

# Outline

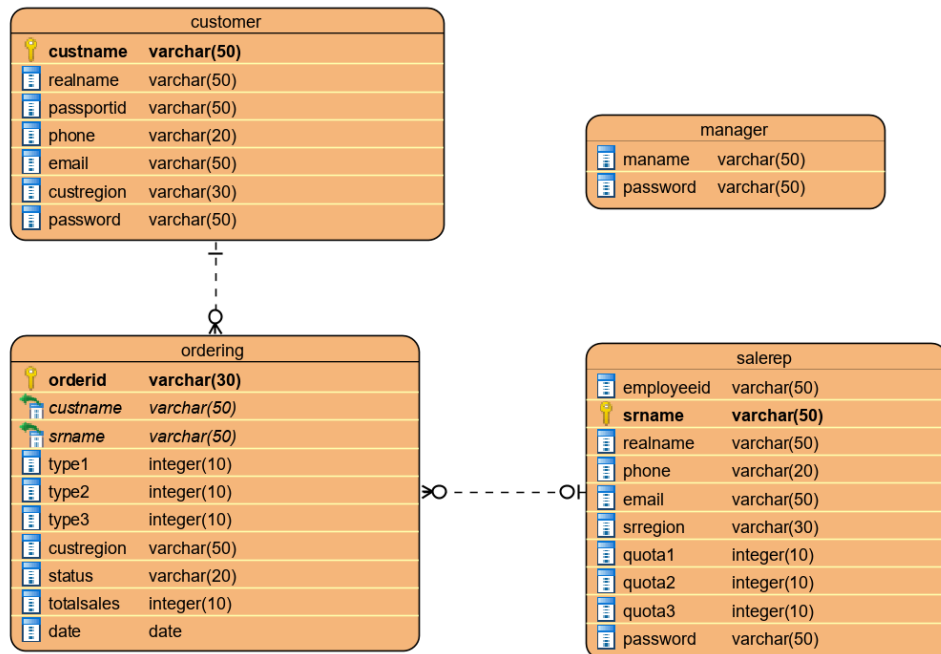
1. Database design
2. System design
3. Walk through
4. Exception handling
5. External libraries

Name: Hudie LIU

Student ID: 20127060

# 1. Database design

## 1.1 Entity-Relationship Diagram



## 1.2 create table SQL statement

USE shyhl11;

```
CREATE TABLE `customer` (  
  `custname` varchar(50) NOT NULL,  
  `realname` varchar(50) NOT NULL,  
  `phone` varchar(20) NOT NULL,  
  `email` varchar(50) NOT NULL,  
  `custregion` varchar(30) NOT NULL,  
  `password` varchar(50) NOT NULL,  
  `passportid` varchar(50) NOT NULL  
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4;
```

```
CREATE TABLE `manager` (  
  `maname` varchar(50) NOT NULL,  
  `password` varchar(50) NOT NULL  
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4;
```

```
CREATE TABLE `ordering` (  
  `custname` varchar(50) NOT NULL,
```

```
`custregion` varchar(50) NOT NULL,  
`date` datetime NOT NULL,  
`orderid` varchar(30) NOT NULL,  
`srname` varchar(50) NOT NULL,  
`status` varchar(20) NOT NULL,  
`type1` int(11) NOT NULL,  
`type2` int(11) NOT NULL,  
`type3` int(11) NOT NULL,  
`totalsales` double NOT NULL  
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4;
```

```
CREATE TABLE `salerep` (  
  `srname` varchar(50) NOT NULL,  
  `employeeid` varchar(50) NOT NULL,  
  `realname` varchar(50) NOT NULL,  
  `phone` varchar(20) NOT NULL,  
  `email` varchar(50) NOT NULL,  
  `srregion` varchar(30) NOT NULL,  
  `quota1` int(11) NOT NULL,  
  `quota2` int(11) NOT NULL,  
  `quota3` int(11) NOT NULL,  
  `password` varchar(50) NOT NULL  
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4;
```

```
ALTER TABLE `customer`  
  ADD PRIMARY KEY (`custname`);
```

```
ALTER TABLE `manager`  
  ADD PRIMARY KEY (`maname`);
```

```
ALTER TABLE `ordering`  
  ADD PRIMARY KEY (`orderid`),  
  ADD KEY `fk_srname` (`srname`),  
  ADD KEY `fk_custname` (`custname`);
```

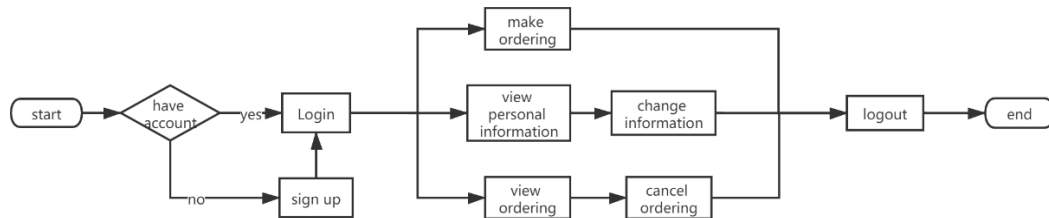
```
ALTER TABLE `salerep`  
  ADD PRIMARY KEY (`srname`);
```

```
ALTER TABLE `ordering`  
  ADD CONSTRAINT `fk_custname` FOREIGN KEY (`custname`) REFERENCES `customer`  
  (`custname`),  
  ADD CONSTRAINT `fk_srname` FOREIGN KEY (`srname`) REFERENCES `salerep` (`srname`);  
COMMIT;
```

