Pizza Ingredient Analysis (@AniketTheTechVerse)

Analayze the pizza order history data to determine the following:

- What is the typical mass of ingredients added to pizzas?
- What are the most common ingredients added to pizzas?

```
Importdatapizza
```

```
Order = 3085x12 table
```

...

	OrderNumber	PizzaNumber	ReceivedTime	Canceled	CancelReason
1	1	1	07-Jun-2021 11:10:26	0	NC
2	2	1	07-Jun-2021 11:12:48	0	NC
3	2	2	07-Jun-2021 11:12:48	0	NC
4	3	1	07-Jun-2021 11:18:39	0	NC
5	4	1	07-Jun-2021 11:33:39	0	NC
6	5	1	07-Jun-2021 12:11:28	0	NC
7	5	2	07-Jun-2021 12:11:28	0	NC
8	6	1	07-Jun-2021 12:50:02	0	NC
9	6	2	07-Jun-2021 12:50:02	0	NC
10	6	3	07-Jun-2021 12:50:02	0	NC
11	6	4	07-Jun-2021 12:50:02	0	NC
12	6	5	07-Jun-2021 12:50:02	0	NC
13	6	6	07-Jun-2021 12:50:02	0	NC
14	6	7	07-Jun-2021 12:50:02	0	NC

⋮

```
Order.IngredientsAdded = Order.Sauce + Order.Cheese + Order.Toppings

Order = sortrows(Order, "IngredientsAdded", "descend")
```

```
Order = 3085x13 table
```

...

	OrderNumber	PizzaNumber	ReceivedTime	Canceled	CancelReason
1	1	1	07-Jun-2021 11:10:26	0	NC
2	2	1	07-Jun-2021 11:12:48	0	NC
3	2	2	07-Jun-2021 11:12:48	0	NC
4	3	1	07-Jun-2021 11:18:39	0	NC
5	4	1	07-Jun-2021 11:33:39	0	NC

	OrderNumber	PizzaNumber	ReceivedTime	Canceled	CancelReason
6	5	1	07-Jun-2021 12:11:28	0	NC
7	5	2	07-Jun-2021 12:11:28	0	NC
8	6	1	07-Jun-2021 12:50:02	0	NC
9	6	2	07-Jun-2021 12:50:02	0	NC
10	6	3	07-Jun-2021 12:50:02	0	NC
11	6	4	07-Jun-2021 12:50:02	0	NC
12	6	5	07-Jun-2021 12:50:02	0	NC
13	6	6	07-Jun-2021 12:50:02	0	NC
14	6	7	07-Jun-2021 12:50:02	0	NC

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```
Order.Description
```

```
ans = 3085x1 string
"Order #1, Pizza 1 of 1: cheese, heavy cheese"
"Order #2, Pizza 1 of 2: chicken, sweet peppers, broccoli"
"Order #2, Pizza 2 of 2: mushroom, eggplant, tomato, heavy ch…
"Order #3, Pizza 1 of 1: pepperoni, broccoli, heavy cheese"
"Order #4, Pizza 1 of 1: cheese, light sauce"
"Order #5, Pizza 1 of 2: pepperoni, sweet peppers"
"Order #5, Pizza 2 of 2: bacon, heavy sauce"
"Order #6, Pizza 1 of 7: cheese, heavy cheese"
"Order #6, Pizza 2 of 7: bacon"
"Order #6, Pizza 3 of 7: artichokes, light sauce, heavy cheese"
⋮
```

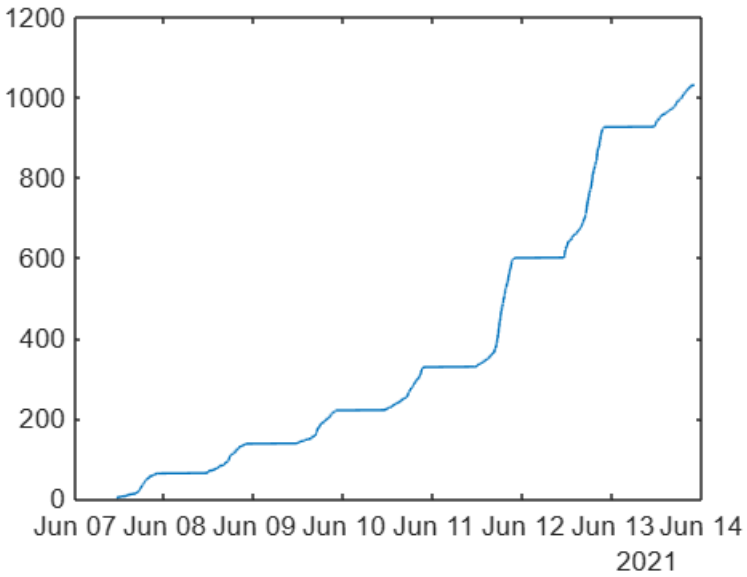
```
% Create wordcloud of Order.Description
wc = wordcloud(Order.Description);

