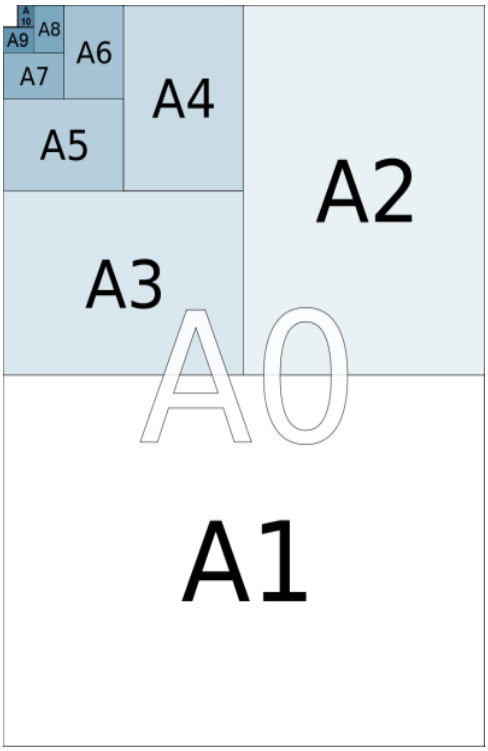
Telerik Academy

Telerik Academy Alpha 2017 - Entry Exam

Task 2 - Paper cutter



The Triwizard tournament continues and you are faced with yet another challenge. This time, you have to craft confetti out of some very expensive sheets of paper. Again, you rely on your C# mastery in order to complete this challenge.

A10 is a standard for paper size. **A9** is another standard that is **twice as big** as **A10**, so **A9** can be cut into **2 pieces** of size **A10**. **A8** is twice as big as **A9** and so on. **A0** is twice as big as **A1**. See the picture on the left.

You are given one sheet of each **A** size standard from **0 to 10**, which means you have **11** sheets in total. You need to cut **N** amount of **A10** sized pieces out of the sheets you have, using **as few of them as possible (without leaving any semi-cut sheets!)**.

For example, if you receive the number **9** as **N**, you need to craft **9 pieces** of size **A10** by cutting the sheets you have. You would use:

- The **A7** sheet - cut it into **8 pieces** of size **A10**. (**A7** is 8 times as big as **A10**)
- The **A10** sheet - which you already have.

In that case, you would have used only two sheets. All other 9 sheets would not be used and they should be printed on the console. The order of printing of the sheets does not matter.

Input

- The input data should be read from the console.
- On the first line, you will receive the integer **N**.

Output

- The output data should be printed on the console.
- Each line should consist of a sheet size, **not used** in the cutting.

Constraints

- The input data will always be valid and in the format described.
- The order in which you print out the not used sheets **does not matter**.
- **N** will be a valid, non-negative, non-zero integer in the range of **1 to 2046 inclusive**.

Examples

Input	Output
1	A9 A8 A7 A6 A5 A4 A3 A2 A1 A0

Input	Output
9	A9 A8 A6 A5 A4 A3 A2 A1 A0

Input	Output
1337	A1 A3 A4 A8 A9