

題目 543

543. 質因數分解

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Caído

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Description

給一個正整數  $N$ ，請你由小到大輸出他的質因數分解。

Input Format

輸入只有一行一個正整數  $N$ ，表示要分解的整數。  
 $2 \leq N \leq 10^9$

Output Format

輸出一行若干個質數  $P_1, P_2, \dots, P_k$ ，整數間以空白分隔，且滿足  $N = P_1 P_2 \dots P_k$  和  $P_1 \leq P_2 \leq \dots \leq P_k$ 。

Sample Input 1

12

copy

Sample Output 1

2 2 3

copy

Sample Input 2

19

copy

Sample Output 2

19

copy

Hints

Problem Source

Subtasks

No.	Testdata Range	Constraints	Score
1	0~1	範例測資	0
2	0~19	無額外限制	100

Problem	Total Time (ms)	Max Memory (RSS, KiB)	Verdict	Score		
543. 質因數分解	3945	3456	Time Limit Exceeded	0		
Subtask Results						
Subtask no.	Testdata Range	Constraints	Score			
1	0~1	範例測資	0 / 0			
2	0~19	無額外限制	0 / 100			
Testdata Results						
Testdata no.	Subtasks	Time (ms)	Memory (VSS, KiB)	Memory (RSS, KiB)	Verdict	Score
0	0 0	3.1	6356	3456	Accepted	100
1	0 0	4.2	6356	3456	Accepted	100
2	0	4.1	6356	3456	Accepted	100
3	0	4.0	6356	3456	Accepted	100
4	0	4.1	6356	3456	Accepted	100
5	0	4.1	6356	3456	Accepted	100
6	0	1084.1	6356	2304	Time Limit Exceeded	0
7	0	1080.4	6356	2304	Time Limit Exceeded	0
8	0	98.8	6356	3456	Accepted	100
9	0	416.1	6356	3456	Accepted	100
10	0	1099.1	6356	2304	Time Limit Exceeded	0
11	0	32.6	6356	3456	Accepted	100
12	0	10.3	6356	3456	Accepted	100
13	0	4.1	6356	3456	Accepted	100
14	0	64.2	6356	3456	Accepted	100
15	0	17.3	6356	3456	Accepted	100
16	0	3.8	6356	3456	Accepted	100
17	0	3.9	6356	3456	Accepted	100
18	0	4.0	6356	3456	Accepted	100
19	0	2.8	6356	3456	Accepted	100

```
#include <iostream>
#include <cmath>
using namespace std;
int main() {
    long long N;
    cin >> N;
    if (N % 2 == 0)
```

```

{
    while(N % 2 == 0){
        cout << 2 << " ";
        N /= 2;
    }
}

for(long long i = 3;i <= N;i++){
    while(N % i == 0){
        cout << i << " ";
        N /= i;
    }
}
return 0;
}

```

我一開始是想先一個個找數字，但這樣會 Time Limit Exceeded

Problem	Total Time (ms)	Max Memory (RSS, KIB)	Verdict	Score
543. 質因數分解	80	3456	Accepted	100

Subtask Results				Score
Subtask no.	Testdata Range	Constraints		
1	0~1	範例測資		0/0
2	0~19	無額外限制		100/100

Testdata Results						
Testdata no.	Subtasks	Time (ms)	Memory (VSS, KIB)	Memory (RSS, KIB)	Verdict	Score
0		3.5	6356	3456	Accepted	100
1		4.0	6356	3456	Accepted	100
2		4.0	6356	3456	Accepted	100
3		4.0	6356	3456	Accepted	100
4		4.0	6356	3456	Accepted	100
5		4.1	6356	3456	Accepted	100
6		4.4	6356	3456	Accepted	100
7		4.5	6356	3456	Accepted	100
8		4.0	6356	3456	Accepted	100
9		4.1	6356	3456	Accepted	100
10		4.2	6356	3456	Accepted	100
11		3.9	6356	3456	Accepted	100
12		4.1	6356	3456	Accepted	100
13		3.9	6356	3456	Accepted	100
14		4.0	6356	3456	Accepted	100
15		3.9	6356	3456	Accepted	100
16		3.9	6356	3456	Accepted	100
17		3.7	6356	3456	Accepted	100
18		3.9	6356	3456	Accepted	100
19		3.8	6356	3456	Accepted	100

```

#include <iostream>
using namespace std;

int main() {
    long long n;
    cin >> n;
}

```

```
for (long long i = 2; i * i <= n; i++) {  
    while (n % i == 0) {  
        cout << i << " ";  
        n /= i;  
    }  
}  
if (n > 1)  
{  
    cout << n;  
}  
  
return 0;  
}
```

所以我改用從平方開始找