**create** **database** fifo

**CREATE** **TABLE** fifo.movement (

id **INT** **NOT** **NULL** **AUTO\_INCREMENT** **PRIMARY** **KEY**,

document\_id **INT**,

warehouse **VARCHAR**(100),

sku **VARCHAR**(100),

quantity **INT**,

balance **INT**,

created\_at **DATETIME**

);

**CREATE** **TABLE** fifo.document (

id **INT** **NOT** **NULL** **AUTO\_INCREMENT** **PRIMARY** **KEY**,

customer\_id **INT**,

**type** **TEXT**

);

**CREATE** **TABLE** fifo.customer (

id **INT** **NOT** **NULL** **AUTO\_INCREMENT** **PRIMARY** **KEY**,

contact **VARCHAR**(100)

);

**INSERT** **INTO** fifo.movement (document\_id, sku, warehouse, quantity, balance, created\_at)

**VALUES**

(1, **'iPhone'**, **'HK'**, 10, 10, **'2021-1-1'**),

(1, **'iPod'**, **'HK'**, 3, 3, **'2021-1-1'**),

(2, **'iPod'**, **'HK'**, -1, 2, **'2021-1-2'**),

(3, **'iPod'**, **'HK'**, -2, 0, **'2021-1-3'**),

(4, **'iPod'**, **'HK'**, 5, 5, **'2021-2-1'**),

(5, **'iMac'**, **'US'**, 5, 5, **'2021-2-1'**),

(5, **'iPhone'**, **'US'**, 2, 2, **'2021-2-1'**),

(6, **'iMac'**, **'HK'**, 5, 5, **'2021-2-2'**),

(7, **'iPod'**, **'HK'**, -4, 1, **'2021-2-8'**),

(8, **'iMac'**, **'HK'**, -1, 4, **'2021-2-9'**),

(9, **'iPhone'**, **'US'**, -1, 1, **'2021-2-17'**),

(10, **'iMac'**, **'HK'**, 1, 5, **'2021-3-2'**),

(11, **'iMac'**, **'HK'**, -1, 4, **'2021-3-8'**),

(11, **'iPod'**, **'HK'**, -1, 0, **'2021-3-8'**),

(12, **'iMac'**, **'US'**, 5, 10, **'2021-3-10'**);

**INSERT** **INTO** fifo.document (id, customer\_id, **type**)

**VALUES**

(1, **NULL**, **"purchase"**),

(2, 1, **'sales\_order'**),

(3, 2, **'sales\_order'**),

(4, **NULL**, **'purchase'**),

(5, **NULL**, **'purchase'**),

(6, **NULL**, **'purchase'**),

(7, 3, **'sales\_order'**),

(8, 1, **'sales\_order'**),

(9, 4, **'sales\_order'**),

(10, **NULL**, **'purchase'**),

(11, **NULL**, **'sales\_order'**),

(12, **NULL**, **'purchase'**),

(13, **NULL**, **'purchase'**);

**INSERT** **INTO** fifo.customer (id, contact)

**VALUES**

(1, **'boris0407@gmail.com'**),

(2, **'candywong@gmail.com'**),

(3, **'flora2002@gmail.com'**),

(4, **'glory@gmail.com'**),

(5, **'himsonfong@gmail.com'**)

**select** ***contact***, **RANK**() **OVER** (

**PARTITION** **BY** ***contact***

**ORDER** **BY** ***balance*** **DESC**

) **AS** *sold*

**from** (

**select** c.contact **as** contact,

**coalesce** (c.contact,**'guest'**),

**sum**(m.quantity)\*-1 **as** sold,

**rank** () **over** (**order** **by** **sum**(m.quantity)\*-1 **desc**) **as** sold

**from** fifo.customer c

**join** fifo.document d

**on** c.id= d.customer\_id

**join** fifo.movement m

**on** d.id = m.document\_id ) **as** sub1

**create** **table** fifo.info **as**

(

**select** m.\*, d.**type**,d.customer\_id, c.contact

**from** fifo.movement m

**left** **join** fifo.document d

**on** m.document\_id = d.id

**left** **join** fifo.customer c

**on** c.id = d.customer\_id)

/\*-question 1: Rank customers by quantity they purchased.

