

## DATABASE SYSTEM EXAM

A.Y 2021/2022

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## Intro

In this section we go throw all the possible operations of the system.

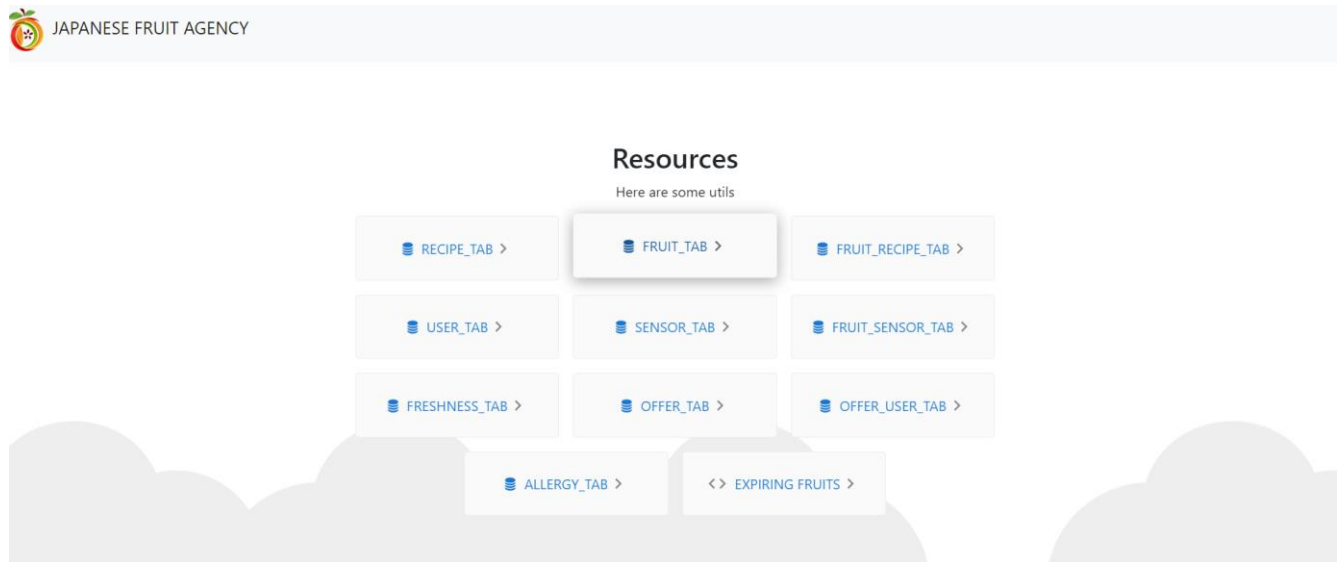
TABLE NAME	OPERATIONS
RECIPE_TAB	<ul style="list-style-type: none"><li>○ Insert Recipe</li><li>○ Update Recipe info</li><li>○ Delete Recipe</li><li>○ Read Recipes Info</li><li>○ Reset Form</li><li>○ Get info about one recipe</li></ul>
FRUIT_TAB	<ul style="list-style-type: none"><li>○ Insert Fruit</li><li>○ Update Fruit info</li><li>○ Delete Fruit</li><li>○ Read Fruits Info</li><li>○ Reset Form</li><li>○ Get info about one fruit</li><li>○ Switch to customer view</li></ul>
FRUIT_RECIPE_TAB	<ul style="list-style-type: none"><li>○ Insert Fruit-Recipe correlation</li><li>○ Update Fruit-Recipe correlation</li><li>○ Delete Fruit-Recipe correlation</li><li>○ Read Fruit-Recipe correlation</li><li>○ Reset Form</li><li>○ Get info about one Fruit-Recipe correlation</li></ul>
USER_TAB	<ul style="list-style-type: none"><li>○ Insert User</li><li>○ Update User</li><li>○ Delete User</li><li>○ Read Users Info</li><li>○ Reset Form</li><li>○ Get info about one user</li></ul>
SENSOR_TAB	<ul style="list-style-type: none"><li>○ Insert Sensor</li><li>○ Update Sensor info</li><li>○ Delete Sensor</li><li>○ Read Sensors Info</li><li>○ Reset Form</li><li>○ Get info about one sensor</li></ul>


TABLE NAME	OPERATIONS
FRUIT_SENSOR_TAB	<ul style="list-style-type: none"> <li>○ Insert Freshness entry</li> <li>○ Update Freshness entry info</li> <li>○ Delete Freshness entry</li> <li>○ Read Freshness Entry Info</li> <li>○ Reset Form</li> <li>○ Get info about one Freshness entry</li> </ul>
FRESHNESS_TAB	<ul style="list-style-type: none"> <li>○ Insert Freshness entry</li> <li>○ Update Freshness entry info</li> <li>○ Delete Freshness entry</li> <li>○ Read Freshness Entry Info</li> <li>○ Reset Form</li> <li>○ Get info about one Freshness entry</li> </ul>
OFFER_TAB	<ul style="list-style-type: none"> <li>○ Insert Offer</li> <li>○ Update Offer info</li> <li>○ Delete Offer</li> <li>○ Read Offer Info</li> <li>○ Reset Form</li> <li>○ Get info about one Offer</li> <li>○ Switch to customer view</li> <li>○ Buy offer as customer</li> </ul>
OFFER_USER_TAB	<ul style="list-style-type: none"> <li>○ Read Offer Info about customer purchases</li> </ul>
ALLERGY_TAB	<ul style="list-style-type: none"> <li>○ Insert Allergy</li> <li>○ Update Allergy entry info</li> <li>○ Delete Allergy</li> <li>○ Read Allergy Info</li> <li>○ Reset Form</li> <li>○ Get info about one Allergy</li> </ul>

## GUI

The graphical user interface was created by using Angular framework with python module Flask as backend.

The main screen is the following one:



There are 11 cards, 10 for database table  , and 1 for a custom operation  .