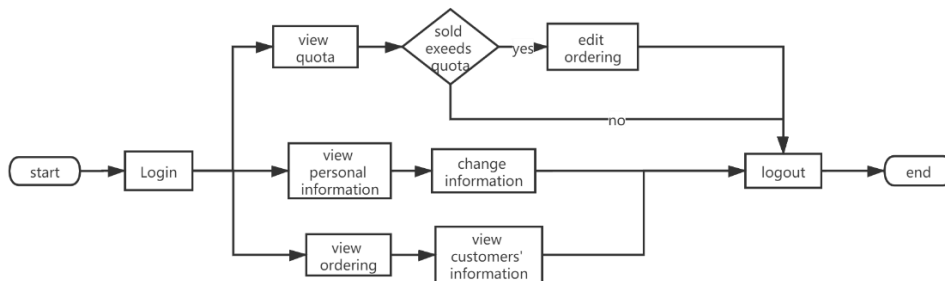
## 2. System design

### 2.1 System and flow chart

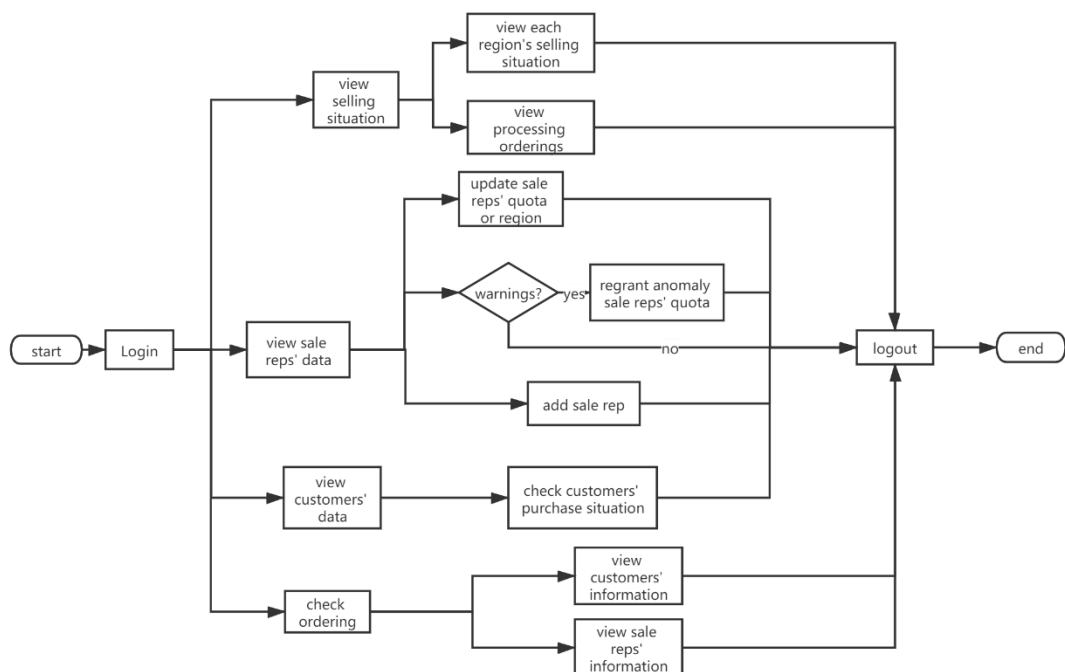
#### 2.1.1 Customer system



#### 2.1.2 Sale rep system



#### 2.1.3 Manager system



## 2.2 Functionality and specification

1. Customer register
  - a) All of information should be completed.
  - b) Username should contain at least one letter.
  - c) Username can only consist of letter and digit.
  - d) Username cannot repeat.
  - e) Telephone can only contain digit and over 11 numbers.
  - f) Email should have format as xxx@xxx.xxx.
  - g) Repeat password should be same as password that entered.
2. User login
  - a) System can judge which role is trying to login and jump to the right page.
3. Customer purchase
  - a) The quantity of three types mask cannot all be zero.
  - b) Customer can choose sale rep in the same region when buying.
  - c) Ordering ID can be generated automatically to avoid repeat.
4. Customer view ordering
  - a) Orderings are grouped into 'All', 'Processing', 'Completed' and 'Cancelled' four kind of situation.
5. Customer cancel ordering
  - a) The ordering can be cancelled for no reason within 24 hours.
6. Customer edit personal information
  - a) Only can change email, telephone and password
7. Sale rep view the quota situation
8. Sale rep view and edit personal information
  - a) Only can change email, telephone and password
9. Sale rep view orderings
  - a) Orderings are grouped into 'All', 'Processing', 'Completed' and 'Cancelled' four kind of situation.
10. Sale rep cancel orderings
  - a) Orderings can be cancelled only if sold number exceeds quotas.
  - b) Only processing orderings can be cancelled.
11. Sale rep view customers' information
12. Manager view selling situation
  - a) The proportion of total selling quantity of three types mask for each region can be viewed by pie chart.
  - b) Every day's selling quantity of three types mask can be checked by bar chart.
  - c) Every day's selling quantity in each region can be viewed by pie chart.
13. Manager view processing orderings
  - a) The proportion of under order's quantity in each region can be checked by pie chart.
  - b) The detailed ordering information in each region can be viewed.
14. Manager view sale reps' data
  - a) Manager can view every sale rep's personal information
  - b) Manager can view sale reps' quota and remaining

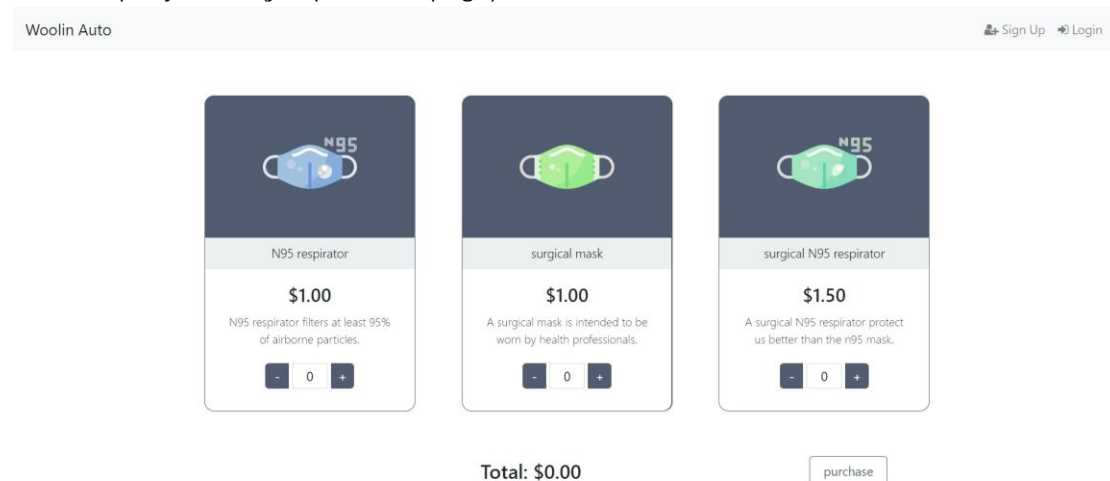
- c) The selling quantity for everyday can be viewed by bar chart.
- d) The total selling quantity of three types can be viewed.
- 15. Manager edit sale reps' information
  - a) Manager can update quotas
  - b) Manager can assign sale rep to another region
- 16. Manager add new sale rep
  - a) Employee ID should be generated automatically to avoid repeat.
  - b) All of information should be completed.
  - c) Username should contain at least one letter.
  - d) Username can only consist of letter and digit.
  - e) Username cannot repeat.
  - f) Telephone should only contain digit and over 11 numbers.
  - g) Email should have format as xxx@xxx.xxx.
  - h) Repeat password should be same as password that entered.
- 17. Manager get warning
  - a) Manager can be notified when he login if there are anomalies.
- 18. Manager handle anomalies
  - a) Manager can regrant quotas to remove anomalies.
- 19. Manager view customers' data
  - a) Manager can view all customers' personal information
  - b) Manager can view the proportion of each types mask for each customer.
  - c) Manager can view every customer's total ordering amount, total quantity of mask and total sales.
- 20. Manager search the ordering conditionally
  - a) Manager can choose different region.
  - b) Manager can choose different ordering status.
  - c) Manager can pick a range of date.
- 21. Manager view orderings' customer and sale rep's information
- 22. User logout
  - a) Jump to start page after logout

