#### **Project team 17 - University Cafeteria Management**

#### **Team Members:**

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#### **Objective** -

A software solution to manage a University Cafeteria system.

Usually People have to go to cafeteria and order the food and they have to wait in queue for a long time to get the orders.

This project is a web application, with the help of this users (Students/Employee/Staff of university) will follow a very simple process to order food stuffs without waiting in the long queue and can pick the food once the order is ready.

UNC charlotte Students/Employee/Staff can make the payment from Niner wallet. We will fetch niner wallet data from university dummy database.

#### PROJECT ENVIRONMENT

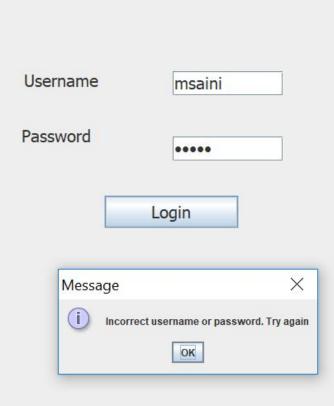
Name of component	Specification
Operating System	Windows 10
Language	Java(Java 8 Runtime Environment)
Database	MySQL Workbench 8.0.12
Browser	Any of Mozilla, Opera, Chrome etc.
Web Server	Tomcat 7
Software Development Kit	Java JDK 1.8.0_181 or Above
Scripting Language	For sprint 0 environment setup - Java Swing, AngularJS
Database .jar connector	Mysql-connector



# Username Password Login



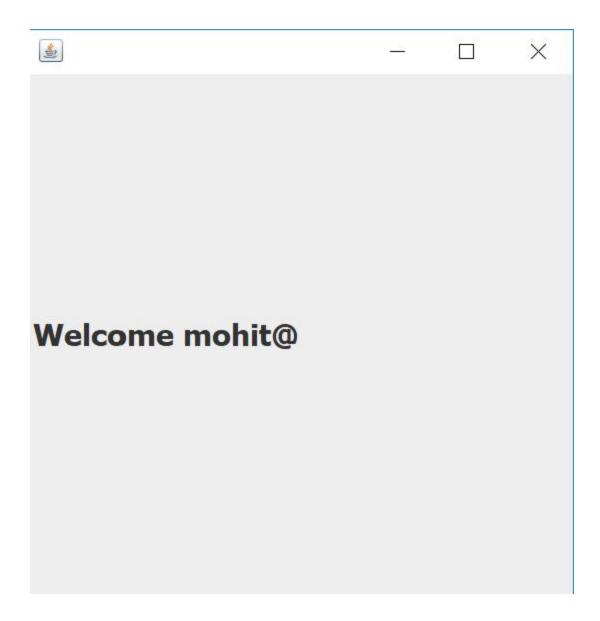
# **Login Page**





# **Login Page**





# HIGH LEVEL REQUIREMENTS

#### **Initial user roles**

User Role	Description	
	Users can login to system with NINER credentials and can order food from the web-application.	

	<ol> <li>Student/Faculty/Staff can login using University ID validated with University Student database.</li> <li>After Login, They can browse the food menu and add items to the cart.</li> <li>Users can search for any food item or any restaurant using the search bar on their home screen.</li> <li>They can checkout and pay using their Niner Wallet.</li> <li>Order ID will be generated for the successful orders.</li> </ol>	
Administrator	Administrator can perform CRUD operations on Vendor's data. Administrator can provide or modify the access for both existing and new vendors.	
Vendor*	Service vendors can create a free account with the system and can manage their food orders. There is one Vendor for each shop.  1. Vendors can add food items, can delete items or can update prices or descriptions of food items  2. Vendors can login with their credentials, un-authorize users will get user-friendly error messages.  3. Vendors will receive user orders on homepage, which auto refreshes after a given interval of time.  4. Vendors will mark the order as "Ready" which will notify the user.	

<sup>\*</sup> There will be 3 to 4 different Vendors having same functionalities as described above.

# **Initial user story descriptions**

Story ID	Story description
US1	As a User*, I want to log in/log out to/from application by using university Niner account.
US2	As a User*, I want to search for service vendors available in the application.
US3	As a User*, I want to list food items provided by service vendors.
US4	As a User*, I want to see image, price and description/ingredients of listed food items.
US5	As a User, I want to place food order.
US6	As a User, I want to get approx. food preparation time and order id
US7	As u User, I want to get food prepared notification.
US8	As a Service Vendor*, I want to log in/log out to/from application.
US9	As a Service Vendor*, I want to search/add/update/delete food items in my store.
US10	As a Service Vendor*, I can notify users whenever the food order is ready.
US11	As an Administrator, I can add/update/delete any service vendor.