Almost all sections are composed by two main components which are:

- A form for collect information
- A table for show information

The following table explore each section and give you all possible views:

### RECIPE TAB

#### OPERATOR VIEW

 JAPANESE FRUIT AGENCY

RECIPE TABLE INFO

ID

NAME

DESCRIPTION

Insert

Delete

Reset

ID_RECIPE	NAME	DESCRIPTION
1	RECIPE1	DES1
2	RECIPE2	DES2
3	RECIPE3	DES3

## FRUIT TAB

### OPERATOR VIEW



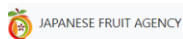
#### FRUIT TABLE INFO

NAME	EDIBLE PEEL	DATE ARRIVAL	WEIGHT [KG]
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
VOLUME [#]	DIMENSION	RIPENS LEVEL	PRICE [€]
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
BASE PRICE [€]	ALLERGY ID	FRESHNESS ID	
<input type="text"/>	<input type="text"/>	<input type="text"/>	

☒ I'm an operator

NAME_FRUIT	IS_PEELED	DATE_ARRIVAL	WEIGHT	VOLUME	DIMENSION	RIPENS_LEVEL	PRICE	BASE_PRICE	ALLERGY_FK	FRESHNESS_FK	IS_FRESH
MANGO	True	2022-10-31	45	12	MEDIUM	0	0	1.1	1	3	False
APPLE	True	2022-11-21	45	10	SMALL	0	0	1.1	1	1	False
KIWI	True	2022-11-25	47	10	SMALL	0.4	37.6	2	1	3	True
BANANA	True	2022-11-26	0	10	MEDIUM	0.4	0	2	1	3	False
ORANGE	True	2022-10-31	40	12	MEDIUM	1	44	1.1	1	1	True

### CUSTOMER VIEW



☐ I'm an operator

NAME_FRUIT	IS_PEELED	WEIGHT	VOLUME	DIMENSION	RIPENS_LEVEL	PRICE	NAME_ALLERGY	EXPIRATION_DAY
KIWI	True	47	10	SMALL	0.4	37.6	ALLERGY	2022-11-26 00:00:00
ORANGE	True	40	12	MEDIUM	1	44	ALLERGY	2022-11-15 00:00:00

## FRUIT RECIPE TAB

### CUSTOMER/OPERATOR VIEW



#### FRUIT\_RECIPE TABLE INFO

ID	NAME FRUIT	RECIPE
<input type="text"/>	<input type="text"/>	<input type="text"/>

ID_FRUIT_RECIPE	NAME_FRUIT_FK	RECIPE_FK
1	MANGO	1
2	BANANA	1

## USER TAB

### OPERATOR VIEW



#### USER TABLE INFO

ID	OPERATOR	NAME	SURNAME
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
FISCAL CODE			
<input type="text"/>			
<input type="button" value="Insert"/> <input type="button" value="Delete"/> <input type="button" value="Reset"/>			

ID_USER	IS_OPERATOR	NAME	SURNAME	FISCAL_CODE
2	False	Customer	Customer	Customer
1	True	Operator	Operator	Operator

## SENSOR TAB

### OPERATOR VIEW



#### SENSOR TABLE INFO

ID	NAME	SCAN DIMENSION	MEDIUM_CONSUMPTION [€/h]
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
COST	BRAND		
<input type="text"/>	<input type="text"/>		
<input type="button" value="Insert"/> <input type="button" value="Delete"/> <input type="button" value="Reset"/>			

ID_SENSOR	NAME	SCAN_DIMENSION	MEDIUM_CONSUMPTION	COST	BRAND
1	SENS1	SMALL	0.2	11	BRAND1
2	SENS2	MEDIUM	0.1	10.5	BRAND2
3	SENS2	BIG	0.1	9	BRAND2

## FRUIT SENSOR TAB

### OPERATOR VIEW



#### FRUIT\_SENSOR TABLE INFO

ID	FRUIT NAME	SENSOR ID
<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="button" value="Insert"/> <input type="button" value="Delete"/> <input type="button" value="Reset"/>		

ID_FRUIT_SENSOR	NAME_FRUIT_FK	SENSOR_FK
3	MANGO	3
1	MANGO	1
5	APPLE	1
6	APPLE	1

## FRESHNESS TAB

### OPERATOR VIEW



#### FRESHNESS TABLE INFO

ID  DAYS OF FRESHNESS

Insert Delete Reset

ID_FRESHNESS	DAYS_FRESHNESS
1	15
2	11
3	1

## OFFER TAB

### OPERATOR VIEW



#### OFFER TABLE INFO

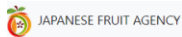
ID  DISCOUNTED PRICE [€]  DISCOUNTED WEIGHT [KG]  FRUIT NAME

Insert Delete Reset

☒ I'm an operator

ID_OFFER	DISCOUNTED_PRICE	DISCOUNTED_WEIGHT	FRUIT_FK	STATUS
106	15.8	20	KIWI	SOLD
103	1	1	MANGO	REMOVED
104	15.8	20	KIWI	SOLD
105	23.8	30	BANANA	SOLD
121	15.8	5	BANANA	ON SALE
122	2	3	KIWI	SOLD

### CUSTOMER VIEW



#### OFFER TABLE INFO

ID  DISCOUNTED PRICE [€]  DISCOUNTED WEIGHT [KG]  FRUIT NAME

Buy Reset

☐ I'm an operator

ID_OFFER	DISCOUNTED_PRICE	DISCOUNTED_WEIGHT	FRUIT_FK	STATUS
121	15.8	5	BANANA	ON SALE

OFFER USER TAB

OPERATOR VIEW

 JAPANESE FRUIT AGENCY

ID_OFFER	FRUIT_NAME	NAME	SURNAME	DISCOUNTED_WEIGHT	DISCOUNTED_PRICE
105	BANANA	Customer	Customer	30	23.8
106	KIWI	Customer	Customer	20	15.8
104	KIWI	Customer	Customer	20	15.8
122	KIWI	Customer	Customer	3	2

EXPIRING FRUIT OPERATION

Show expiring fruits in the current day, one day, two days.

