# Problem 5 – Another Useless Bits Game

Like all previous bits game this one is also totally useless, but we don’t have a nice idea for exam problem. You will be given integer numbers, each one on a new line in the console, **until** you receive command “**end**”.

For each number take the **count** of the bits with value 1.

If the **count** is **even** – **take the first “count” bits and invert them.** For example the number is 56142: 00000000000000001101101101001110. **Ten bits equal 1.** So you take the **first ten 10 bits and invert them** 00000000000000001101100010110001.

If the **count** is **odd** – **shift the number to the left.** For example the number is 341: 00000000000000000000000101010101. **Five bits equal 1**. Result should be  
00000000000000000000001010101010.

**After** you manipulate the number **sum all new numbers** and print the result. **Sum the count of bits with value ‘1’** from all input numbers and print them too**.**

**Input**

The input should be read from the console. It will consist **numbers each on new line until you receive command “end”.**

**Output**

The output should be exactly two lines.

* First line – **sum of all new numbers.**
* Second line – **sum of all bits with value ‘1’ from all new numbers.**

**Constraints**

* The input number will be valid integers in the range [0 … 4294967295].
* Program ends when you receive the command – “**end**”.
* Allowed working time for your program: 0.25 seconds.
* Allowed memory: 16MB.

**Examples**

|  |  |  |
| --- | --- | --- |
| **Input** | **Output** | **Comments** |
| 321663  852962  end | 2027332  17 | 321654 -> 00000000000001001110100001111111 – 12  Count of bits is 12(even) so invert first ten bits.  321408 -> 00000000000001001110011110000000 – 8  New count is 8.  852962 – 00000000000011010000001111100010 – 9  Count of bits is 9(odd) so shift number left.  1705924 – 00000000000110100000011111000100 – 9  Sum of numbers -> 322441 + 1705924 = 2028365  Sum of bits -> 8 + 9 = 17 |