#### HIGH LEVEL CONCEPTUAL DESIGN

Entity 1 : User

Entity 2 : **Food** 

Entity 3: Order

Entity 4: **Vendor** 

Entity 5: **Administrator** 

#### Relationships

1. User gives Order

Cardinality: One to Many

Participation: User has Partial participation

Order has Total participation

2. Vendor manages Food

Cardinality: One to Many

Participation: Vendor has Total participation

Food has Total participation

3. Order contains Food

Cardinality: Many to Many

Participation: Order has Total Participation

Food has Partial Participation

4. Administrator manages Vendors

Cardinality: Many to Many

Participation: Administrator has Partial Participation

Vendors has Total Participation

#### SCOPE -

Typical system users will include thousands of university members who can use this web application to easily order their food online.

It will also include Vendors (such as Bojangles, Papa John, Starbucks, etc.) who can manage their sales through this web application.

# **Sprint 1**

#### **REQUIREMENTS**

Story ID	Story description
US1	As a User*, I want to login to application by using university Niner account.
US2	As a User*, I want to search for service vendors available in the application.
US3	As a User*, I want to list food items provided by service vendors.
US4	As a Service Vendor*, I want to login to application.
US5	As a Service Vendor*, I want to search/add/update/delete food items in my store.
US6	As a User*, I want to see image, price and description/ingredients of listed food items.
US7	As a User, I want to place food order.
US8	As a User, I want to get approx. food preparation time and order id
US9	As a User, I want to get food prepared notification.
US10	As a Service Vendor*, I can notify users whenever the food order is ready.

US11 As an Administrator, I can add/update/delete any service vendor.

#### **CONCEPTUAL DESIGN**

Entity: **User**Attributes:

Name [Composite]

firstName
lastName
userId
contactNo[multi-valued]
ninerWallet
emailId
password

Entity: **Food**Attributes
foodName
foodCategory: (Veg/Non Veg)
price
ingredients
image
vendorId

Entity: **Orders**Attributes
vendorId:
prepTime:
quantity:

Entity: **Vendors**Attributes
Name(Composite)
firstName

lastName

username: password: shopName

Entity: **Administrator** 

**Attributes** 

Name(Composite) firstName lastName

username: password: date:

#### **Relationship:**

1. User gives Order

Cardinality: One to Many

Participation: User has Partial participation

Order has Total participation

#### 2. Vendor manages Food

Cardinality: One to Many

Participation: Vendor has Total participation

Food has Total participation

#### 3. Order contains Food

Cardinality: Many to Many

Participation: Order has Total Participation

Food has Partial Participation

#### 4. Administrator manages Vendors

Cardinality: Many to Many

Participation: Administrator has Partial Participation

Vendors has Total Participation

#### LOGICAL DESIGN

```
Entity: User
Columns:
     userId(Auto-generated)
     password
     firstName
     lastName
     emailID
     contactNo1
     contactNo2
     ninerWallet
Entity: Food
Columns:
     foodId(Auto Generated)
     foodName
     foodCategory
     price
     ingredients
     image
     availability
     vendorId[foreign key; references vendorId of Vendor]
Entity: Order
Columns:
     orderId(Auto Generated)
     vendorId[foreign key;references vendorId of Vendor]
     userId[foreign key; references userId of Users]
     preparationTime
     quantity
```

```
Entity: Vendor Columns:
```

vendorId(Auto Generated)

<u>vendorUserName</u>

shopName

vendorFirstName

vendorLastName

Password

vendorEmail

#### Entity: **Administrator**

Columns:

adminstratorId(Auto Generated)