OPERATOR VIEW

 JAPANESE FRUIT AGENCY

EXPIRING FRUITS INFO

EXPIRATION_DATE	FRUITS
2022-11-27	BANANA, ORANGE
2022-11-28	KIWI
2022-11-29	PEAR

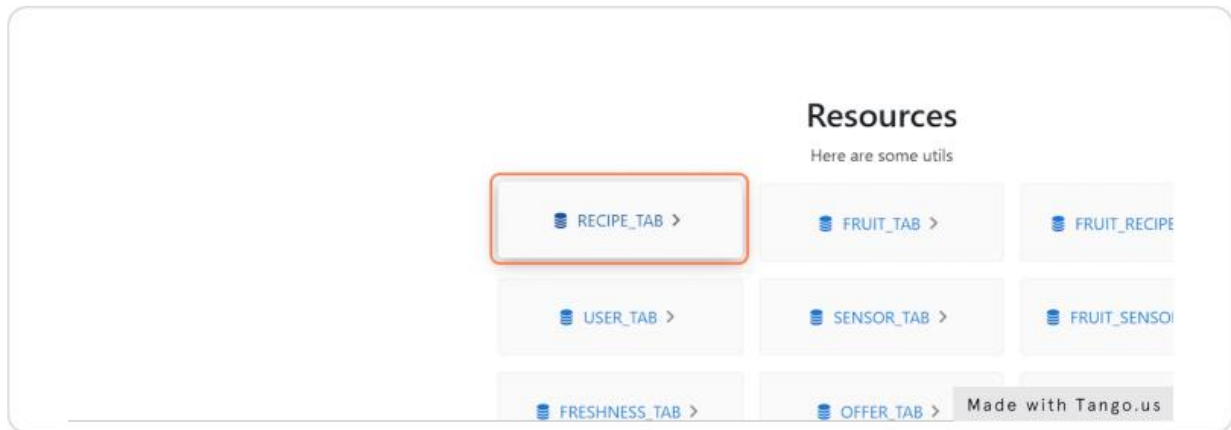


## CRUD Operations

The CRUD operations (Create, Read, Update, Delete) are performed in the same way for all the tables that can support them.

The following guide is an example of how to perform this operations on RECIPE table but the same procedure could be applied to all tables that allow CRUD operations.

### Click on RECIPE\_TAB



## INSERT OPEARTION

### Compile the form with new recipe info


RECIPE TABLE INFO		
ID	NAME	DESCRIPTION
4	RECIPE NAME	RECIPE DESCRIPTION
<button>Insert</button>	<button>Delete</button>	<button>Reset</button>

### Click on Insert

RECIPE TABLE INFO	
ID	NAME
4	RECIPE NAME
<button>Insert</button>	<button>Delete</button> <button>Reset</button>
ID_RECIPE	

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## A new recipe is added !

 JAPANESE FRUIT AGENCY

RECIPE TABLE INFO

ID

4

NAME

RECIPE NAME

DESCRIPTION


RECIPE DESCRIPTION

Insert

Delete

Reset


ID_RECIPE	NAME	DESCRIPTION
1	RECIPE1	DES1
2	RECIPE2	DES2
3	RECIPE3	DES3
4	RECIPE NAME	RECIPE DESCRIPTION

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## UPDATE OPERATION

TIPS: You can click every element in the table and the form will automatically compiled with the record information

## Modify the name or description but not change the ID for modify that entry

 JAPANESE FRUIT AGENCY

RECIPE TABLE INFO

ID

4

NAME

RECIPE NAME MODIFY

DESCRIPTION

RECIPE DESCRIPTION

Insert

Delete

Reset

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## Click on Insert

RECIPE TABLE INFO

ID

4

NAME

RECIPE NAME MODIFY

Insert

Delete

Reset

ID\_RECIPE

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The information are updated !

JAPANESE FRUIT AGENCY

RECIPE TABLE INFO

ID: 4 NAME: RECIPE NAME MODIFY DESCRIPTION: RECIPE DESCRIPTION

Insert Delete Reset

ID_RECIPE	NAME	DESCRIPTION
1	RECIPE1	DES1
2	RECIPE2	DES2
3	RECIPE3	DES3
4	RECIPE NAME MODIFY	RECIPE DESCRIPTION

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## DELETE OPERATION

TIPS: You can click every element in the table and the form will automatically compiled with the record information

Select one row to delete and the click to delete

RECIPE TABLE INFO

ID: 4 NAME: RECIPE NAME MOD

Insert Delete Reset

ID\_RECIPE

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The element is deleted !

JAPANESE FRUIT AGENCY

RECIPE TABLE INFO

ID: 4 NAME: RECIPE NAME MODIFY DESCRIPTION: RECIPE DESCRIPTION

Insert Delete Reset

ID_RECIPE	NAME	DESCRIPTION
1	RECIPE1	DES1
2	RECIPE2	DES2
3	RECIPE3	DES3

## Other operations

In this section we will analyze all the operations different from the CRUD operations listed in the previous section. These operations call for the execution of some triggers and require detailed investigation.

### Fruit operations

#### Click on FRUIT\_TAB



### INSERT Operation

#### Insert all fruit information

JAPANESE FRUIT AGENCY

FRUIT TABLE INFO

NAME: MANGO, VOLUME [L]: 12, BASE PRICE [€]: 1.20, DIMENSION: MEDIUM, RUPENS LEVEL: 0.5, PRICE [€]: 100, ALLERGY ID: 1, FRESHNESS ID: 1

Buttons: Insert, Delete, Reset

I'm an operator

NAME	IS PEEL OFFIBLE	DATE ARRIVAL	WEIGHT	VOLUME	DIMENSION	RUPENS LEVEL	PRICE	BASE PRICE	ALLERGY ID	FRESHNESS ID	IS FRESH
MANGO	True	2022-10-31	45	12	MEDIUM	0	0	1.1	1	3	False
APPLE	True	2022-11-21	45	10	SMALL	0	0	1.2	1	1	False
KIWI	True	2022-11-25	20	10	SMALL	0.4	16	2	1	3	True
BANANA	True	2022-11-26	30	10	MEDIUM	0.4	38	2	1	3	False
ORANGE	True	2022-10-31	55	12	MEDIUM	1	55	1.1	1	5	True

