
Email Addresses

Problem Description

In a fit of modernisation, *InsuroCorp* plans to switch from physical mail to email for billing clients. To ensure that the changeover goes smoothly, they need to check that all the email addresses in their client database are valid.

As far as *InsuroCorp* are concerned, valid email addresses should be converted to lowercase, and have the following format:

1. A mailbox name
2. An "@" symbol
3. A domain name
4. A dot (".")
5. A domain extension

The mailbox and domain names must be alphanumeric, but may have multiple parts separated by single dots ("."). Parts of the mailbox name may be similarly separated by single hyphens ("-") and/or underscores ("_").

As an additional security measure, some addresses have replaced the @ symbol with "_at_" and the dot (before the extension) with "_dot_". These substitutions should be corrected.

Given that all *InsuroCorps'* clients are companies based in New Zealand, Australia, Canada, U.S.A., or Great Britain, the domain extension must be one of the following:

co.nz	com.au	co.ca
com	co.us	co.uk

Alternatively, the domain may be given in numerical form, in which case it must be surrounded by square brackets.

Task

Write a program that will read email addresses from the user and—for each one—either display a tidied version (if it is valid), or indicate what is wrong (if it is not valid).

For example these lines of input:

```
CEO@InsuroCorp.com  
maffu@cs.otago.ac.nz  
gerry_at_research.techies_dot_co.uk  
bob.gmail.com  
cath@[139.80.91.50]
```

should produce output like:

```
ceo@insurocorp.com  
maffu@cs.otago.ac.nz <- Invalid extension  
gerry@research.techies.co.uk  
bob.gmail.com <- Missing @ symbol  
cath@[139.80.91.50]
```

Relates to Objectives

1.1 1.2 1.3 2.2 2.7 2.8 3.4 3.5 4.1 4.5

(Individual)