7 A program is being developed to implement a customer loyalty scheme for a coffee shop.

The programmer has decided that the following data items need to be stored for each customer:

Data item	Description
customer ID	a unique six-digit string
points	an integer value that is increased by one for every cup of coffee the customer orders

When a customer visits the shop and orders coffee, the scheme operates as follows:

- The total number of points is increased by the number of coffees ordered.
- If just one cup of coffee is ordered and the number of points goes above 10, then:
  - the cup of coffee they have just ordered is given to them free of charge
  - the number of points is reduced by 11.
- If the order is for multiple coffees and the number of points goes above 10, then:
  - they get one coffee free of charge for every 11 points
  - the number of points is reduced by 11 for each free coffee.

For example, the:

- customer currently has 9 points
- customer orders 16 cups of coffee
- total number of points now becomes 25
- customer gets 2 free coffees and now has 3 points left.

The programmer has defined a program module that is called every time a customer places an order:

Module	Description

`CustomerOrder()`	• called with two integer parameters:
	  ◦ the number of coffees ordered
	  ◦ the current number of points
	• output a suitable message giving the number of free coffees
	• return a value for the new points total.

(a) Write pseudocode for module `CustomerOrder()`

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(b) A text file `Loyalty.txt` will be used to store the data items for the loyalty scheme. The data items for each customer will be stored on a separate line of the text file where each data item is separated by a comma:

```
<CustomerID>,<Points>
```

The contents of the text file `Loyalty.txt` will always be stored in ascending order by customer ID.

When the data items are read from or written to the text file `Loyalty.txt`, they may need to be converted to the appropriate data type.

Each customer has a unique customer ID starting at `"100001"` with this value increasing by one each time a new customer joins the loyalty scheme.

When a customer joins the loyalty scheme, they are assigned the next customer ID and value of points is set to 0.

For example, if the loyalty scheme has 204 customers and a new customer joins the loyalty scheme, the following line is added to the text file `Loyalty.txt`:

```
"100205,0"
```

You can assume that the number of customers in the loyalty scheme will never be more than 9000.

The programmer has defined a program module as follows:

Module	Description
`AddNewCustomers()`	• called with an integer parameter representing the number of new customers to be added to the loyalty scheme • adds a new line, containing the required information, to the text file `Loyalty.txt` for each customer added to the loyalty scheme • outputs each new customer ID added to the loyalty scheme

(i) Write pseudocode for module `AddNewCustomers()`

Assume that there is at least **one** customer already in the loyalty scheme.

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(ii) The requirements for `AddNewCustomers()` are changed. There may be no existing customers in the loyalty scheme.

Explain the changes that will need to be made to the module `AddNewCustomers()`

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