password

firstName

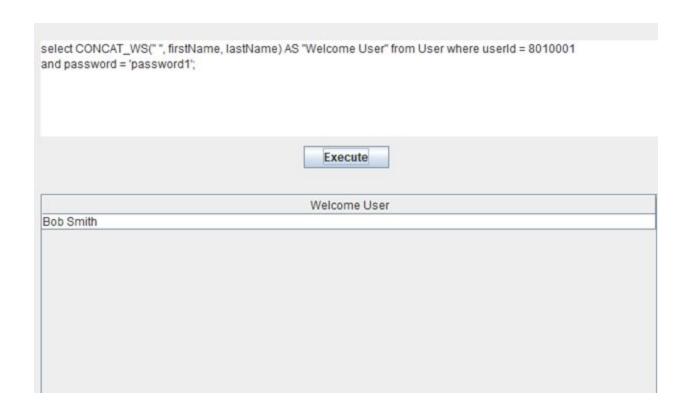
lastName

<u>adminUserName</u>

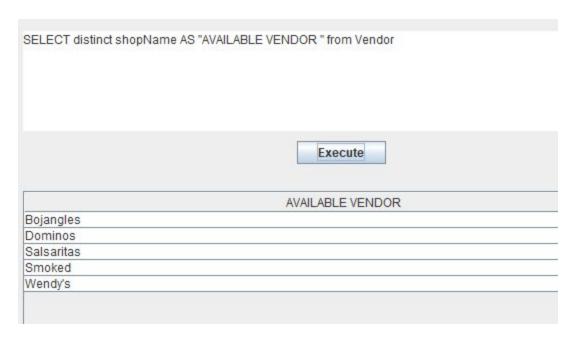
#### **SQL QUERIES**

As a User\*, I want to login to application by using university Niner account.

```
select CONCAT_WS(" ", firstName, lastName) AS "Welcome User" from User where userId = 8010001 and password = 'password1';
```



# As a User\*, I want to search for service vendors available in the application. SELECT distinct shopName AS "AVAILABLE VENDOR" from Vendor



# As a User\*, I want to list food items provided by service vendors.

SELECT Vendor.shopName, Food.foodName, Food.foodCategory,Food.price,Food.ingredients from Food, Vendor where Vendor.shopName = 'Bojangles' and Food.vendorId = Vendor.vendorId and Food.availability = 1;



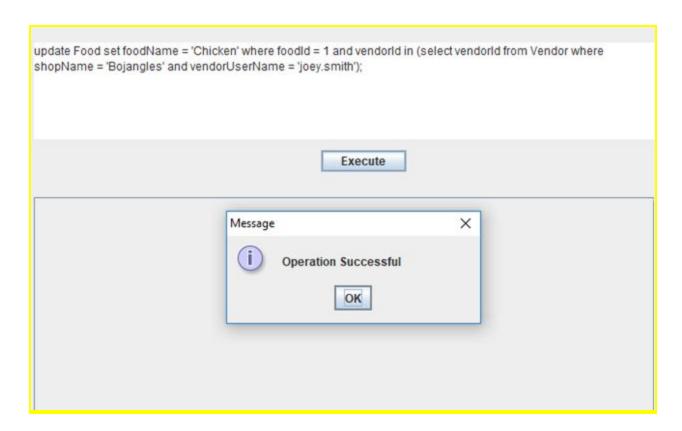
#### As a Service Vendor\*, I want to login to application.

SELECT CONCAT\_WS(" ", vendorFirstName, vendorLastName) AS "Welcome Vednor" from Vendor where vendorUserName = 'joey.smith' and password = 'vendorpassword1';

SELECT CONCAT_WS(" ", vendorFirstName, vendorLastName) AS "Welcome Vendor" from Vendor where vendorUserName = 'joey.smith' and password = 'vendorpassword1';
Execute
Welcome Vendor
Joey Smith

#### \*As a Service Vendor, I want to update food items in my store.

update Food set foodName = 'Chicken' where foodId = 1 and vendorId in (select vendorId from Vendor where shopName = 'Bojangles' and vendorUserName = 'joey.smith');



\* We are passing fooId in query because we have safe update setting in MySQL, so we can update Food table only with primary key.

OR we can use below statement

SET SQL\_SAFE\_UPDATES = 0;

# Sprint 2

# **REQUIREMENTS**

Story ID	Story description
US1	As a User*, I want to login to application by using university Niner account.
US2	As a User*, I want to search for service vendors available in the application.
US3	As a User*, I want to list food items provided by service vendors.
US4	As a Service Vendor*, I want to login to application.
US5	As a Service Vendor*, I want to search/add/update/delete food items in my store.
US6	As a User*, I want to see image, price and description/ingredients of listed food items.
US7	As a User, I want to place food order.
US8	As a User, I want to get approx. food preparation time and order id
US9	As a user, I want to give feedback to vendors.
US10	As a user, I want to get food delivered to my location.
US11	As an Administrator, I can add/update/delete any service vendor.
US12	As a User, I want to get food prepared notification.
US13	As a Service Vendor*, I can notify users whenever the food order is ready.
US14	As a user, I want to get the invoice of my order.
US15	As a vendor, I want to include combo packs, Offer prices etc.