Include the customer's email address (shown as "guest" if not provided) and quantity they purchased in the report\*/

**select** contact,

**coalesce** (contact,**'guest'**)**as** *email*,

**sum**(quantity)\*-1 **as** *sold*

**from** fifo.info

**group** **by** contact

**order** **by** **sum**(quantity)\*-1 **desc**

/\*-question2: \*Write a SQL query to return HK warehouse's stock of any given time.

Define a variable for the time so user can change it easily. For example: SET @date = '2021-4-1 00:00:00'.

\*/

**SET** @**date** = **'2021-04-01 00:00:00'**;

**select** \* **from** (

**select** **coalesce**(warehouse,**'none'**) **as** *warehouse*,**coalesce** (sku,**'none'**) **as** *sku*,**coalesce**(**sum**(quantity),**'out of stock'**) **as** *balance* **from** fifo.movement

**where** warehouse = **'HK'** **and** sku = **'iPod'**

**and** created\_at <= @date

**order** **by** created\_at **DESC**

) **as** *iPod*

**UNION**

**select** \* **from** (

**select** **coalesce**(warehouse,**'none'**) **as** *warehouse*,**coalesce** (sku,**'none'**) **as** *sku*,**coalesce**(**sum**(quantity),**'out of stock'**) **as** *balance* **from** fifo.movement

**where** warehouse = **'HK'** **and** sku = **'iPhone'**

**and** created\_at <= @date

**order** **by** created\_at **DESC**

**LIMIT** 1) **as** *iPhone*

**UNION**

**select** \* **from** (

**select** **coalesce**(warehouse,**'none'**) **as** *warehouse*,**coalesce** (sku,**'none'**) **as** *sku*,**coalesce**(**sum**(quantity),**'out of stock'**) **as** *balance* **from** fifo.movement

**where** warehouse = **'HK'** **and** sku = **'iMac'**

**and** created\_at <= @date

**order** **by** created\_at **DESC**

**LIMIT** 1) **as** *iMac*

/\*Question 3: Age of Inventory (Advanced level)

Show the age of the available stocks of a given time, and group the quantity by age "0-30 days", "31-60 days", "61 - 90 days" and "90 days+".

• Age of an stock means the number of day after it enters the warehouse.

• Stocks in a warehouse comes and goes. When deducting stock please follow the "First In First Out" rule, meaning oldest stock will be deducted first.

\*/

**set** @**date** =**'2021-04-01 00:00:00'** ;

**with** **transaction** **as** (

**select** warehouse, sku, quantity, **sum**(quantity) **over** (**partition** **by** sku **order** **by** created\_at) **as** balance, **datediff**(@date,created\_at) **as** agedays, created\_at

**from** fifo.info i

**where** warehouse =**'HK'**),

*no\_out* **as** (

**select** \*

**from** ***`transaction`*** **where** ***balance*** >0),

*age\_category* **as** (

**select** \*,

**case** **when** ***agedays*** >0 **and** ***agedays*** <=30 **then** **'Age 0-30 days'**

**when** ***agedays*** >30 **and** ***agedays*** <= 60 **then** **'Age 31-60 days'**

**when** ***agedays*** >60 **and** ***agedays*** <= 9 **then** **'Age 61-90ays'**

**else** **'Age 90+ days'** **end** **as** *age\_category*

**from** *no\_out*)

**select** ***sku***, **sum**(***quantity***) **as** *stock*,

**ifnull** (**sum**(**case** **when** *age\_category* = **'Age 0-30 days'** **then** ***quantity*** **end**),0) **as** **'Age 0-30 days'**,

**ifnull** (**sum**(**case** **when** *age\_category* = **'Age 31-60 days'** **then** ***quantity*** **end**),0) **as** **'Age 31-60 days'**,

**ifnull** (**sum**(**case** **when** *age\_category* = **'Age 61-90ays'** **then** ***quantity*** **end**),0) **as** **'Age 61-90ays'**,

**ifnull** (**sum**(**case** **when** *age\_category* = **'Age 90+ days'** **then** ***quantity*** **end**),0) **as** **'Age 90+ days'**

**from** *age\_category*

**group** **by** sku