## 3. Walk through the whole system

### 3.1 Start

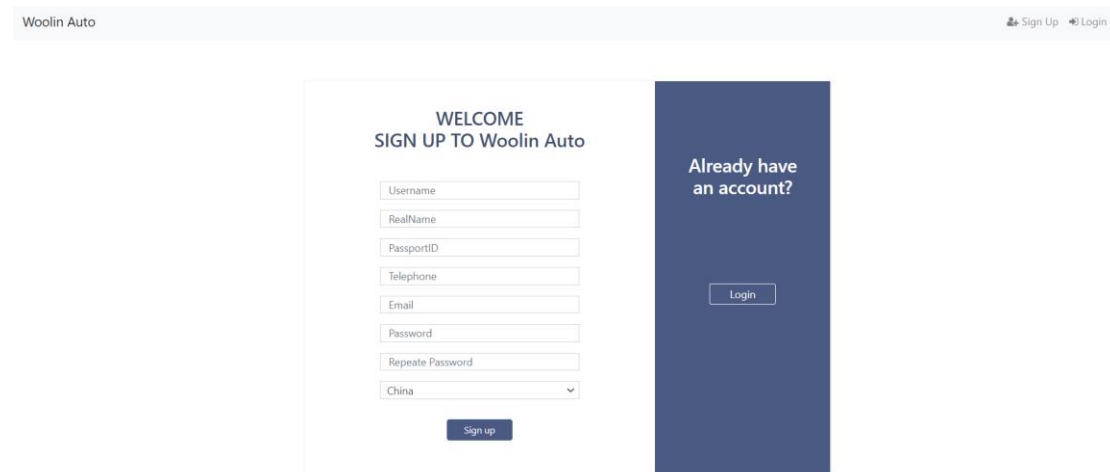
#### 3.1.1 Start Page

Open the link <http://cslinux.nottingham.edu.cn/~shyhl11/src/index.php>, the first page show 3 types of mask's name, price and brief description. Nav-bar contains button sign up, login and company name (jump to start page).



#### 3.1.2 Sign Up

Click sign up button to jump to sign up page. Customers can register their account here.



#### 3.1.3 Login

System will judge which role is trying to login and jump to the right page automatically.

Do not have an account?

Sign up

WELCOME  
LOGIN TO SMS

Username

Password


Login

### 3.2 Customer System

When customer log in successfully, navigation bars will change. Customer can click button to see each content. Customers can click '+' and '-' buttons or just input numbers in quantity box to change quantity they want to get. Number cannot be reduced less than 0 and any character except digit cannot be input into quantity box.

Woolin Auto

[Ordering](#)
[Information](#)
[Logout](#)




N95 respirator

**\$1.00**

N95 respirator filters at least 95% of airborne particles.

- 0 +




surgical mask

**\$1.00**

A surgical mask is intended to be worn by health professionals.

- 0 +



surgical N95 respirator

**\$1.50**

A surgical N95 respirator protects us better than the n95 mask.

- 0 +

Total: \$0.00

purchase

After chosen products, customers are asked to choose one sale rep to complete ordering.

Woolin Auto

[Ordering](#)
[Information](#)
[Logout](#)

Please Select a Sale Representative


Sale Rep:

repChina1

repChina1

repChina2

Close Confirm




N95 respirator

**\$1.00**

N95 respirator filters at least 95% of airborne particles.

- 0 +




surgical mask

**\$1.00**

A surgical mask is intended to be worn by health professionals.

- 0 +



surgical N95 respirator

**\$1.50**

A surgical N95 respirator protects us better than the n95 mask.

- 1 +

Total: \$1.50

purchase



Click 'ordering' button in nav-bar, customers can view their ordering information here. They can check 3 kind of status' orderings respectively.

Woolin Auto

OrderingInformationLogout

All	Ord-ID	Date	Sale Rep	Mask Types	Quantity	Sales	Total Sales	Status
Processing	051911165750	2020-05-19 11:16:57	repChina2	N95 respirator	0	\$0.00	\$200.00	cancelled
Completed				surgical mask	200	\$200.00		
Cancelled				surgical N95 respirator	0	\$0.00		
Edit	051916194758	2020-05-19 16:19:47	repChina1	N95 respirator	7	\$7.00	\$26.00	completed
				surgical mask	4	\$4.00		
				surgical N95 respirator	10	\$15.00		
	051916200244	2020-05-19 16:20:02	repChina1	N95 respirator	0	\$0.00	\$140.00	completed
				surgical mask	20	\$20.00		
				surgical N95 respirator	80	\$120.00		
	052412312836	2020-05-24 12:31:28	repChina2	N95 respirator	100	\$100.00	\$151.00	completed
				surgical mask	6	\$6.00		
				surgical N95 respirator	30	\$45.00		
	052412330963	2020-05-24 12:33:09	repChina1	N95 respirator	30	\$30.00	\$65.00	completed
				surgical mask	20	\$20.00		

Click 'Edit' button, customer can see orderings they have made within 24 hours, and they can cancel them for no reason.

Woolin Auto

OrderingInformationLogout

All	Ord-ID	Date	Sale Rep	Mask Types	Quantity	Sales	Total Sales	Edit
Processing	052713023387	2020-05-27 13:02:33	repChina2	N95 respirator	12	\$12.00	\$242.00	cancel
Completed				surgical mask	200	\$200.00		
Cancelled				surgical N95 respirator	20	\$30.00		
Edit	052713023956	2020-05-27 13:02:39	repChina1	N95 respirator	12	\$12.00	\$62.00	cancel
				surgical mask	20	\$20.00		
				surgical N95 respirator	20	\$30.00		

Click 'Information' button, customer can view their personal information and make some changes.