#### **CONCEPTUAL DESIGN**

```
Entity: User
Attributes:
     name [Composite]
           firstName
     lastName
     userId
     contactNo[multi-valued]
     ninerWallet
     emailId
     password
Entity: Food
Attributes
     foodName
     foodCategory: (Veg/Non Veg)
     price
     ingredients
```

Entity: **Vendor**Attributes
name[Composite]
firstName
lastName
username
password
shopName

image

#### **Relationship:**

1.**User** Orders **Food** 

Cardinality: Many to Many

Participation: User has Partial participation

Food has Partial participation

2. Vendor manages Food

Cardinality: One to Many

Participation: Vendor has Total participation

Food has Total participation

3. **User** gives feedback to **Vendor** 

Cardinality: One to Many

Participation: User has Partial Participation

Vendor has Partial Participation

#### LOGICAL DESIGN WITH NORMAL FORM IDENTIFICATION

Table : **User** Columns:

userId(Auto-generated)

password

firstName

lastName

emailID

contactNo1

contactNo2

ninerWallet

Highest normalization level: 4NF

Table : **Food** 

Columns:

foodId(Auto Generated)

foodName

foodCategory

price ingredients image availability preparationTime vendorId[foreign key; references vendorId of Vendor] Highest normalization level: 4NF

Table : **Order** Columns:

> orderId(Auto Generated) vendorId[foreign key;references vendorId of Vendor] userId[foreign key; references userId of Users] takeAwayType ENUM(Inperson,CampusDelivery) totalAmount (derived attribute)

Highest normalization level: 4NF

Table: Vendor

Columns:

vendorId(Auto Generated) vendorUserName shopName vendorFirstName vendorLastName password vendorEmail

Highest normalization level: 4NF

Table: OrderedFood

Columns:

Id(Auto Generated) orderId[foreign key; references orderId of Order] foodId[foreign key; references foodId of Food] quantity

Justification: Relation between User and Food is Many to Many, hence we came up with new tables 'order' and 'OrderedFood' based on cross-reference approach.

Highest normalization level: 4NF

Table: **Feedback** 

Columns:

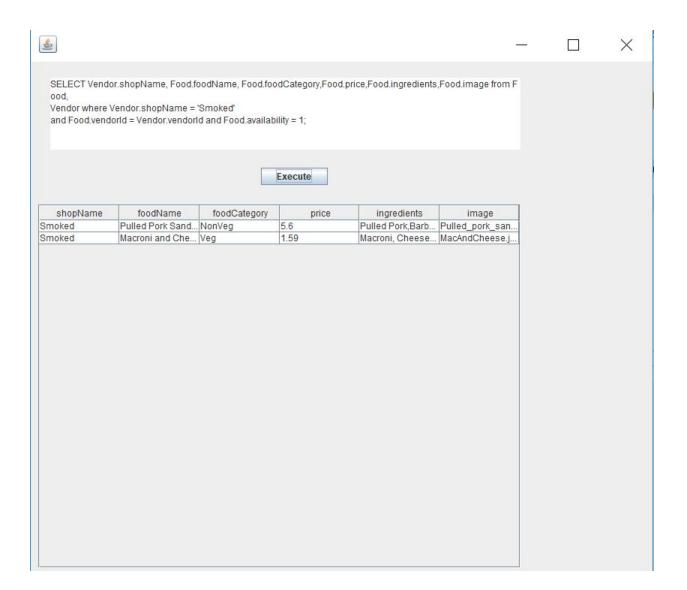
feedbackId(Auto Generated)
userId[foreign key; references **userId** of **User**]
vendorId[foreign key; references **vendorId** of **Vendor**]
suggestion
rating
Date