% Add title
title("Order.Description")
```

PART-2 OF PIZZA DATA Analysis

- Exploring datetime data
- Exploring duration data
- Exploring text data
- Exploring categorical data

```
plot (Order.ReceivedTime, Order.OrderNumber)
```




```
Order.Totalduration = Order.ReadyTime - Order.ReceivedTime
```

```
Order = 3085x14 table
```

...

	OrderNumber	PizzaNumber	ReceivedTime	Canceled	CancelReason
1	1	1	07-Jun-2021 11:10:26	0	NC
2	2	1	07-Jun-2021 11:12:48	0	NC
3	2	2	07-Jun-2021 11:12:48	0	NC
4	3	1	07-Jun-2021 11:18:39	0	NC
5	4	1	07-Jun-2021 11:33:39	0	NC
6	5	1	07-Jun-2021 12:11:28	0	NC
7	5	2	07-Jun-2021 12:11:28	0	NC
8	6	1	07-Jun-2021 12:50:02	0	NC
9	6	2	07-Jun-2021 12:50:02	0	NC
10	6	3	07-Jun-2021 12:50:02	0	NC
11	6	4	07-Jun-2021 12:50:02	0	NC
12	6	5	07-Jun-2021 12:50:02	0	NC
13	6	6	07-Jun-2021 12:50:02	0	NC
14	6	7	07-Jun-2021 12:50:02	0	NC

⋮

```
Order.Totalduration.Format = "m"
```

```
Order = 3085x14 table
```

...

	OrderNumber	PizzaNumber	ReceivedTime	Canceled	CancelReason
1	1	1	07-Jun-2021 11:10:26	0	NC
2	2	1	07-Jun-2021 11:12:48	0	NC
3	2	2	07-Jun-2021 11:12:48	0	NC
4	3	1	07-Jun-2021 11:18:39	0	NC
5	4	1	07-Jun-2021 11:33:39	0	NC
6	5	1	07-Jun-2021 12:11:28	0	NC
7	5	2	07-Jun-2021 12:11:28	0	NC
8	6	1	07-Jun-2021 12:50:02	0	NC
9	6	2	07-Jun-2021 12:50:02	0	NC
10	6	3	07-Jun-2021 12:50:02	0	NC
11	6	4	07-Jun-2021 12:50:02	0	NC
12	6	5	07-Jun-2021 12:50:02	0	NC
13	6	6	07-Jun-2021 12:50:02	0	NC

	OrderNumber	PizzaNumber	ReceivedTime	Canceled	CancelReason
14	6	7	07-Jun-2021 12:50:02	0	NC

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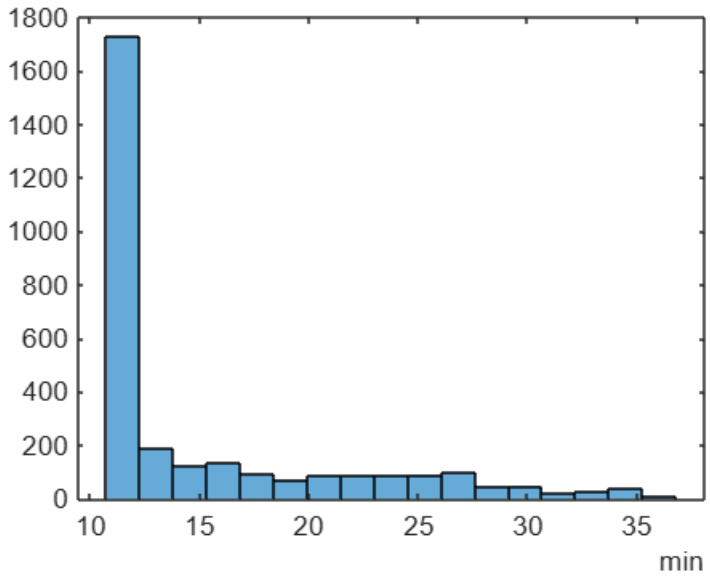
```
histogram(Order.Totalduration)
```