Woolin Auto

OrderingInformationLogout

PassportID

11111

Realname

china2

Username

china2

Email

123@abc.com

Phone

05524026707

Region

China

Password

\*\*\*

Save Change

### 3.3 Sale Rep System

#### 3.3.1 Information page

After jump to sale rep page, the personal information and quota sold situation will be shown. If there are red part in quota circle, it means sold quantity exceeds quota. Sale rep can change their personal information here.

repChina1

Information

Ordering

Logout

completed

processing

remaining

exceed

EmployeeID

232346486

Realname

repChina1

Username

repChina1

Email

123@abc.com

Phone

111111111111

Region

China

Password

\*\*\*

Save Change

#### 3.3.2 Ordering

Sale rep can view all orderings under his role. And he can check them by different status respectively.

repChina1

Information

Ordering

All

Processing

Completed

Cancelled

Edit

Logout

Ord-ID	Date	Customer	Mask Types	Quantity	Sales	Total Sales	Status
051615033067	2020-05-16 15:03:30	china1	N95 respirator	200	\$200.00	\$200.00	completed
			surgical mask	0	\$0.00		
			surgical N95 respirator	0	\$0.00		
051711505796	2020-05-17 11:50:57	china1	N95 respirator	20	\$20.00	\$170.00	completed
			surgical mask	0	\$0.00		
			surgical N95 respirator	100	\$150.00		
051916194758	2020-05-19 16:19:47	china2	N95 respirator	7	\$7.00	\$26.00	completed
			surgical mask	4	\$4.00		
			surgical N95 respirator	10	\$15.00		
051916200244	2020-05-19 16:20:02	china2	N95 respirator	0	\$0.00	\$140.00	completed
			surgical mask	20	\$20.00		
			surgical N95 respirator	80	\$120.00		
052022262881	2020-05-20 22:26:28	china1	N95 respirator	300	\$300.00	\$332.50	completed
			surgical mask	13	\$13.00		
			surgical N95 respirator	13	\$19.50		

Click customer name in orderings, the personal information of this customer will be shown.

repChina1

Information

Ordering

All

Processing

Completed

Cancelled

Edit

Logout

Ord-ID					Sales	Total Sales	Status
05161503067					\$200.00	\$200.00	completed
051711505796					\$0.00		
					\$0.00		
051916194758					\$20.00	\$170.00	completed
					\$0.00		
					\$150.00		
051916200244					\$7.00	\$26.00	completed
					\$4.00		
					\$15.00		
					\$0.00	\$140.00	completed
					\$20.00		
052022262881	2020-05-20 22:26:28	china1	surgical N95 respirator	80	\$120.00		
			N95 respirator	300	\$300.00	\$332.50	completed
			surgical mask	13	\$13.00		
			surgical N95 respirator	13	\$19.50		
052022262890	2020-05-20 22:26:28	china1	N95 respirator	300	\$300.00	\$332.50	completed

Detailed Info

Username

china1

Realname

china1

Email

123@abc.com

Passport-ID

12322123

Telephone

18055220209

If sold number exceeds quota that rep has, sale rep can cancel orderings which haven't completed yet to handle this situation.

repChina1

Information

Ordering

All

Processing

Completed

Cancelled

Edit

Logout

Ord-ID	Date	Customer	Mask Types	Quantity	Sales	Total Sales	Edit
052713023956	2020-05-27 13:02:39	china2	N95 respirator	12	\$12.00	\$62.00	cancel
			surgical mask	20	\$20.00		
			surgical N95 respirator	20	\$30.00		

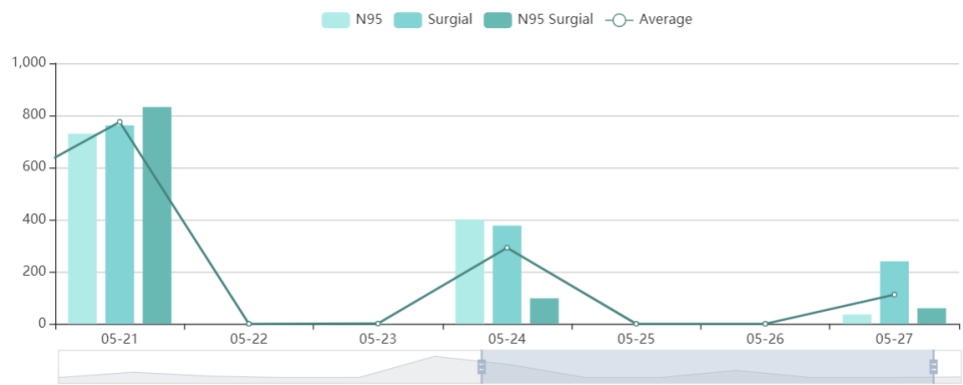
## 3.4 Manager System

### 3.4.1 Selling situation page

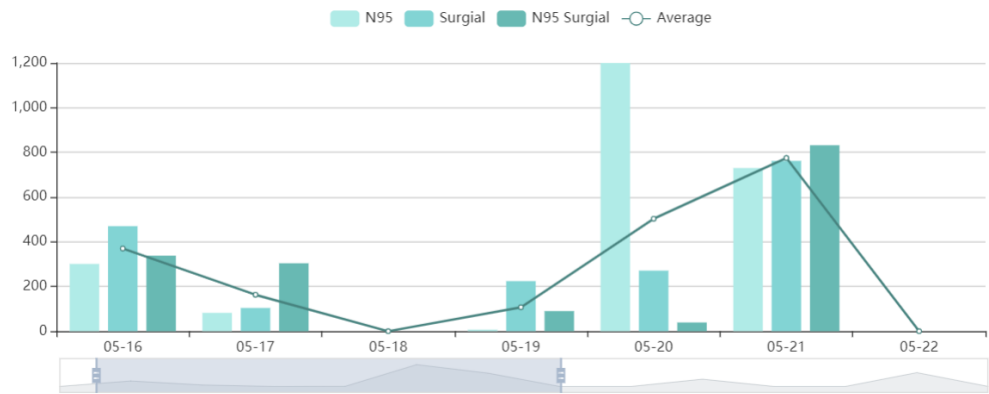
In this page, manager can view the proportion of each region's sold quantity for three kind of mask.



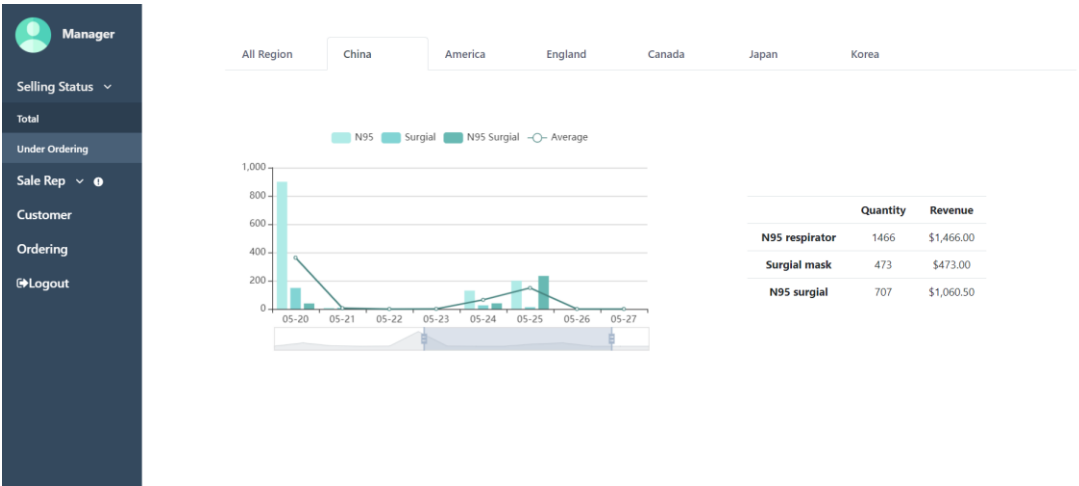
Every day's selling situation can be viewed too.



