1 | delivery \_id | INT |  | x | x | PRIMARY KEY | IDENTITY (0,1) |
| 2 | name | NVARCHAR | 40 | x | x |  |  |

## 8. < payment\_method >

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **#** | **Field name** | **Type** | **Size** | **Unique** | **Not Null** | **PK/FK** | **Notes** |
| 1 | payment \_id | INT |  | x | x | PRIMARY KEY | IDENTITY (0,1) |
| 2 | name | NVARCHAR | 40 | x | x |  |  |

## 9. < product >

| **#** | **Field name** | **Type** | **Size** | **Unique** | **Not Null** | **PK/FK** | **Notes** |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | product\_id | INT |  | x | x | PRIMARY KEY | IDENTITY (0,1) |
| 2 | email (seller) | VARCHAR | 50 |  | x | FOREIGN KEY | FK\_PRODUCT\_RE\_SELLER |
| 3 | name | NVARCHAR | 100 |  | x |  |  |
| 4 | price | NUMERIC | (12.0) |  | x |  | CHECK price >= 0 |
| 5 | description | NTEXT |  |  |  |  |  |
| 6 | category\_id | INT |  |  | x | FOREIGN KEY | FK\_PRODUCT\_RE\_CATEGORY |
| 7 | quantity | INT |  |  | x |  | DEFAULT (0)  CHECK quantity >= 0 |
| 8 | email\_admin | VARCHAR | 50 |  |  | FOREIGN KEY | FK\_PRODUCT\_RE\_ADMIN |
| 9 | sold\_count | INT |  |  | x |  | DEFAULT (0) |
| 10 | status | BIT |  |  | x |  | DEFAULT (0) |
| 11 | create\_at | DATE |  |  | x |  |  |
| 12 | approve\_at | DATE |  |  |  |  |  |

## 

## 

## 

## 10. < image\_product >

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **#** | **Field name** | **Type** | **Size** | **Unique** | **Not Null** | **PK/FK** | **Notes** |
| 1 | image \_id | INT |  | x | x | PRIMARY KEY | IDENTITY (0,1) |
| 2 | product\_id | INT |  |  | x | FOREIGN KEY | FK\_IMAGE\_PRODUCT\_RE\_PRODUCT |
| 3 | url | TEXT |  |  |  |  |  |
| 4 | Is\_main\_img | BIT |  |  | x |  | DEFAULT (0) |

## 11. < order >

| **#** | **Field name** | **Type** | **Size** | **Unique** | **Not Null** | **PK/FK** | **Notes** |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | order\_id | INT |  | x | x | PRIMARY KEY | IDENTITY (0,1) |
| 2 | delivery\_id | INT |  |  |  | FOREIGN KEY | FK\_ORDER\_RE\_DELIVERY |
| 3 | payment\_id | INT |  |  |  | FOREIGN KEY | FK\_ORDER\_RE\_PAYMENT |
| 4 | email (buyer) | VARCHAR | 50 |  | x | FOREIGN KEY | FK\_ORDER\_RE\_BUYER |
| 5 | order\_date | DATE |  |  |  |  |  |
| 6 | shipper\_date | DATE |  |  |  |  |  |
| 7 | address | NTEXT |  |  |  |  |  |
| 8 | ward\_id | NVARCHAR | 20 |  |  | FOREIGN KEY | FK\_ORDER\_RE\_WARD |
| 9 | district\_id | NVARCHAR | 20 |  |  | FOREIGN KEY | FK\_ORDER\_RE\_DISTRICT |
| 10 | city\_id | NVARCHAR | 20 |  |  | FOREIGN KEY | FK\_ORDER\_RE\_CITY |

## 

## 

## 12. < order\_detail>

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **#** | **Field name** | **Type** | **Size** | **Unique** | **Not Null** | **PK/FK** | **Notes** |
| 1 | order\_details\_id | INT |  | x | x | PRIMARY KEY | IDENTITY (0,1) |
| 2 | order\_by\_shop\_id | INT |  |  | x | FOREIGN KEY | FK\_ORDER\_DETAIL\_RE\_ORDER |
| 3 | product\_id | INT |  |  | x | FOREIGN KEY | FK\_ORDER\_DETAIL\_RE\_PRODUCT |
| 4 | quantity | INT |  |  | x |  | CHECK quantity >= 0 |
| 5 | price | NUMERIC | (12,0) |  |  |  | CHECK price >= 0 |

## 13. < order\_by\_shop>

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **#** | **Field name** | **Type** | **Size** | **Unique** | **Not Null** | **PK/FK** | **Notes** |
| 1 | order\_by\_shop\_id | INT |  | x | x | PRIMARY KEY | INDENTITY (0,1) |
| 2 | order \_id | INT |  |  | x | FOREIGN KEY | FK\_FEP\_ORDER\_BY\_SHOP\_RE\_FEP\_ORDER |
| 3 | email (seller) | VARCHAR | 50 |  | x | FOREIGN KEY | FK\_FEP\_ORDER\_BY\_SHOP\_RE\_USER |
| 4 | transaction\_fee | NUMERIC (12,0) |  |  | x |  |  |
| 5 | transport\_fee | NUMERIC (12,0) |  |  |  |  |  |
| 6 | shipped\_date | DATE |  |  |  |  |  |

## 14. < review >

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **#** | **Field name** | **Type** | **Size** | **Unique** | **Not Null** | **PK/FK** | **Notes** |
| 1 | review \_id | INT |  | x | x | PRIMARY KEY | IDENTITY (0,1) |
| 2 | order\_detail\_id | INT |  |  | x | FOREIGN KEY | FK\_REVIEW\_RE\_ODER\_DETAIL |
| 3 | rating | FLOAT |  |  | x |  |  |
| 4 | comment | NTEXT |  |  |  |  |  |
| 5 | email (admin) | VARCHAR | 50 |  |  | FOREIGN KEY | FK\_REVIEW\_RE\_ADMIN |
| 6 | status | BIT |  |  | x |  | DEFAULT (0) |

## 15. < image\_review >

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **#** | **Field name** | **Type** | **Size** | **Unique** | **Not Null** | **PK/FK** | **Notes** |
| 1 | image \_id | INT |  | x | x | PRIMARY KEY | IDENTITY (0,1) |
| 2 | review\_id | INT |  |  | x | FOREIGN KEY | FK\_IMAGE\_REVIEW\_RE\_REVIEW |
| 3 | url | TEXT |  |  | x |  |  |

## 16. < banner >

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **#** | **Field name** | **Type** | **Size** | **Unique** | **Not Null** | **PK/FK** | **Notes** |
| 1 | banner\_id | INT |  | x | x | PRIMARY KEY | IDENTITY (0,1) |
| 2 | name | VARCHAR | 100 |  | x |  |  |
| 3 | type\_banner | BIT |  |  | x |  | DEFAULT (0) |