Highest normalization level: 4NF

#### **SQL QUERIES**

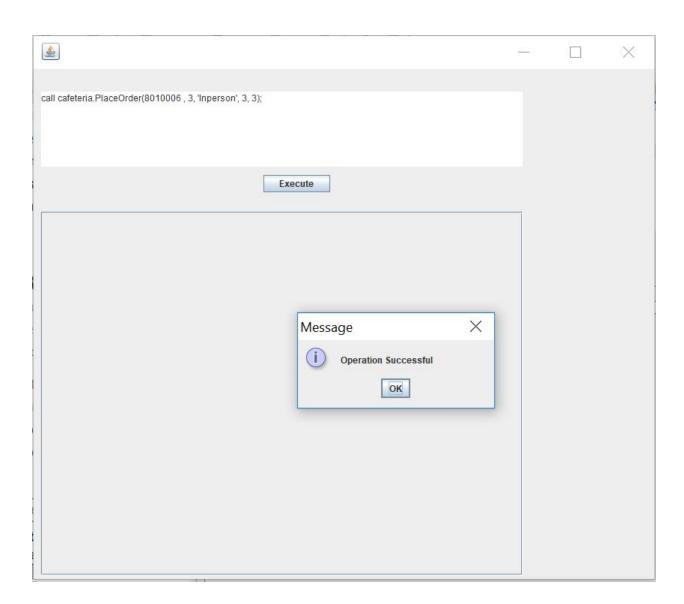
As a User\*, I want to see image, price and description/ingredients of listed food items.

SELECT Vendor.shopName, Food.foodName, Food.foodCategory,Food.price,Food.ingredients,Food.image from Food, Vendor where Vendor.shopName = 'Smoked' and Food.vendorId = Vendor.vendorId and Food.availability = 1;

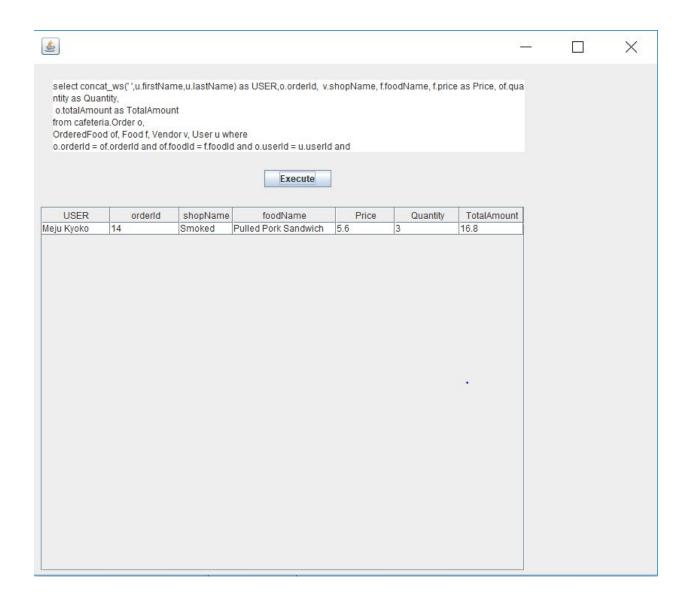


#### As a User, I want to place food order.

call cafeteria.PlaceOrder(8010006, 3, 'Inperson', 3, 3);

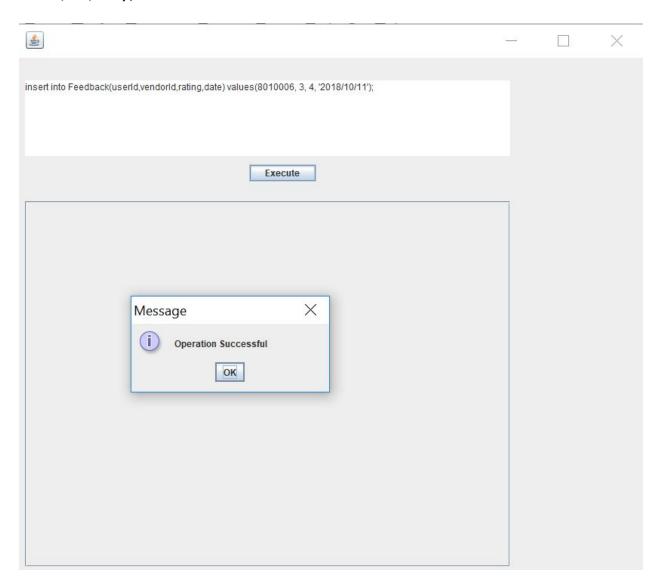


select concat\_ws(' ',u.firstName,u.lastName) as USER,o.orderId, v.shopName, f.foodName, f.price as Price, of.quantity as Quantity, o.totalAmount as TotalAmount from cafeteria.Order o, OrderedFood of, Food f, Vendor v, User u where o.orderId = of.orderId and of.foodId = f.foodId and o.userId = u.userId and o.vendorId = v.vendorId and u.userId = 8010006;



