

題目 543

✓ 543. 質因數分解

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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 copy
12

Sample Input 2 copy
19

Hints

Sample Output 1 copy
2 2 3

Sample Output 2 copy
19

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)	Verdict	Score
0	①②	3.1	6356	Accepted	100
1	①②	4.2	6356	Accepted	100
2	②	4.1	6356	Accepted	100
3	②	4.0	6356	Accepted	100
4	②	4.1	6356	Accepted	100
5	②	4.1	6356	Accepted	100
6	②	1084.1	6356	Time Limit Exceeded	0
7	②	1080.4	6356	Time Limit Exceeded	0
8	②	98.8	6356	Accepted	100
9	②	416.1	6356	Accepted	100
10	②	1099.1	6356	Time Limit Exceeded	0
11	②	32.6	6356	Accepted	100
12	②	10.3	6356	Accepted	100
13	②	4.1	6356	Accepted	100
14	②	64.2	6356	Accepted	100
15	②	17.3	6356	Accepted	100
16	②	3.8	6356	Accepted	100
17	②	3.9	6356	Accepted	100
18	②	4.0	6356	Accepted	100
19	②	2.8	6356	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						
Subtask no.	Testdata Range	Constraints	Verdict ⓘ	Score		
1	0~1	範例測資	Accepted	0 / 0		
2	0~19	無額外限制	Accepted	100 / 100		
Testdata Results						
Testdata no.	Subtasks	Time (ms)	Memory (VSS, KIB) ⓘ	Memory (RSS, KIB) ⓘ	Verdict ⓘ	Score
0	① ②	3.5	6356	3456	Accepted	100
1	① ②	4.0	6356	3456	Accepted	100
2	②	4.0	6356	3456	Accepted	100
3	②	4.0	6356	3456	Accepted	100
4	②	4.0	6356	3456	Accepted	100
5	②	4.1	6356	3456	Accepted	100
6	②	4.4	6356	3456	Accepted	100
7	②	4.5	6356	3456	Accepted	100
8	②	4.0	6356	3456	Accepted	100
9	②	4.1	6356	3456	Accepted	100
10	②	4.2	6356	3456	Accepted	100
11	②	3.9	6356	3456	Accepted	100
12	②	4.1	6356	3456	Accepted	100
13	②	3.9	6356	3456	Accepted	100
14	②	4.0	6356	3456	Accepted	100
15	②	3.9	6356	3456	Accepted	100
16	②	3.9	6356	3456	Accepted	100
17	②	3.7	6356	3456	Accepted	100
18	②	3.9	6356	3456	Accepted	100
19	②	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