Drag the bar at the bottom to see selling status for different dates



Click region name, each region's daily selling situation can be viewed. Total quantity and revenue of all three type masks are shown.



### 3.4.2 under ordering page

In this page, manager can view the proportion of each region's processing orderings' quantity for three types mask.



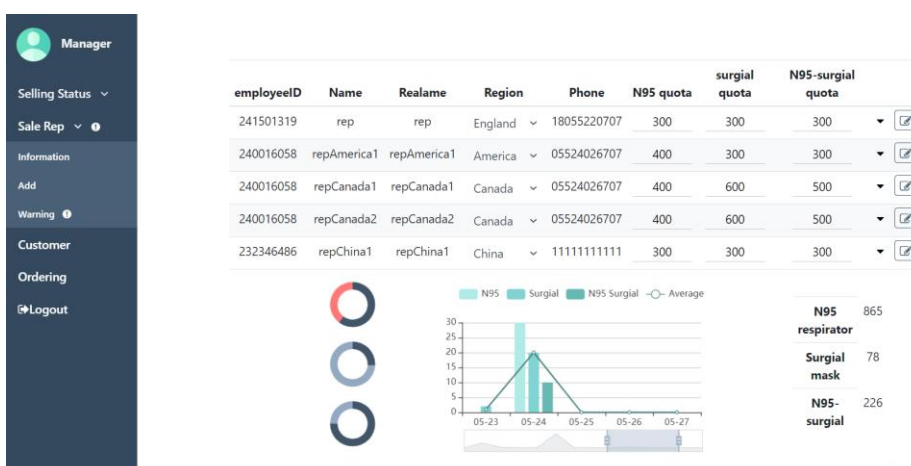
Click each region's button,, the region's processing orderings can be shown.

The screenshot shows the 'under ordering' page with a sidebar menu on the left. The main content area displays a table of processing orderings for the selected region (China). The table includes columns for Ord-ID, Date, Customer, Sale Rep, Mask Types, Quantity, Sales, and Total Sales.

Ord-ID	Date	Customer	Sale Rep	Mask Types	Quantity	Sales	Total Sales
052713023387	2020-05-27 13:02:33	china2	repChina2	N95 respirator	12	\$12.00	\$242.00
				surgical mask	200	\$200.00	
				surgical N95 respirator	20	\$30.00	
052713023956	2020-05-27 13:02:39	china2	repChina1	N95 respirator	12	\$12.00	\$62.00
				surgical mask	20	\$20.00	
				surgical N95 respirator	20	\$30.00	

### 3.4.3 Sale reps' data page

Manager can view every sale rep's personal information here. Click Inverted triangle button, the sale rep's quota situation, daily selling situation and total quantity of each mask.



Manager can assign sale rep to a new region or update quotas.

employeeID	Name	Realame	Region	Phone	N95 quota	surgial quota	N95-surgial quota	
241501319	rep	rep	England	18055220707	300	300	300	
240016058	repAmerica1	repAmerica1	China	05524026707	400	300	300	
240016058	repCanada1	repCanada1	America	05524026707	400	600	500	
240016058	repCanada2	repCanada2	England	05524026707	400	600	500	
232346486	repChina1	repChina1	Japan	11111111111	895	300	300	
			Korea					
			Canada					

### 3.4.4 add sale reps

Sale reps are registered by manager, employee ID is generated by system automatically to avoid repeat.

Manager

Selling Status

Sale Rep

Information

Add

Warning

Customer

Ordering

Logout

EmployeeID

271615463

Realname

Username

Password

Repeat Pass

Email

Phone

Region

China

N95

300

Surgial

300

N95 Surgial

300

Add

### 3.4.5 warning page

If completed orderings' quantity exceeds the quota, which means anomaly occurs. Manager will get reminder as long as he logs in to the system. Manager can regrant the quota for them.

Manager

Selling Status

Sale Rep

Information

Add

Warning

Customer

Ordering

Logout

Name	Type	Sold/Quota	Re-grant
repChina1	N95 respirator	865/300	565
repChina2	N95 respirator	601/200	401
repChina2	Surgial mask	395/300	95
repChina2	N95 Surgial	481/300	181
repEngland1	N95 Surgial	640/300	340
repJapan1	N95 Surgial	312/300	12

re-grant

After regrant, anomalies should disappear.

Manager

Selling Status

Sale Rep

Information

Add

Warning

Customer

Ordering

Logout

Name	Type	Sold/Quota	Re-grant
re-grant			

3.4.6 customer data page

Manager can view each customer's personal information here.

Manager

Selling Status

Sale Rep

Information

Add

Warning

Customer

Ordering

Logout

PassportID	Name	Realname	Email	Region	Phone	
11111	america1	america1	123@abc.com	America	05524026707	Info
11111	canada1	canada1	123@abc.com	Canada	05524026707	Info
12322123	china1	china1	123@abc.com	China	05524026707	Info
11111	china2	china2	123@abc.com	China	05524026707	Info
12322123	england1	england1	aaa@aaa.com	England	1111111111111	Info
11111	japan1	japan1	123@abc.com	Japan	05524026707	Info
11111	korea1	korea1	123@abc.com	Korea	05524026707	Info

Click 'info' button, detailed purchase information will be displayed.

Manager

Selling Status

Sale Rep

Information

Add

Warning

Customer

Ordering

Logout

PassportID		Phone
11111		05524026707
11111		05524026707
12322123		05524026707
11111		05524026707
12322123		1111111111111
11111		05524026707
11111	korea1	05524026707

Detailed

N95

Surgical

N95-surgical

N95

Surgical

Ordering Amount

4

Total Quantity

534

Total Sales

\$564

3.4.7 ordering checking page

Manager can check orderings by condition.

Manager

Selling Status

Sale Rep

Customer

Ordering

Logout

Region

All

Status

All

date

2020-05-18 ~ 2020-05-24

Check

Ord-ID	Date	Customer	Sale Rep	Region	Mask Types	Quantity	Sales	Total Sales	Status
--------	------	----------	----------	--------	------------	----------	-------	-------------	--------

Date range, region and status of ordering can be picked by manager.