```
Order.Description = extractAfter(Order.Description, ":")
```

Order = 3085x14 table

...

	OrderNumber	PizzaNumber	ReceivedTime	Canceled	CancelReason
1	1	1	07-Jun-2021 11:10:26	0	NC
2	2	1	07-Jun-2021 11:12:48	0	NC
3	2	2	07-Jun-2021 11:12:48	0	NC
4	3	1	07-Jun-2021 11:18:39	0	NC
5	4	1	07-Jun-2021 11:33:39	0	NC
6	5	1	07-Jun-2021 12:11:28	0	NC
7	5	2	07-Jun-2021 12:11:28	0	NC
8	6	1	07-Jun-2021 12:50:02	0	NC
9	6	2	07-Jun-2021 12:50:02	0	NC
10	6	3	07-Jun-2021 12:50:02	0	NC
11	6	4	07-Jun-2021 12:50:02	0	NC
12	6	5	07-Jun-2021 12:50:02	0	NC
13	6	6	07-Jun-2021 12:50:02	0	NC

	OrderNumber	PizzaNumber	ReceivedTime	Canceled	CancelReason
14	6	7	07-Jun-2021 12:50:02	0	NC

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```
% Create wordcloud of Order.Description
wc = wordcloud(Order.Description);

% Add title
title("Order.Description")
```


```
Order.CancelReason = renamecats(Order.CancelReason, ["NC","86","LW","U"],
["NOT CANCELLED","ING SHORT","LONG WAIT","UNKNOWN"])
```

Order = 3085x14 table

...

	OrderNumber	PizzaNumber	ReceivedTime	Canceled	CancelReason
1	1	1	07-Jun-2021 11:10:26	0	LONG WAIT
2	2	1	07-Jun-2021 11:12:48	0	LONG WAIT
3	2	2	07-Jun-2021 11:12:48	0	LONG WAIT
4	3	1	07-Jun-2021 11:18:39	0	LONG WAIT
5	4	1	07-Jun-2021 11:33:39	0	LONG WAIT
6	5	1	07-Jun-2021 12:11:28	0	LONG WAIT
7	5	2	07-Jun-2021 12:11:28	0	LONG WAIT
8	6	1	07-Jun-2021 12:50:02	0	LONG WAIT
9	6	2	07-Jun-2021 12:50:02	0	LONG WAIT
10	6	3	07-Jun-2021 12:50:02	0	LONG WAIT

	OrderNumber	PizzaNumber	ReceivedTime	Canceled	CancelReason
11	6	4	07-Jun-2021 12:50:02	0	LONG WAIT
12	6	5	07-Jun-2021 12:50:02	0	LONG WAIT
13	6	6	07-Jun-2021 12:50:02	0	LONG WAIT
14	6	7	07-Jun-2021 12:50:02	0	LONG WAIT

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USING RELATIONAL AND LOGICAL OPERATORS

1. To determine cheese pizza popularity
2. Which is the best time of day for sale?
3. What's the Baseline for comparison?

```
Importdatapizza
```

```
Order = 3085x12 table
```

...