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#### Click on Insert

VOLUME [L]: 12, BASE PRICE [€]: 1.20, DIMENSION: MEDIUM, ALLERGY ID: 1

Buttons: Insert, Delete, Reset

I'm an operator

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## TRIGGER ON INSERT/UPDATE

We can see that the price is calculated base on the base price, the weight and the ripens level. The exact formula is

$base\_price * ripens\_level * weight$

So  $1.20 * 0.9 * 10 = 10.8$

**JAPANESE FRUIT AGENCY**

**FRUIT TABLE INFO**

NAME: PINEAPPLE, IS PEEL EDIBLE: False, DATE ARRIVAL: 31/10/2022, WEIGHT (KG): 10, PRICE (¥): 1000

VOLUME (L): 12, DIMENSION: MEDIUM, RUPENS LEVEL: 0.9

BASE PRICE (¥): 1.20, ALLERGY ID: 1, FRESHNESS ID: 1

**Table:**

NAME FRUIT	IS PEEL EDIBLE	DATE ARRIVAL	WEIGHT	VOLUME	DIMENSION	RUPENS LEVEL	PRICE	BASE PRICE	ALLERGY FK	FRESHNESS FK	IS FRESH
MANGO	True	2022-10-31	45	12	MEDIUM	0	0	1.1	1	3	False
APPLE	True	2022-11-21	45	10	SMALL	0	0	1.1	1	1	False
KIWI	True	2022-11-25	20	10	SMALL	0.4	16	2	1	3	True
BANANA	True	2022-11-26	30	10	MEDIUM	0.4	24	2	1	3	False
ORANGE	True	2022-10-31	50	12	MEDIUM	1	55	1.1	1	1	True
PINEAPPLE	False	2022-10-31	10	12	MEDIUM	0.9	10.8	1.2	1		

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## UPDATE Operation

TIPS: You can click every element in the table and the form will automatically compiled with the record information

## Click on fruit record

The form is compiled with all information about that record

**JAPANESE FRUIT AGENCY**

**FRUIT TABLE INFO**

NAME: ORANGE, IS PEEL EDIBLE: True, DATE ARRIVAL: 2022-10-31, WEIGHT (KG): 50, PRICE (¥): 55

VOLUME (L): 12, DIMENSION: MEDIUM, RUPENS LEVEL: 1

BASE PRICE (¥): 1.1, ALLERGY ID: 1, FRESHNESS ID: 1

**Table:**

NAME FRUIT	IS PEEL EDIBLE	DATE ARRIVAL	WEIGHT	VOLUME	DIMENSION	RUPENS LEVEL	PRICE	BASE PRICE	ALLERGY FK	FRESHNESS FK	IS FRESH
MANGO	True	2022-10-31	45	12	MEDIUM	0	0	1.1	1	3	False
APPLE	True	2022-11-21	45	10	SMALL	0	0	1.1	1	1	False
KIWI	True	2022-11-25	20	10	SMALL	0.4	16	2	1	3	True
BANANA	True	2022-11-26	30	10	MEDIUM	0.4	24	2	1	3	False
ORANGE	True	2022-10-31	50	12	MEDIUM	1	55	1.1	1	1	True
PINEAPPLE	False	2022-10-31	10	12	MEDIUM	0.9	10.8	1.2	1		

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## Change some value

JAPANESE FRUIT AGENCY

FRUIT TABLE INFO

NAME

ORANGE

EDIBLE PEEL

True

DATE ARRIVAL

31/10/2022

WEIGHT [KG]

45

VOLUME [L]

12

DIMENSION

MEDIUM

RIPENS LEVEL

1

PRICE [€]

55

BASE PRICE [€]

1.1

ALLERGY ID

1

FRESHNESS ID

1

Insert

Delete

Reset

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## Click on Insert

VOLUME [#]

12

BASE PRICE [€]

1.1

Insert

Delete

Reset

DIMENSION

MEDIUM

ALLERGY ID

1

☒ I'm an operator

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## The information are updated !

We can see that both the weight and price are changed. This append because when you change the weight, you change a value in the price calculation formula. For this reason the system need to recalculate the final price based on new values.

JAPANESE FRUIT AGENCY

FRUIT TABLE INFO

NAME

ORANGE

EDIBLE PEEL

True

DATE ARRIVAL

31/10/2022

WEIGHT [KG]

45

VOLUME [L]

12

DIMENSION

MEDIUM

RIPENS LEVEL

1

PRICE [€]

55

BASE PRICE [€]

1.1

ALLERGY ID

1

FRESHNESS ID

1

Insert

Delete

Reset

☒ I'm an operator

NAME FRUIT	IS PEEL EDIBLE	DATE ARRIVAL	WEIGHT	VOLUME	DIMENSION	RIPENS LEVEL	PRICE	BASE PRICE	ALLERGY FK	FRESHNESS FK	IS FRESH
MANGO	True	2022-10-31	45	12	MEDIUM	0	0	1.1	1	3	False
APPLE	True	2022-11-21	45	10	SMALL	0	0	1.1	1	1	False
KIWI	True	2022-11-25	20	10	SMALL	0.4	16	2	1	3	True
BANANA	True	2022-11-26	30	10	MEDIUM	0.4	24	2	1	3	False
ORANGE	True	2022-10-31	45	12	MEDIUM	1	55	1.1	1	1	True
PAPAYA	False	2022-10-31	10	12	MEDIUM	0.9	10.8	1.2	1		

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## DELETE Operation

### STEP 14

Click on cell to populate the form

JAPANESE FRUIT AGENCY

FRUIT TABLE INFO

NAME

KIWI

EDIBLE PEEL

True

DATE ARRIVAL

25/11/2022

WEIGHT [KG]

20

VOLUME [L]

10

DIMENSION

SMALL

RIPENS LEVEL

0.4

PRICE [€]

16

BASE PRICE [€]

