



# 29

## Top Pizza

15 points

### Introduction

The restaurant Mario & Luigi cooks the best pizza in town, and it is so successful that thousands of pizza orders are being received every day. This is the list of their delicious pizza types:

- |                     |                  |
|---------------------|------------------|
| Rustica             | Romana           |
| Prosciutto e funghi | Funghi           |
| Pesto Genovese      | Bianca           |
| Carbonara           | Sicilian         |
| California          | Hawaiian         |
| Pinsa Romana        | Caprese          |
| Vegetariana         | Quattro formaggi |
| Diavola             | Pepperoni        |
| Quattro stagioni    | Calzone          |
| Frutti di mare      | Margherita       |
| Prosciutto          | Napoletana       |



**HINTS:** There is a .txt file where you can find this list in the “Guides and tools” section.

Since certain pizza types are more requested than others, some of the pizza’s names occur many times in the list of orders. At the end of the day Mario and Luigi want to know the total number of pizzas correctly received. They also need to get a list of the pizzas sorted by decreasing order request frequency and then alphabetically by name. If a pizza appears twice or more in the list, write the number of repetitions just next to the pizza name. All pizza orders are digitally processed but unfortunately due to communication errors sometimes an invalid pizza name is received. Your program must deal with such incorrect names and list them by order of appearance at the end of the list without considering if they are repeated.

### Input

The input is formed by a list of the pizzas ordered by the end of each day. The list should be ended by a hashtag ‘#’ character.

### Output

The output reports the total number of valid pizza request received in a line with the format:

Received valid pizza requests: number





Followed by a list of the pizzas sorted first by number of requests then by name. In the case that a pizza appears twice or more in the list, write the number of repetitions just next the pizza name

Then a line containing three dashes ---

Followed by the total number of invalid requests:

Invalid requests: number

Finally, a list of the incorrect pizza names sorted by appearance, without considering if they are repeated.

See the examples for clarification.

## Example 1

### Input

```
Romana  
Rumana  
Pepperoni  
Margherita  
Margherita  
Romana  
Quattro formaggi  
Quattro formagge  
#
```

### Output

```
Received valid pizza requests: 6  
Margherita 2  
Romana 2  
Pepperoni  
Quattro formaggi  
---  
Invalid requests: 2  
Rumana  
Quattro formagge
```

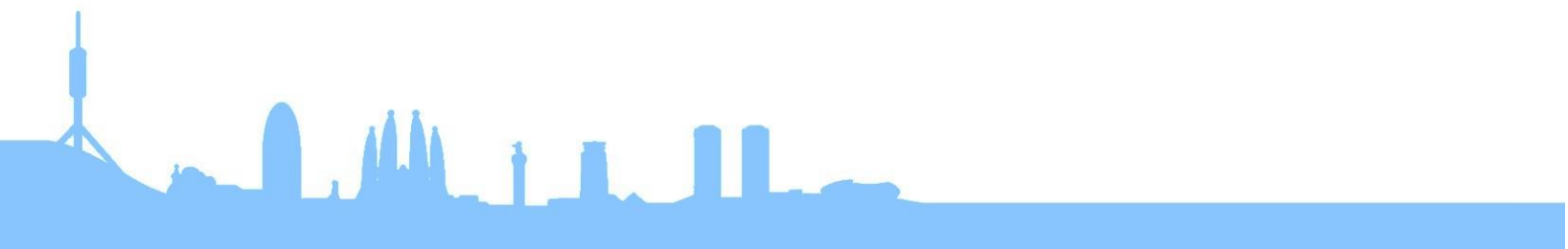
## Example 2

### Input

```
Rockmana  
Piperoni  
Sizilian  
Diabolik  
#
```

### Output

```
Received valid pizza requests: 0  
---  
Invalid requests: 4  
Rockmana  
Piperoni  
Sizilian  
Diabolik
```





## Example 3

### Input

```
Diavola
Diavola
Diavola
Diavola
Diavola
Diavola
Calzone
Quattro stagioni
Frutti di mare
Frutti di mare
Calzone
Prosciutto
Romana
Calzone
Calzone
Diavola
Romana
Funghi
Bianca
Calzone
Sicilian
Calzone
Hawaiian
Calzone
Caprese
Quattro formaggi
Quattro formaggi
Pepperoni
Calzone
#
```

### Output

```
Received valid pizza requests: 29
Calzone 8
Diavola 7
Frutti di mare 2
Quattro formaggi 2
Romana 2
Bianca
Caprese
Funghi
Hawaiian
Pepperoni
Prosciutto
Quattro stagioni
Sicilian
---
Invalid requests: 0
```