Region

All

Status

All

date

2020-05-18 ~ 2020-05-24

Check

<

May 2020

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Mo

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6

7

29

30

1

2

3

4

5

2020-05-18 ~ 2020-05-24

cancel

confirm

Region

All

Status

All


date

2020-05-18 ~ 2020-05-24

Check

Ord-ID	Date	Customer	Sale Rep	Region	Mask Types	Quantity	Sales	Total Sales	Status
051		china2	repChina2	China	N95 respirator	0	\$0.00	\$200.00	cancelled
					surgical mask	200	\$200.00		
					surgical-N95	0	\$0.00		
051916194758	2020-05-19 16:19:47	china2	repChina1	China	N95 respirator	7	\$7.00	\$26.00	completed
					surgical mask	4	\$4.00		




**Manager**

Selling Status

Sale Rep

Customer

Ordering

Logout

Region

All

Status

All

date

2020-05-18 ~ 2020-05-24

Check

Ord-ID	Date	Customer	Sale Rep	Region	Mask Types	Quantity	Sales	Total Sales	Status
051911165750	2020-05-19 11:16:57	china2	repChina2	China	N95 respirator	0	\$0.00	\$200.00	cancelled
					surgical mask	200	\$200.00		
					surgical-N95	0	\$0.00		
051916194758	2020-05-19 16:19:47	china2	repChina1	China	N95 respirator	7	\$7.00	\$26.00	completed
					surgical mask	4	\$4.00		
					surgical-N95	10	\$15.00		
051916200244	2020-05-19 16:20:02	china2	repChina1	China	N95 respirator	0	\$0.00	\$140.00	completed
					surgical mask	20	\$20.00		
					surgical-N95	80	\$120.00		
052022262059	2020-05-20 22:26:20	china1	repChina2	China	N95 respirator	300	\$300.00	\$442.50	completed
					surgical mask	123	\$123.00		
					surgical-N95	13	\$19.50		
052022262881	2020-05-20 22:26:28	china1	repChina1	China	N95 respirator	300	\$300.00	\$332.50	completed

The image displays two screenshots of a web application interface, showing a 'Detailed Info' modal for a user. The background is a blurred view of a dashboard with a sidebar and a main content area.

**Top Screenshot:**

- Modal Title:** Detailed Info
- Avatar:** A red circular avatar with a white outline.
- Username:** china2
- Realname:** china2
- Email:** 123@abc.com
- Passport-ID:** 11111
- Telephone:** 05524026707

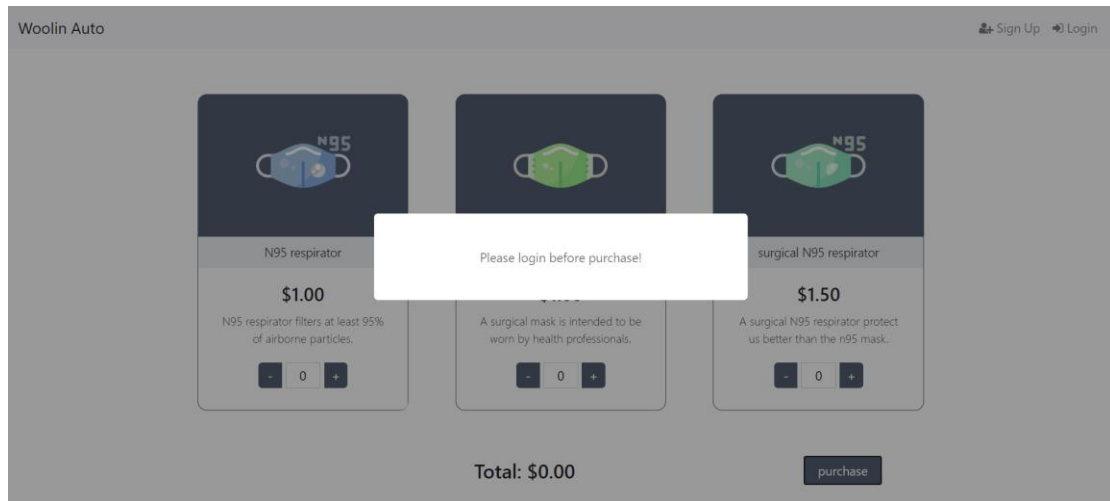
**Bottom Screenshot:**

- Modal Title:** Detailed Info
- Avatar:** A blue circular avatar with a white outline.
- Username:** repChina2
- Realname:** repChina2
- Email:** 123@abc.com
- Employee-ID:** 240016058
- Telephone:** 05524026707

## 4. exception handling

### 1. Start

If user click purchase button but do not login, system will alert this tip.

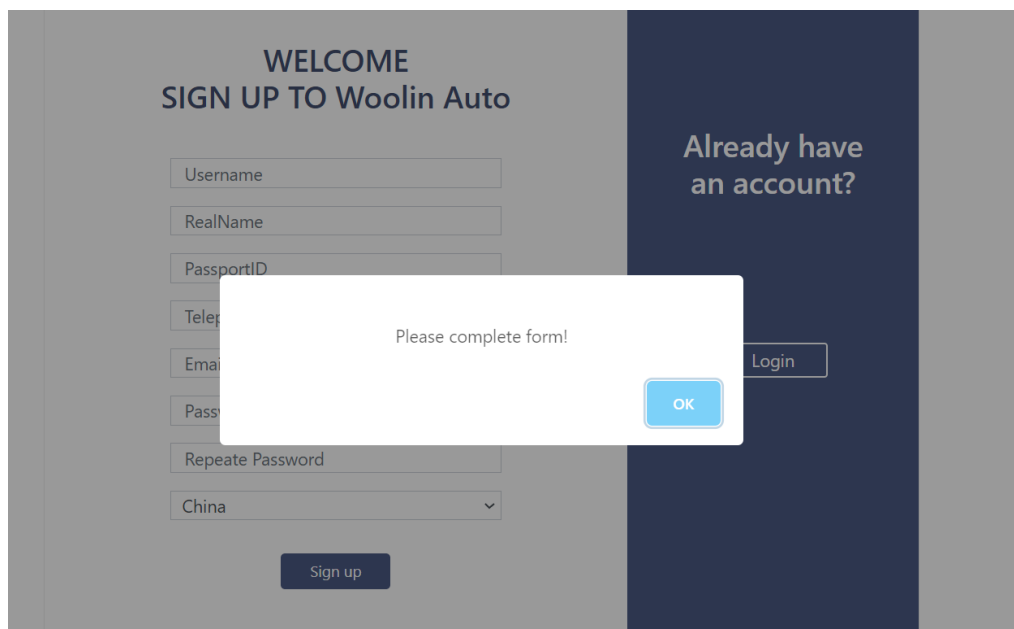
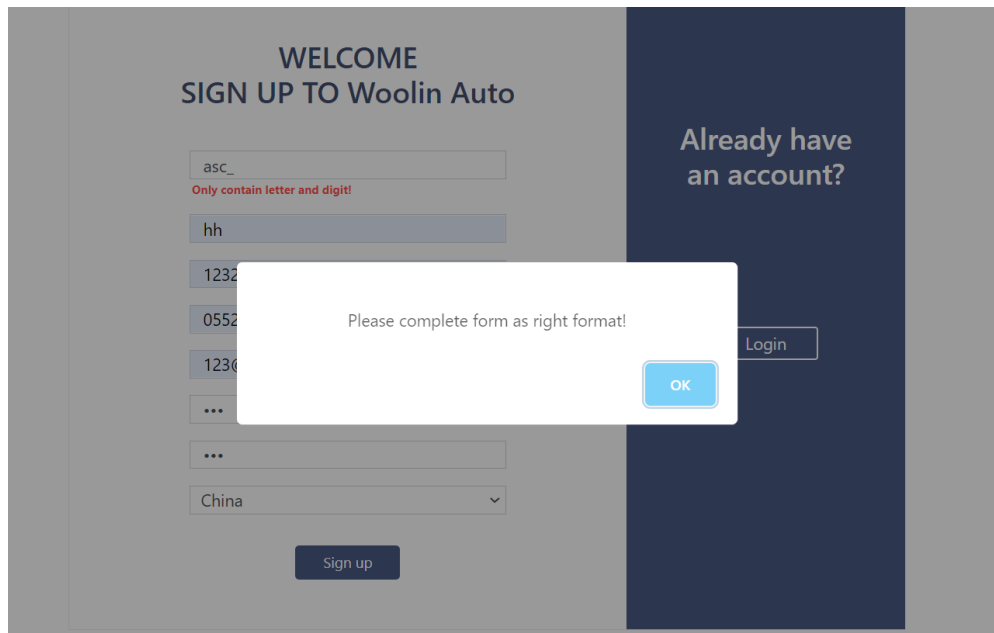