2

ALLERGY ID

1

FRESHNESS ID

3

Insert

Delete

Reset

☒ I'm an operator

NAME FRUIT	IS PEEL EDIBLE	DATE ARRIVAL	WEIGHT	VOLUME	DIMENSION	RIPENS LEVEL	PRICE	BASE PRICE	ALLERGY FK	FRESHNESS FK	IS FRESH
MANGO	True	2022-10-31	45	12	MEDIUM	0	0	1.1	1	3	False
APPLE	True	2022-11-21	45	10	SMALL	0	0	1.1	1	1	False
KIWI	True	2022-11-25	20	10	SMALL	0.4	16	2	1	3	True
BANANA	True	2022-11-26	30	10	MEDIUM	0.4	24	2	1	3	False
ORANGE	True	2022-10-31	40	12	MEDIUM	1	44	1.1	1	1	True
PAPAYA	False	2022-10-31	10	12	MEDIUM	0.9	10.8	1.2	1		

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Click on Delete

PAPAYA

False

VOLUME [L]

12

DIMENSION

MEDIUM

BASE PRICE [€]

1.2

ALLERGY ID

1

Insert

Delete

Reset

☒ I'm an operator

NAME FRUIT	IS PEEL EDIBLE	DATE ARRIVAL	WEIGHT	VOLUME	DIMENSION	RIPENS LEVEL
MANGO	True	2022-10-31	45	12	MEDIUM	0

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The row is deleted

JAPANESE FRUIT AGENCY

FRUIT TABLE INFO

NAME

PAPAYA

EDIBLE PEEL

False

DATE ARRIVAL

31/10/2022

WEIGHT [KG]

10

VOLUME [L]

12

DIMENSION

MEDIUM

RIPENS LEVEL

0.9

PRICE [€]

10.8

BASE PRICE [€]

1.2

ALLERGY ID

1

FRESHNESS ID

1

Insert

Delete

Reset

☒ I'm an operator

NAME FRUIT	IS PEEL EDIBLE	DATE ARRIVAL	WEIGHT	VOLUME	DIMENSION	RIPENS LEVEL	PRICE	BASE PRICE	ALLERGY FK	FRESHNESS FK	IS FRESH
MANGO	True	2022-10-31	45	12	MEDIUM	0	0	1.1	1	3	False
APPLE	True	2022-11-21	45	10	SMALL	0	0	1.1	1	1	False
KIWI	True	2022-11-25	20	10	SMALL	0.4	16	2	1	3	True
BANANA	True	2022-11-26	30	10	MEDIUM	0.4	24	2	1	3	False
ORANGE	True	2022-10-31	40	12	MEDIUM	1	44	1.1	1	1	True

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Switch to customer view

Uncheck I'm an operator

This switch the view from an operator prospective to a customer prospective.

Insert

Delete

Reset

☒ I'm an operator

The result is:

☒ I'm an operator

NAME_FRUIT	IS_PEELEDIBLE	WEIGHT	VOLUME	DIMENSION	RIPENS_LEVEL	PRICE	NAME_ALLERGY	EXPIRATION_DAY
KIWI	True	47	10	SMALL	0.4	37.6	ALLERGY	2022-11-28 00:00:00
ORANGE	True	40	12	MEDIUM	1	44	ALLERGY	2022-11-27 00:00:00

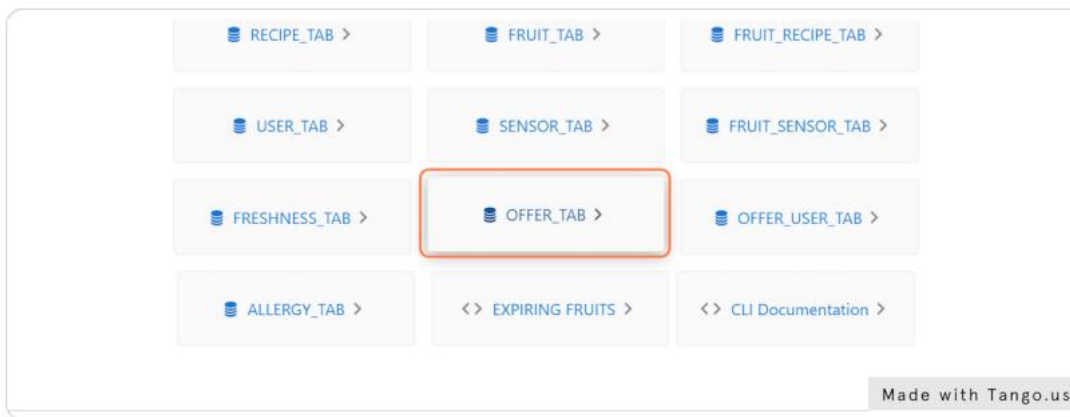
The customer can see only fresh fruit and can't insert or delete anything from fruit table.



## OFFER Operations

### INSERT Operation

Click on **OFFER\_TAB**



### Add offer info in the form

The 'OFFER TABLE INFO' form and table. The form has fields for ID, DISCOUNTED PRICE (€), DISCOUNTED WEIGHT (KG), and FRUIT NAME. Below the form is a table with columns: ID OFFER, DISCOUNTED PRICE, DISCOUNTED WEIGHT, FRUIT FK, and STATUS. The table contains 6 rows of data. The text 'Made with Tango.us' is visible in the bottom right corner.

ID OFFER	DISCOUNTED PRICE	DISCOUNTED WEIGHT	FRUIT FK	STATUS
100	15.0	20	KIWI	SOLD
103	1	1	MANGO	REMOVED
104	15.0	20	KIWI	SOLD
105	20.0	30	BANANA	SOLD
121	15.0	5	BANANA	ON SALE

### Click on Insert

The 'OFFER TABLE INFO' form. The form has fields for ID and DISCOUNTED PRICE (€). Below the fields are buttons for Insert, Delete, and Reset. The 'Insert' button is highlighted with a red border. Below the buttons is a toggle switch labeled 'I'm an operator'. The text 'Made with Tango.us' is visible in the bottom right corner.