	OrderNumber	PizzaNumber	ReceivedTime	Canceled	CancelReason
1	1	1	07-Jun-2021 11:10:26	0	NC
2	2	1	07-Jun-2021 11:12:48	0	NC
3	2	2	07-Jun-2021 11:12:48	0	NC
4	3	1	07-Jun-2021 11:18:39	0	NC
5	4	1	07-Jun-2021 11:33:39	0	NC
6	5	1	07-Jun-2021 12:11:28	0	NC
7	5	2	07-Jun-2021 12:11:28	0	NC
8	6	1	07-Jun-2021 12:50:02	0	NC
9	6	2	07-Jun-2021 12:50:02	0	NC
10	6	3	07-Jun-2021 12:50:02	0	NC
11	6	4	07-Jun-2021 12:50:02	0	NC
12	6	5	07-Jun-2021 12:50:02	0	NC
13	6	6	07-Jun-2021 12:50:02	0	NC
14	6	7	07-Jun-2021 12:50:02	0	NC

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```
cheeseIndex=Order.Toppings == 0
```

```
cheeseIndex = 3085x1 logical array
   1
   0
   0
```

```
     0
     1
     0
     0
     1
     0
     0
       ⋮
```

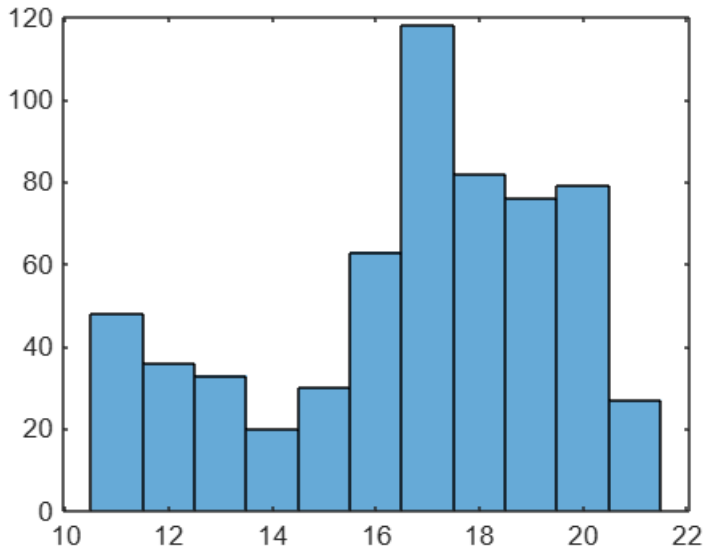
```
nnz(cheeseIndex)/ length(cheeseIndex)*100  %nnz function counts non-zero
values in an index
```

```
ans =
19.8379
```

```
Cheesetimes = Order.ReceivedTime(cheeseIndex)  %this is logical indexing
```

```
Cheesetimes = 612x1 datetime
07-Jun-2021 11:10:26
07-Jun-2021 11:33:39
07-Jun-2021 12:50:02
07-Jun-2021 12:50:02
07-Jun-2021 13:35:30
07-Jun-2021 13:35:30
07-Jun-2021 13:35:30
07-Jun-2021 13:49:59
07-Jun-2021 14:12:33
07-Jun-2021 14:56:01
     ⋮
```

```
histogram(hour(Cheesetimes))
```



Basline sales of cheese pizza

```
Saleindex = Order.Toppings == 0 & hour(Order.ReceivedTime) < 16
```

```
Saleindex = 3085x1 logical array
   1
   0
   0
   0
   1
   0
   0
   1
   0
   0
     ⋮
```

```
nnz(Saleindex)
```

```
ans =
167
```