

Insurance Company Email Automation

You are a member of an IT team for a nationwide insurance company. Unfortunately, your company recently suffered a devastating data breach. Private and sensitive data of millions of your customers may now be compromised...

The whole company is still grappling with the consequences of the breach, but you know the drill – it is time to inform the customers. The members of the board of the company have decided to send an email informing every customer about the data breach. Then, the company will also send the same information using the regular mail. **They are asking you to help them out, and to automate the process that the insurance company will use to communicate with its customers.**

The CSV File

The insurance company holds some information about their members in a CSV file¹. CSV file is organized as a plain text file, containing information such that each piece of data is enclosed in double quotes, and separated by a comma. The first line of the file contains the headers for each column.

```
"first_name" , "last_name" , "company_name" , "email"
"James"      , "Reign"      , "Benton", "james.reign@gmail.com"
"Josephine"  , "R, Darakjy", "Chanay", "josie55@hotmail.com"
"Art"        , "Venere"    , "Chemel", "art2smart@gmail.com"
```

For example, the preceding listing has 4 columns named **first_name**, **last_name**, **company_name** and **email**. The second line has the information for member **James Reign**.

Note 1: while the information is enclosed in double quotes, and separated by comma, within the double quotes, there may exist column entries that contain comma. For example, **"R, Darakjy"** is one valid piece of information, and not two.

A sample file, with some of the insurance company's members information, is available, titled insurance-company-members.csv. The CSV file contains first and last name,

¹ This partially explains why they suffered the data breach ☺

company name, address, city, county, state, zip, phone1 and phone2, email address and web page URL.

Given this CSV file, the insurance company would like you to create a program that they can run on the command line. The program should take this file as input, and generate files that will contain the email messages and letters to send to their members. Email messages and letters will be generated from **templates**.

The templates are stored as text files with special placeholders in the text that refer to the CSV file's header names. Here are two example templates, one for email and one for letters. Placeholders are placed between `[[and]]`.

```
To: [[email]]
Subject: Insurance company - information about recent data breach
Dear [[first_name]] [[last_name]],
As you may have heard or read, last month we learned that criminals
forced their way into our systems, and stole information about our
customers. Late last week, as part of our ongoing investigation, we
learned that the taken information includes names, mailing addresses,
phone numbers or email addresses.
I am writing to make you aware that your name, mailing address, phone
number or email address may have been taken during the intrusion. I
am truly sorry this incident occurred, and I sincerely regret any
inconvenience it may cause you.
Because we value you as a customer, and because your trust is
important to us, our company is offering you one year of free credit
monitoring through Experian's ProtectMyID product, which includes
identity theft insurance where available. You will receive more
information about this offer via regular mail.
You can find additional information and FAQs about this incident at
our website. If you have further questions, you may call us at 866-
852-8680.
Thank you for your patience and your loyalty.
Sincerely,
Insurance Company CEO
```

So, given the above email template and the following line from the CSV file:

```
"first_name","last_name","company_name","address","city","county","state","zip","phone1","phone2","email",
"website"
"Art","Venere","Chemel, James L Cpa","8 W Cerritos Ave #54","Bridgeport","Gloucester",
"NJ","08014","856-636-8749","856-264-4130","art@venere.org","http://www.chemeljameslcpa.com"
```

the email message that is generated looks like:

```
To:art@venere.org
Subject:Insurance company - information about recent data breach Dear
Art Venere,
```

As you may have heard or read, last month we learned that criminals forced their way into our systems, and stole information about our customers. Late last week, as part of our ongoing investigation, we learned that that information includes names, mailing addresses, phone numbers or email addresses.

I am writing to make you aware that your name, mailing address, phone number or email address may have been taken during the intrusion. I am truly sorry this incident occurred, and I sincerely regret any inconvenience it may cause you.

Because we value you as a customer, and because your trust is important to us, our company is offering you one year of free credit monitoring through Experian's ProtectMyID product, which includes identity theft insurance where available. You will receive more information about this offer via regular mail.

You can find additional information and FAQs about this incident at our website. If you have further questions, you may call us at 866-852-8680.

Thank you for your patience and your loyalty.

Sincerely,

Insurance Company CEO

Similarly, we also have a template for the company's letter:

```
[[first_name]] [[last_name]]  
[[address]], [[city]],  
[[county]], [[state]], [[zip]]  
([[email]])
```

Dear [[first_name]] [[last_name]],

As you may have heard or read, last month we learned that criminals forced their way into our systems, and stole information about our customers. Late last week, as part of our ongoing investigation, we learned that the taken information includes names, mailing addresses, phone numbers or email addresses.