## An offer is added

JAPANESE FRUIT AGENCY

OFFER TABLE INFO

ID

DISCOUNTED PRICE (¥)

DISCOUNTED WEIGHT (KG)

FRUIT NAME

2

3

KIWI

Submit

Cancel

Reset

☒ I'm an operator

ID OFFER	DISCOUNTED PRICE	DISCOUNTED WEIGHT	FRUIT FK	STATUS
106	15.8	20	KIWI	SOLD
103	1	1	MANGO	REMOVED
104	15.8	20	KIWI	SOLD
105	23.8	30	BANANA	SOLD
121	15.8	5	BANANA	ON SALE
122	2	3	KIWI	ON SALE

Made with Tango.us

Switch to customer view

## Uncheck I'm an operator

This switch the view from an operator prospective to a customer prospective. Infact there is a 'BUY' button

JAPANESE FRUIT AGENCY

OFFER TABLE INFO

ID

DISCOUNTED PRICE (¥)

DISCOUNTED WEIGHT (KG)

FRUIT NAME

2

3

KIWI

Buy

Reset

☐ I'm an operator

ID OFFER	DISCOUNTED PRICE	DISCOUNTED WEIGHT	FRUIT FK	STATUS
121	15.8	5	BANANA	ON SALE
122	2	3	KIWI	ON SALE

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## Select an offer by click on the row

NOTE: the only visible offers are the 'ON SALE' ones. In fact there are only two records.  
TIPS: You can click every element in the table and the form will automatically compiled with the record information

JAPANESE FRUIT AGENCY

OFFER TABLE INFO

ID

DISCOUNTED PRICE (¥)

DISCOUNTED WEIGHT (KG)

FRUIT NAME

2

3

KIWI

Buy

Reset

☐ I'm an operator

ID OFFER	DISCOUNTED PRICE	DISCOUNTED WEIGHT	FRUIT FK	STATUS
121	15.8	5	BANANA	ON SALE
122	2	3	KIWI	ON SALE

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## Click on Buy

OFFER TABLE INFO

ID

122

DISCOUNTED PRICE (€)

2

Buy

Reset

☐

I'm an operator

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## The offer bought just disappears from this view.

This happens because customers are allowed to see only 'ON SALE'.  
When a customer buys an offer, then it is set to 'SOLD'.

JAPANESE FRUIT AGENCY

OFFER TABLE INFO

ID

122

DISCOUNTED PRICE (€)

2

DISCOUNTED WEIGHT (KG)

5

FRUIT NAME

KOBI

Buy

Reset

☐

I'm an operator

ID OFFER	DISCOUNTED PRICE	DISCOUNTED WEIGHT	FRUIT FK	STATUS
121	15.8	5	BANANA	ON SALE

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## Check I'm an operator

Switch to operator view

122

2

Insert

Delete

Reset

☒

I'm an operator

ID\_OFFER

DISCOUNTED\_PRICE

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## The offer is set to 'SOLD'

JAPANESE FRUIT AGENCY

OFFER TABLE INFO

ID

122

DISCOUNTED PRICE (¥)

2

DISCOUNTED WEIGHT (KG)

3

FRUIT NAME

KIWI

InsertDeleteReset

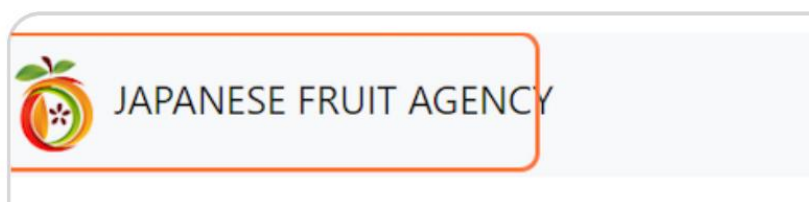
Pin an operator

ID OFFER	DISCOUNTED PRICE	DISCOUNTED WEIGHT	FRUIT FK	STATUS
106	15.8	20	KIWI	SOLD
103	1	1	MANGO	REMOVED
104	15.8	20	KIWI	SOLD
105	23.8	30	BANANA	SOLD
121	15.8	5	BANANA	ON SALE
122	2	3	KIWI	SOLD

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Let check the user offer table. In the user offer table all purchases are registered.

## Let's go back to home page



### Click on OFFER\_USER\_TAB

ECIPE\_TAB >

FRUIT\_TAB >

FRUIT\_RECIPE\_TAB >

USER\_TAB >

SENSOR\_TAB >

FRUIT\_SENSOR\_TAB >

SHNESS\_TAB >

OFFER\_TAB >

OFFER\_USER\_TAB >

ALLERGY\_TAB >


<> EXPIRING FRUITS >

<> CLI Documentation >



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This section records all customer purchases

The last record is the offer that we bought in this guide.

 JAPANESE FRUIT AGENCY

ID OFFER	FRUIT NAME	NAME	SURNAME	DISCOUNTED WEIGHT	DISCOUNTED PRICE
105	SANKUHA	Customer	Customer	30	23.8
106	KIWI	Customer	Customer	20	15.8
104	KIWI	Customer	Customer	20	15.8
122	KIWI	Customer	Customer	3	2



Made with Tango.us

## SENSOR FRUIT Operations

We use three fruits:

FRUIT	DIMENSION
apple	small
banana	medium
watermelon	big

and three sensors

SENSOR	DIMENSION
sensor 1	small
sensor 2	medium
sensor 3	big

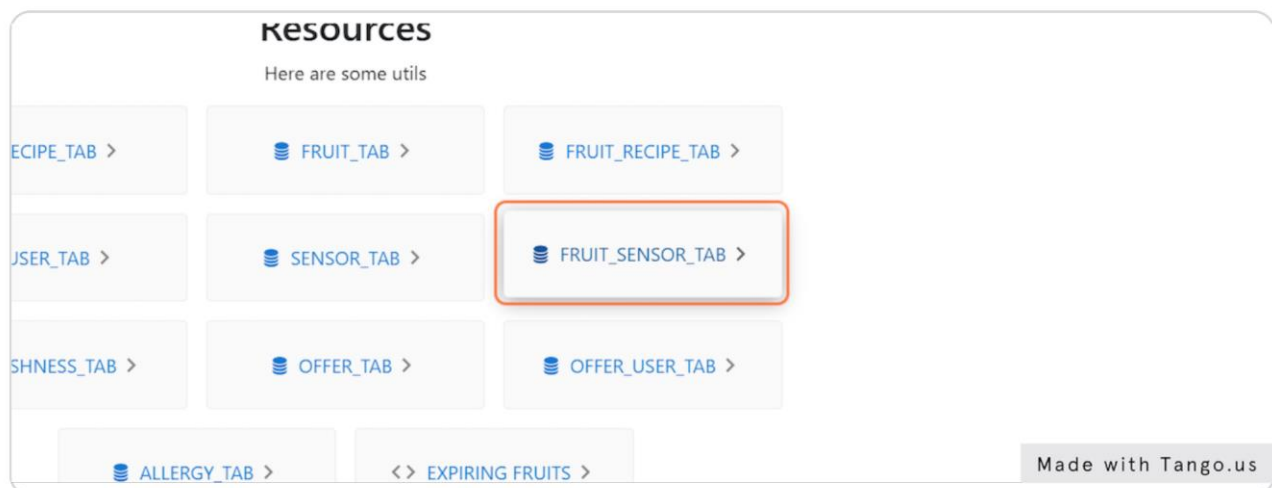
There is a trigger that avoid assignment between a sensor and a bigger dimension fruit.

So, each sensor could scan equal size fruits or smaller ones.

We try each combination and we expect this result:

SENSOR	FRUIT
sensor 1	apple
sensor 2	Apple, banana
sensor 3	Apple, banana, watermelon

### Click on FRUIT\_SENSOR\_TAB



The first combination is APPLE (small) – SENSOR 1 (small)

JAPANESE FRUIT AGENCY

FRUIT\_SENSOR TABLE INFO

ID: 1 FRUIT NAME: APPLE SENSOR ID: 1

ID FRUIT_SENSOR	NAME FRUIT_FK	SENSOR_FK
1	APPLE	1

We can see that an entry is added, so this combination is correct.

Now the combination is APPLE (small) – SENSOR 2 (medium)

JAPANESE FRUIT AGENCY

FRUIT\_SENSOR TABLE INFO

ID: 2 FRUIT NAME: APPLE SENSOR ID: 2

ID FRUIT_SENSOR	NAME FRUIT_FK	SENSOR_FK
1	APPLE	1
2	APPLE	2

We can see that an entry is added, so this combination is correct.

The last combination is APPLE (small) – SENSOR 3 (big)

JAPANESE FRUIT AGENCY

FRUIT\_SENSOR TABLE INFO

ID: 3 FRUIT NAME: APPLE SENSOR ID: 3

ID FRUIT_SENSOR	NAME FRUIT_FK	SENSOR_FK
1	APPLE	1
2	APPLE	2
3	APPLE	3

We can see that an entry is added, so this combination is correct.

Let's try with different fruit and different dimension

Now the combination is BANANA (medium) – SENSOR 1 (small)

JAPANESE FRUIT AGENCY

FRUIT\_SENSOR TABLE INFO

ID: 4 FRUIT NAME: BANANA SENSOR ID: 1

ID FRUIT_SENSOR	NAME FRUIT_FK	SENSOR_FK
1	APPLE	1
2	APPLE	2
3	APPLE	3

We can see that after the trigger avoid this combination because it is not correct and abort the transaction.

While with SENSOR 2 (medium) and SENSOR 3(big) there is an insert on the table because they are both a valid combination of fruit – sensor.

FRUIT\_SENSOR TABLE INFO

ID

6

FRUIT NAME

BANANA

SENSOR ID

1

Insert

Delete

Reset

ID FRUIT_SENSOR	NAME FRUIT_FK	SENSOR_FK
1	APPLE	1
2	APPLE	2
3	APPLE	3
4	BANANA	3
5	BANANA	2

The final scenario is with the WATERMELON (BIG)

The only insert allowed is WATERMELON (big) – SENSOR 3 (big)

FRUIT\_SENSOR TABLE INFO

ID

7

FRUIT NAME

WATERMELON

SENSOR ID

1

Insert

Delete

Reset

ID FRUIT_SENSOR	NAME FRUIT_FK	SENSOR_FK
1	APPLE	1
2	APPLE	2
3	APPLE	3
4	BANANA	3
5	BANANA	2
6	WATERMELON	3

While the combination

- WATERMELON (big) – SENSOR 2 (medium) and
- WATERMELON (big) – SENSOR 1 (small)

are both aborted.



## Jobs

### Freshness check job

Today is 27/11/2022

When the job freshness check job is executed, all fruits with arrival date added to the number of freshness days are set to be not fresh.

$\text{Date arrival} + \text{days of freshness} < \text{today's date} \rightarrow \text{NOT FRESH}$

We take into account only fresh fruits and we check this condition.

NAME_FRUIT	IS_PEELEDIBLE	DATE_ARRIVAL	WEIGHT	VOLUME	DIMENSION	RIPENS_LEVEL	PRICE	BASE_PRICE	ALLERGY_FK	FRESHNESS_FK	IS_FRESH
MANGO	True	2022-10-27	45	12	MEDIUM	0	0	1.1	1	3	False
APPLE	True	2022-11-01	45	10	SMALL	0	0	1.1	1	1	False
KIWI	True	2022-11-26	47	10	SMALL	0.4	37.6	2	1	2 2 days	True
BANANA	True	2022-11-26	0	10	MEDIUM	0.4	0	2	1	3	False
ORANGE	True	2022-11-26	40	12	MEDIUM	1	44	1.1	1	3 1 day	True
WATERMELON	True	2022-11-21	45	10	BIG	0	0	1.5	1	1 15 days	True
PEAR	True	2022-11-23	45	12	MEDIUM	0	0	1.1	1	3 1 day	True

We can say that the only fruit not fresh today is the pear with arrival date 23/11/2022 and 1 day of freshness.

After the execution of the job the last row should be not fresh. Note that the operator can't modify the freshness value because it is calculated.