### 2. Sign up

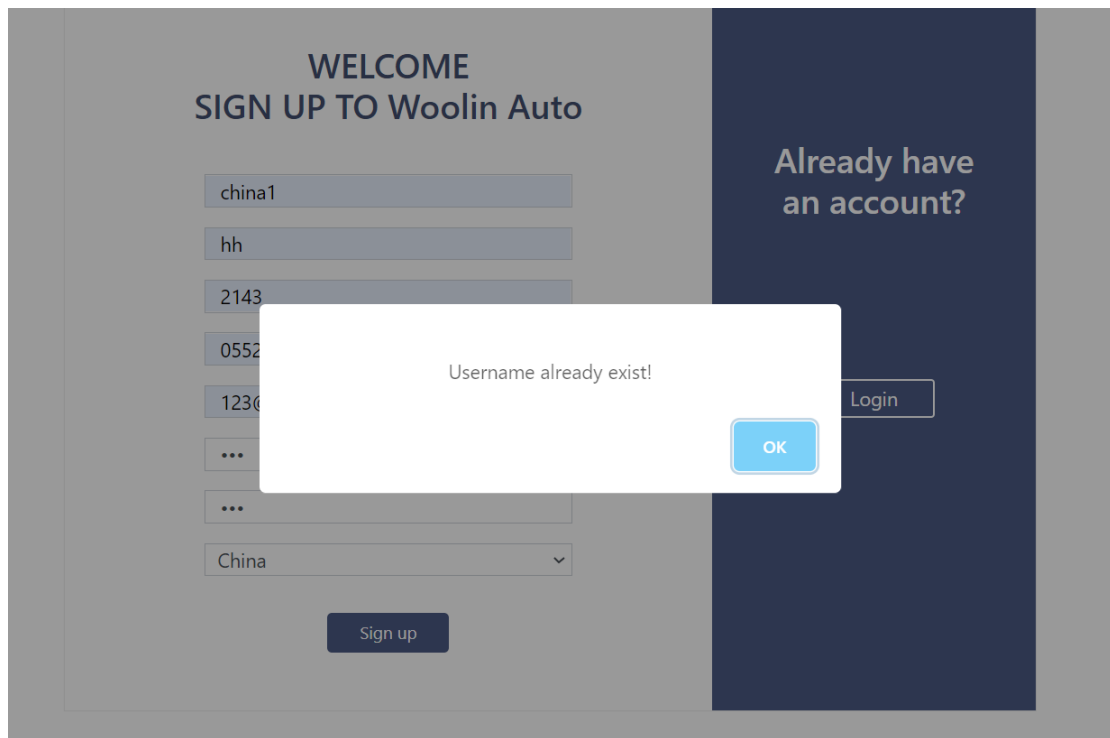
If user doesn't input information as request format, some tips will occur.

A screenshot of the Woolin Auto sign-up form. The form is titled 'WELCOME SIGN UP TO Woolin Auto'. It contains several input fields with validation errors: a text field with '1' and the error 'At least contain one letter!'; a 'RealName' field; a 'PassportID' field; a text field with '12' and the error 'Wrong format of phone number!'; a text field with '123' and the error 'Wrong format of email!'; a password field with '\*\*\*' and the error 'Entered passwords differ.'; and a dropdown menu set to 'China'. A 'Sign up' button is at the bottom. To the right of the form is a dark blue sidebar with the text 'Already have an account?' and a 'Login' button.

User will get tip if he clicks Sign up button but didn't complete form or complete form as right format.

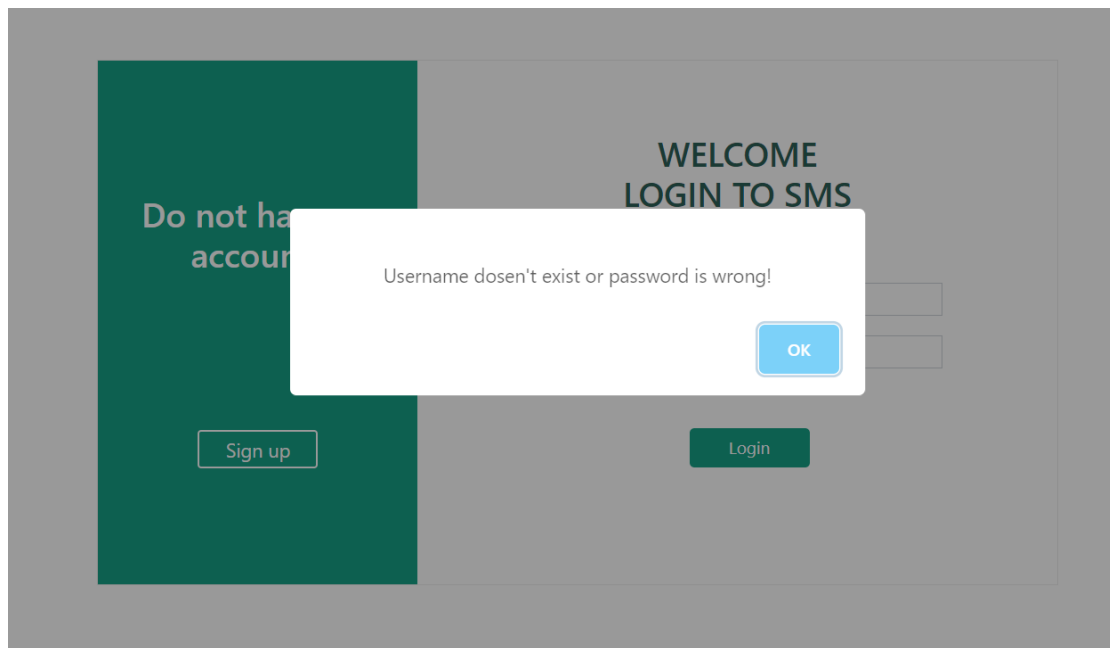


If username is repeat, this tip will be displayed.