I am writing to make you aware that your name, mailing address, phone number or email address may have been taken during the intrusion. I am truly sorry this incident occurred, and I sincerely regret any inconvenience it may cause you.

Because we value you as a customer, and because your trust is important to us, our company is offering you one year of free credit monitoring through Experian's ProtectMyID product, which includes identity theft insurance where available. Enclosed please find your additional information about your free credit card monitoring.

You can find additional information and FAQs about this incident at our website. If you have further questions, you may call us at 866-852-8680.

Thank you for your patience and your loyalty.
Sincerely,

Insurance Company CEO

For the same CSV lines we used before, this template generates the following text file:

Art Venere
8 W Cerritos Ave #54, Bridgeport, Gloucester,
NJ, 08014.
(art@venere.org)

Dear Art Venere,

As you may have heard or read, last month we learned that criminals forced their way into our systems, and stole information about our customers. Late last week, as part of our ongoing investigation, we learned that the taken information includes names, mailing addresses, phone numbers or email addresses.

I am writing to make you aware that your name, mailing address, phone number or email address may have been taken during the intrusion. I am truly sorry this incident occurred, and I sincerely regret any inconvenience it may cause you.

Because we value you as a customer, and because your trust is important to us, our company is offering you one year of free credit monitoring through Experian's ProtectMyID product, which includes identity theft insurance where available. Enclosed please find your additional information about your free credit card monitoring.

You can find additional information and FAQs about this incident at our website. If you have further questions, you may call us at 866-852-8680.

Thank you for your patience and your loyalty.
Sincerely,

Insurance Company CEO

Note 2: You are provided with **one** example CSV file, and **two** examples of templates. The insurance company, however, may in the future like to write more templates, and your program should accommodate for new templates. **Therefore, your code should work for any CSV file and any template that uses the CSV file's header values as placeholders.**

Command Line Arguments

Your program should accept certain arguments at the command line.

```
--email                only generate email messages --email-  
template <file>      accept a filename that holds the email template  
  
--letter                only generate letters  
--letter-template <file> accept a filename that holds the letter  
template  
  
--output-dir <path>    accept the name of a folder, all output  
is placed in this folder  
  
--csv-file <path>      accept the name of the csv file to  
process
```

Please note that some options take arguments, for example `--email-template` takes one argument, and it is the name of a file. Similarly, `--output-dir` takes one argument, and it is the name of a folder.

Other options, however, take no arguments, and indicate an action, i.e., `--email` indicates that we should generate emails on this execution of the program.

The command line option `--output-dir` and `csv-file` are required.

Your program should be able to generate one of the two options (emails or letters) per invocation. If `--email` is given, then `--email-template` must also be provided, if `--letter` is given then `--letter-template` must also be given.

Calling your program and passing any other combination of options should generate an error, for example:

```
--email --letter-template letter-template.txt --output-dir  
letters/ is illegal.
```

When a user provides an illegal combination of inputs, the program should exit with a helpful error message, and a short explanation of how to use the program along with examples. For example, passing:

```
--email --letter-template letter-template.txt --output-dir  
letters
```

```
Error: --email provided but no --email-template was given.
```

Usage:

```
--email                                only generate email messages
--email-template <file>  accept a filename that holds the
email template.
Required if --email is used
```

```
--letter                                only generate letters
--letter-template <file> accept a filename that holds the email
template.
Required if --letter is used
```

```
--output-dir <path> accept the name of a folder, all
output is placed in this folder
```

```
--csv-file <path> accept the name of the csv file to
process
```

Examples:

```
--email --email-template email-template.txt --output-dir
emails --csv-file customer.csv
```

```
--letter --letter-template letter-template.txt --outputdir
letters --csv-file customer.csv
```

Finally, please note the order of the command line options does not matter, i.e., the following examples are valid:

```
--email --email-template email-template.txt --output-dir emails --csv-file customer.csv
--csv-file customer.csv --email-template email-template.txt --output-dir emails --email
--output-dir emails --email --csv-file customer.csv --email-template email-template.txt
```

Note 3: Please also make sure that your program works correctly regardless of how your operating system represents paths and files. Make sure not to include hardcoded paths to your files that will only work on your computer.