# As a user, I want to give feedback to vendors.

insert into Feedback(userId,vendorId,rating,date) values(8010006, 3, 4, '2018/10/11');



# As a User, I want to get approx. food preparation time when I place the order

select concat\_ws(' ',u.firstName,u.lastName) as User, o.orderId, group\_concat(Distinct f.foodName SEPARATOR ';') as 'Food list', sum(f.preparationTime\*of.quantity) as 'Total preparation time(minutes)' from cafeteria.Order o, User u, OrderedFood of, Food f where o.orderId = of.orderId and o.userId = u.userId and of.foodId = f.foodId and o.orderId = 14 group by o.orderId;



select concat\_ws(',u.firstName,u.lastName) as User, o.orderld, group\_concat(Distinct.f.foodName SEPARATOR ',') as 'Food list', sum(f.preparationTime\*of.quantity) as 'Total preparation time(minutes)' from cafeteria.Order o, User u, OrderedFood of, Food f where o.orderld = of.orderld and o.userld = u.userld and of.foodld = f.foodld and o.orderld = 14

#### Execute

X

User	orderld	Food list	Total preparation time(minutes)
Meju Kyoko	14	Pulled Pork Sandwich	30

# **Sprint 3**

# **REQUIREMENTS**

Story ID	Story description
US1	As a User*, I want to login to application by using university Niner account.
US2	As a User*, I want to search for service vendors available in the application.
US3	As a User*, I want to list food items provided by service vendors.
US4	As a Service Vendor*, I want to login to application.
US5	As a Service Vendor*, I want to search/add/update/delete food items in my store.
US6	As a User*, I want to see image, price and description/ingredients of listed food items.
US7	As a User, I want to place food order.
US8	As a User, I want to get approx. food preparation time and order id
US9	As a user, I want to give feedback to vendors.
US10	As a user, I want to get food delivered to my location.
US11	As a vendor, I want to update delivery status after food delivered
US12	As a user, I want to get the invoice of my order.

#### **CONCEPTUAL DESIGN**

Entity: **User** 

```
Attributes:

name [Composite]

firstName

lastName

userId

contactNo[multi-valued]

ninerWallet

emailId

password

Entity: Food

Attributes

foodName

foodCategory: (Veg/Non Veg)

price
```

Entity: **Vendor**Attributes
name[Composite]
firstName
lastName
username
password
shopName

ingredients

image

Entity: **DeliveryPerson**Attributes
name[Composite]
firstName
lastName
workContactNo

#### **Relationship:**

1. User Orders Food

Cardinality: Many to Many

Participation: User has Partial participation

Food has Partial participation

#### 2. Vendor manages Food

Cardinality: One to Many

Participation: Vendor has Total participation

Food has Total participation

#### 3. User gives feedback to Vendor

Cardinality: One to Many

Participation: User has Partial Participation

Vendor has Partial Participation

#### 4 . **DeliveryPerson** delivers order to **User**

Cardinality: One to Many

Participation: DeliveryPerson has Total Participation

User has Partial Participation

#### LOGICAL DESIGN WITH NORMAL FORM IDENTIFICATION

Table : **User** Columns:

userId(Auto-generated)

password

firstName

lastName

emailID

contactNo1

contactNo2

ninerWallet

Highest normalization level: 4NF

Indexes:

PRIMARY:clustered Columns: userId

emailID\_UNIQUE: non-clustered

Columns: emailID

Justification: Both indexes will be created by default by

Database System.

Table : **Food** Columns:

foodId(Auto Generated)

foodName

foodCategory

price

ingredients

image

availability

preparationTime

vendorId[foreign key; references vendorId of Vendor]

Highest normalization level: 4NF

Indexes:

PRIMARY: clustered Columns: foodId

order\_fk\_vendorId\_idx: non-clustered

Columns: vendorId

Index idx\_food\_price : non-clustered

Columns: price

Justification: PRIMARY and order\_fk\_vendorId\_idx indexes will be created by default by Database System.

User will list food items based on price frequently so we are creating index on price attribute.