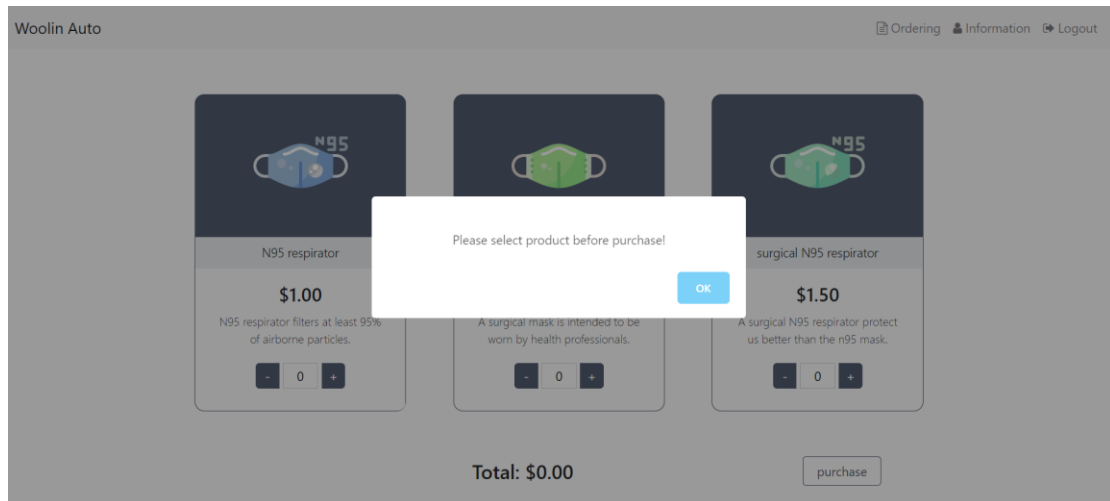
### 3. Login

If username doesn't exist or password is not right, system will alert a tip.

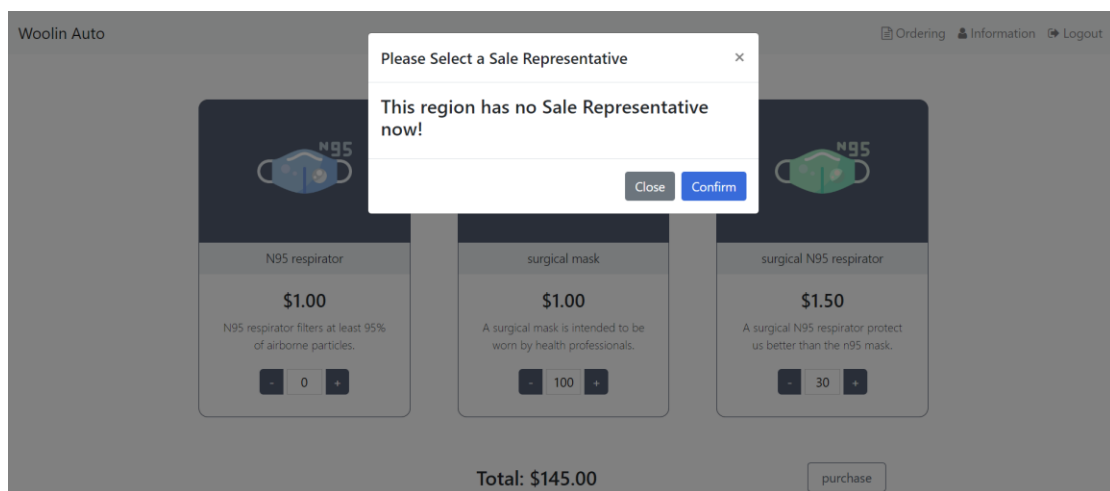


### 4. Purchase

If customer doesn't select any product, the tip will be alerted.



If customer's region have no sale rep, this message will be displayed.



## 5. Customer change personal information

Woolin Auto
Ordering
Information
Logout

PassportID
Realname
Username
Email
Phone
Region
Password
Repeat Pass

12322123
china1
china1
123@abc
180552
China
\*\*\*

Please input as right format!
Please input as right format!
Entered passwords differ!

Save Change

Manager

Selling Status

Sale Rep

Information

Add

Warning

Customer

Ordering

Logout

EmployeeID

281412529

Realname

Username

1

At least contain one letter!

Password

\*

Repeat Pass

\*\*\*

Entered passwords differ!

Email

111

Please input as right format!

Phone

123

Please input as right format!

Region

China

N95

300

Surgial

300

N95 Surgial

300

Add

EmployeeID

281415431

Realname

Username

Password

Repeat Pass

Email

Phone

Region

China

N95

300

Surgial

300

N95 Surgial

300

Add

Please complete the form!

OK

EmployeeID	<input type="text" value="281412529"/>		
RealName	<input type="text" value="13"/>		
Username	<input type="text" value="1"/> <small>At least contain one letter!</small>		
Password	<input type="password" value="•"/>		
Repeat Pass	<input type="password"/>		
Email	<input type="text"/>		
Phone	<input type="text"/> <small>Please input as right format!</small>		
Region	<input type="text" value="China"/>		
N95	Surgial	N95 Surgial	
<input type="text" value="300"/>	<input type="text" value="300"/>	<input type="text" value="300"/>	
<input type="button" value="Add"/>			

PassportID	<input type="text" value="12322123"/>		
Realname	<input type="text" value="china1"/>		
Username	<input type="text" value="china1"/>		
Email	<input type="text"/>		
Phone	<input type="text"/>		
Region	<input type="text"/>		
Password	<input type="password" value="•••"/>		
Repeat Pass	<input type="password"/>		
<small>Entered passwords differ!</small>			
<input type="button" value="Save Change"/>			

## 5. external libraries

- Bootstrap
  - <https://github.com/twbs/bootstrap>
  - Version: 4.4.1
  - Usage: some front-end frame.
- Echarts
  - <https://github.com/apache/incubator-echarts>
  - Version: 4.8.0
  - Usage: data visualization.
- Font-awesome
  - <https://github.com/FortAwesome/Font-Awesome>
  - Version: 4.7.0
  - Usage: provide some icon.
- JQuery
  - <https://github.com/jquery/jquery>
  - Version: 1.12.3
  - Usage: framework of javascript.
- Moment
  - <https://github.com/moment/moment>
  - Version: 2.26.0
  - Usage: provide support for date-range-picker
- Date-range-picker
  - <https://github.com/longbill/jquery-date-range-picker>
  - Version: 0.20.0
  - Usage: use to pick a range of date.
- Sweetalert
  - <https://github.com/t4t5/sweetalert>
  - Version: 2.0
  - Usage: instead of alert.