NAME_FRUIT	IS_PEELEDIBLE	DATE_ARRIVAL	WEIGHT	VOLUME	DIMENSION	RIPENS_LEVEL	PRICE	BASE_PRICE	ALLERGY_FK	FRESHNESS_FK	IS_FRESH
MANGO	True	2022-10-27	45	12	MEDIUM	0	0	1.1	1	3	False
APPLE	True	2022-11-21	45	10	SMALL	0	0	1.1	1	1	False
KIWI	True	2022-11-26	47	10	SMALL	0.4	37.6	2	1	2	True
BANANA	True	2022-11-26	0	10	MEDIUM	0.4	0	2	1	3	False
ORANGE	True	2022-11-26	40	12	MEDIUM	1	44	1.1	1	3	True
WATERMELON	True	2022-11-21	45	10	BIG	0	0	1.5	1	1	True
PEAR	True	2022-11-23	45	12	MEDIUM	0	0	1.1	1	3	False

And the result is correct.

## Daily Refill Job

Increase the weight of all fruit of 30 kg

### BEFORE JOB

NAME_FRUIT	IS_PEELEDIBLE	DATE_ARRIVAL	WEIGHT	VOLUME
MANGO	True	2022-10-27	45	12
APPLE	True	2022-11-21	45	10
KIWI	True	2022-11-26	47	10
BANANA	True	2022-11-26	0	10
ORANGE	True	2022-11-26	40	12
WATERMELON	True	2022-11-21	45	10
PEAR	True	2022-11-23	45	12

### AFTER JOB

NAME_FRUIT	IS_PEELEDIBLE	DATE_ARRIVAL	WEIGHT
MANGO	True	2022-10-27	75
APPLE	True	2022-11-21	75
KIWI	True	2022-11-26	77
BANANA	True	2022-11-26	30
ORANGE	True	2022-11-26	70
WATERMELON	True	2022-11-21	75
PEAR	True	2022-11-23	75

## Freshness Decay Job

This job decreases the ripens level of each fruit of 0.1. This is helpful to simulate the natural fruit process during the days.

### BEFORE JOB

NAME_FRUIT	IS_PEELED	DATE_ARRIVAL	WEIGHT	VOLUME	DIMENSION	RIPENS_LEVEL
MANGO	True	2022-10-27	75	12	MEDIUM	0
APPLE	True	2022-11-21	75	10	SMALL	0
KIWI	True	2022-11-26	77	10	SMALL	0.4
BANANA	True	2022-11-26	30	10	MEDIUM	0.4
ORANGE	True	2022-11-26	70	12	MEDIUM	1
WATERMELON	True	2022-11-21	75	10	BIG	0
PEAR	True	2022-11-23	75	12	MEDIUM	0

### AFTER JOB

NAME_FRUIT	IS_PEELED	DATE_ARRIVAL	WEIGHT	VOLUME	DIMENSION	RIPENS_LEVEL
MANGO	True	2022-10-27	75	12	MEDIUM	0
APPLE	True	2022-11-21	75	10	SMALL	0
KIWI	True	2022-11-26	77	10	SMALL	0.3
BANANA	True	2022-11-26	30	10	MEDIUM	0.3
ORANGE	True	2022-11-26	70	12	MEDIUM	0.9
WATERMELON	True	2022-11-21	75	10	BIG	0
PEAR	True	2022-11-23	75	12	MEDIUM	0

Of course, if the ripens level is already 0, the ripens level does not undergo changes.

## Offer low ripens level job

The objective of this job is to simulate the creation of an offer when the level of ripeness of a fruit is very low. Of course, all the fruit weight in the system is involved in the offer. In this way the aim is to sell the entire stock of ripe fruit as soon as possible. To do that every time this procedure is execute, the discounted price of the fruit is decreased by 0.20€.

Finally, when this job finds a fruit with ripens level 0, then all the offers on that fruit are set to 'REMOVED' and customer are no longer able to see those offers.

The threshold of the ripens level used for establish if a fruit is valid for an offer is 0.4.

If a fruit has this ripens level or less, then there will be an offer on all the stock of that fruit with a discounted price.

### BEFORE JOB

Kiwi and banana are valid fruit for this job with their ripens levels equal to 0.3

NAME_FRUIT	IS_PEELEDIBLE	DATE_ARRIVAL	WEIGHT	VOLUME	DIMENSION	RIPENS_LEVEL
MANGO	True	2022-10-27	75	12	MEDIUM	0
APPLE	True	2022-11-21	75	10	SMALL	0
KIWI	True	2022-11-26	77	10	SMALL	0.3
BANANA	True	2022-11-26	30	10	MEDIUM	0.3
ORANGE	True	2022-11-26	70	12	MEDIUM	0.9
WATERMELON	True	2022-11-21	75	10	BIG	0
PEAR	True	2022-11-23	75	12	MEDIUM	0

Let's check if there are some offer 'ON SALE' on those fruits before the job.

ID_OFFER	DISCOUNTED_PRICE	DISCOUNTED_WEIGHT	FRUIT_FK	STATUS
106	15	5	KIWI	ON SALE
104	46	77	KIWI	SOLD
105	17.8	30	BANANA	SOLD
122	46	77	KIWI	SOLD

We can see that the fruit BANANA has no active offer. While kiwi has an old offer of 5 kg. Furthermore The BANANA is no longer fresh so it is excluded.

BANANA	True	2022-11-26	30	10	MEDIUM	0.3	18	2	1	3	False
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AFTER JOB

ID_OFFER	DISCOUNTED_PRICE	DISCOUNTED_WEIGHT	FRUIT_FK	STATUS
106	46	77	KIWI	ON SALE
104	46	77	KIWI	SOLD
105	17.8	30	BANANA	SOLD
122	46	77	KIWI	SOLD

The kiwi offer is update and all the stock is now on sale with a new discounted price.

## Run application

In order to run the application, the following steps must be followed:

Download the code from [repo](#):

```
git clone https://github.com/Francesco-Ranieri/database_system.git
```

If you want, you can create a virtual env using conda

```
conda create --name myenv  
conda activate myenv
```

Then install the requirements.txt

```
cd ../backend  
pip install -r requirements.txt
```

And now start docker for oracle database

```
cd ../backend  
docker compose up
```

Start the backend

```
cd ../backend/controllers  
python app.py
```

And start the frontend

```
cd ../frontend  
ng serve
```