Table : **Order** Columns:

orderId(Auto Generated)
vendorId[foreign key;references vendorId of Vendor]
userId[foreign key; references userId of Users]
takeAwayType ENUM(Inperson,CampusDelivery)
totalAmount (derived attribute)

Highest normalization level: 4NF

Indexes:

PRIMARY: clustered Columns: orderId

order fk vendorId idx: non-clustered

Columns: vendorId

order\_fk\_userId idx: non-clustered

Columns: userId

Justification: All indexes will be created by default by Database

System.

Table : **Vendor** 

Columns:

vendorId(Auto Generated)
vendorUserName
shopName
vendorFirstName
vendorLastName
password

#### vendorEmail

Highest normalization level: 4NF

Indexes:

PRIMARY: clustered Columns: vendorId

vendorUserName UNIQUE: non-clustered

Columns: VendorUserName

Index idx\_Vendor\_ShopName : non-clustered

Columns: shopName

Justification: PRIMARY and order\_fk\_vendorId\_idx indexes will

be created by default by Database System.

User will list available vendors in system based on shop name frequently so we are creating index on shopName attribute.

Table: OrderedFood

Columns:

Id(Auto Generated)
orderId[foreign key; references orderId of Order]
foodId[foreign key; references foodId of Food]
quantity

Justification: Relation between User and Food is Many to Many, hence we came up with new tables 'order' and 'OrderedFood' based on cross-reference approach.

Highest normalization level: 4NF

Indexes:

PRIMARY: clustered

Columns: id

ordfood\_fk\_foodId\_idx: non-clustered

Columns: foodId

Justification: PRIMARY and ordfood\_fk\_foodId\_idx indexes will

be created by default by Database System.

Table: **Feedback** 

Columns:

feedbackId(Auto Generated)

userId[foreign key; references userId of User]

vendorId[foreign key; references vendorId of Vendor]

suggestion

rating

date

Highest normalization level: 4NF

Indexes:

PRIMARY: clustered Columns: feedbackId

feedback fk userId idx: non-clustered

Columns: userId

feedback fk vendorId idx: non-clustered

Columns: vendorId

Justification: All indexes will be created by default by Database

System.

Table : **DeliveryPerson** 

Columns:

personId(Auto Generated)

firstName lastName

workContactNo

Highest normalization level: 4NF

Indexes:

PRIMARY: clustered Columns: personId

Justification: This index will be created by default by Database

System.

Table : **Delivery** 

Columns:

orderId[foreign key; references **orderId** of **Order**] userId[foreign key; references **userId** of **User**] vendorId[foreign key; references **vendorId** of **Vendor**] personId[foreign key; references **personId** of

**DeliveryPerson**]

locationId[foreign key; references locationId of Location]

Highest normalization level: 4NF

Indexes:

del\_fk\_vendorId\_idx: non- clustered

Columns: vendorId

del\_fk\_userId\_idx: non-clustered

Columns: userId

del\_fk\_personId\_idx : non-clustered

Columns: personId

del\_fk\_locationId\_idx: non-clustered

Columns: locationId

del\_fk\_orderId\_idx: non-clustered

Columns: orderId

Justification:del\_fk\_locationId\_idx,del\_fk\_personId\_idx, del\_fk\_userId\_idx,del\_fk\_vendorId\_idx indexes will be created by default by Database System.

The delivery table will be frequently searched using orderId so we are creating index on it.

Table: **VendorDeliveryPerson** 

Columns:

Id(Auto Generated)

 $vendorId[foreign\ key;\ references\ \boldsymbol{vendorId}\ of\ \boldsymbol{Vendor}]$ 

personId[foreign key; references **personId** of

**DeliveryPerson**]

availability

Highest normalization level: 4NF

Indexes:

PRIMARY: clustered

Columns: Id

vendor\_fk\_vendorId\_idx: non-clustered

Columns: vendorId

vendor\_fk\_personalId\_idx: non-clustered

Columns: personId

Justification: All indexes will be created by default by Database System.

Table: Location

Columns:

locationId(Auto Generated)

locationName

Highest normalization level: 4NF

Indexes:

PRIMARY:clustered Columns: locationId

Justification: This index will be created by default by Database

System.

