**Problem 2 – Encoded Answers**

Prof. Petrov is teaching Public Finance in the Faculty of Economics and Business Administration. At the end of the term he grades his students based on a **test** which he strictly prepares. However, last year some of the students sneaked into his room and stole the **answer key** to the test. This year he had decided to be more careful about keeping the answer key **secret,** so he asks you to help him **encode the answers**, so that even if students find it again, they will not be able to read it.

Your task is to write a **program**, which gets as **input** the **number of the questions** in the test and then on a **separate line for each question** is given **a number**. Since each question has **4 possible answers**, there are **4 types of numbers** which will be given. If the given number is **divisible by 4** (that means the reminder of the **division equals 0**), the answer to that question is **‘a’**. If the **reminder** of the division of the number by **4 equals 1**, the answer is **‘b’**; if it **equals 2**, the answer is **‘c’**; and if it **equals** **3**, the answer is **‘d’**. At the end, the program should **print on the console** **all the answers in letter format in a single line.** After that, in the **next 4 lines**, it should print the **number of answers of each type – a, b, c, and d.**

**Input**

* On the first line you will receive the number **N** – the number of questions in the test.
* On the next **N** lines you will receive valid integer numbers in range 0 to 4,294,967,295

**Output**

* On the first line, display all the answers in format a, b, c or d.
* On the next 4 lines – on each line print the type of answer (a, b, c or d) and how many answers of this type are there in the test.  
  ***Example: “Answer A: 15”***

**Constraints**

* **N** is an integer in range [1 … 30]
* The **numbers for answers** will be in range [0…4,294,967,295]
* Allowed memory: 16 MB
* Allowed time: 0.1s

### Examples

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Input** | **Output** | **Comments** |  | **Input** | **Output** |
| 10  2  3  4  5  6  7  8  9  10  11 | c d a b c d a b c d  Answer A: 2  Answer B: 2  Answer C: 3  Answer D: 3 | 2/4 = 0 (2) 🡪 c  3/4 = 0 (3) 🡪 d  4/4 = 1 (0) 🡪 a  5/4 = 1 (1) 🡪 b  6/4 = 1 (2) 🡪 c  7/4 = 1 (3) 🡪 d  8/4 = 2 (0) 🡪 a  9/4 = 2 (1) 🡪 b  10/4 = 2 (2) 🡪 c  11/4 = 2 (3) 🡪 d | 5  56  654  236  56997  4555 | a c a b d  Answer A: 2  Answer B: 1  Answer C: 1  Answer D: 1 |