

Dispensing Change

One of the problems with retail stores is that cashiers sometimes give the wrong change to a customer. Indeed, there are places where the cash register itself dispenses the change. Your job is to design the appropriate algorithm for such a cash register. Given an amount of money to return to the customer, you must determine the most efficient way to return the change. We are only interested in coins, and are ignoring dollar coins.

The change that can be offered can consist of quarters (labeled 'Q', and worth \$0.25), dimes (labeled 'D', and worth \$0.10), nickels (labeled 'N', and worth \$0.05), and pennies (labeled 'P', and worth \$0.01). No other coins can be returned.



Input

Input will consist of one or more input cases, one per line. Each input case will consist of a non-negative dollar amount, listed to exactly two decimal digits of accuracy (i.e. cents). Neither currency symbols (such as '\$') nor commas will not be part of the input. Each input dollar amount will not exceed 1 billion dollars. An input value of “-1.00” will terminate input.

Output

For each test case, the output will consist of the original amount with currency symbol, followed by a listing of the change. The original dollar amount must be to two decimal places of accuracy (i.e. cents), and must contain the dollar sign ('\$'). Commas must separate every three digits of the dollar amounts.

Output will consist of a listing of the quarters, dimes, nickels, and pennies that is the most efficient means to make change of the input amount. The change for a given dollar amount must all be on the same line, space separated. Coins are indicated by a 'Q', 'D', 'N', or 'P', for, respectively, quarter, dime, nickel, and penny. Only the coin change need be listed; dollar amounts are not to be output. An amount that has no coin change should output a line containing only the input dollar amount, properly formatted as described above.

Sample Input

```
0.63
1.06
3.25
1000.06
3.00
-1.00
```

Sample Output

```
$0.63 Q Q D P P P
$1.06 N P
$3.25 Q
$1,000.06 N P
$3.00
```