#### **VIEWS AND STORED PROGRAMS**

#### View:

getAllOrdersOfSmoked, getAllOrdersOfDominos, getAllOrdersOfBojangles

Goal: To check all orders placed by user to particular vendor

#### **Stored Procedure**

Name: PlaceOrderDelivery

Parameters: IN in\_userId INT, IN in\_vendorId INT, In in\_takeawaytype

ENUM('Inperson','CampusDelivery')

**Goal:** On each call to this stored procedure, a row of order details is inserted in order table and multiple rows of food items in orderedFood table and also delivery details in delivery table if user opts Campus delivery option.

Name: set\_availability

Parameters: IN personId INT, IN in\_isDelivered ENUM("Yes","No")

**Goal:** This procedure is used to set the delivery person availability based on assigned delivery task status.

Name: GetOrderDetails

Parameters: IN in\_userId INT, IN in\_orderId INT

**Goal:** To get invoice of the order placed.

#### **Trigger**

Type: After Insert on Delivery

**Goal:** Trigger to set the assigned delivery person availability to unavailable

on placing the order.

Type: After Update on Delivery

Goal: Trigger to set the assigned delivery person availability to available

after delivering the order

#### **Event**

**Name:** vendorDeliveryPerson\_event

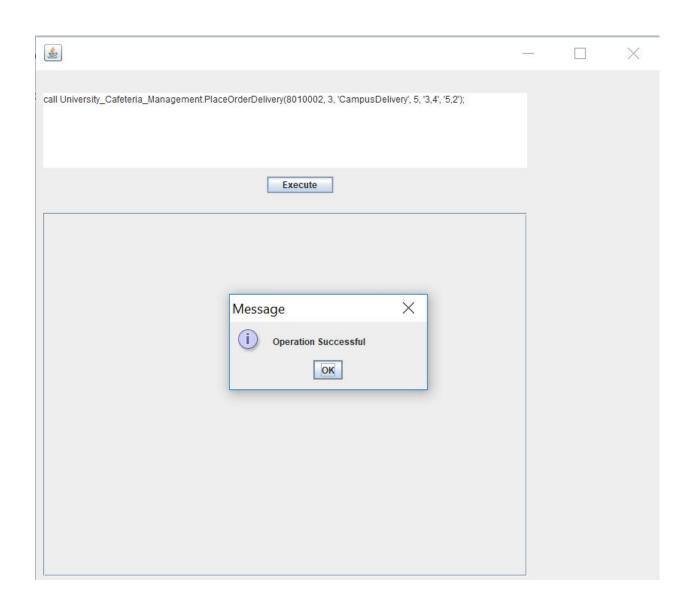
Goal: We introduced availability column in VendorDeliveryPerson table, So

we have created this event to set it to **yes**.

#### **SQL QUERIES**

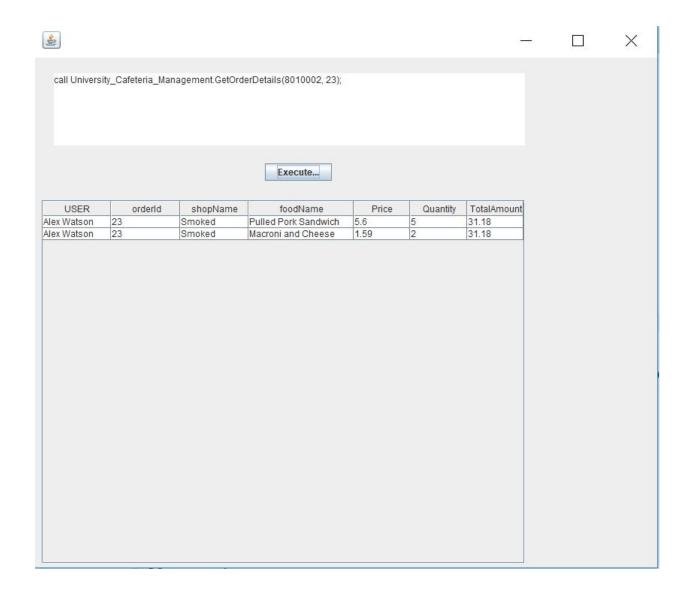
#### As a user, I want to get food delivered to my location.

call University\_Cafeteria\_Management.PlaceOrderDelivery(8010002, 3, 'CampusDelivery', 5, '3,4', '5,2');



As a user, I want to get the invoice of my order.

 $call\ University\_Cafeteria\_Management. Get Order Details (8010002,\ 23);$ 



As a vendor, I want to update delivery status after food delivered update Delivery set isDelivered='Yes' where orderId=23;

