To save the storage space, a useful approach is compress the file. A simple method to compress sparse file, i.e. a file with lots of zeros, is to record the pair of position and value for each none-zero value. These pairs of values can also be stored in a random-access file for better manipulation. Your goal is to write a program to compress a binary file into a random-access file.

Requirement: Read the binary input from file stream rather than the standard input stream. Also write the binary output to the file stream rather than the standard output stream.

Input

The input is a 64 MB binary file named as "**test_input_Compress.txt**".

Output

Create a random-access file named as "**my_output_Compress.txt**". Each record is a structure containing 4-byte unsigned integer as the index and a 1-byte character as the value in such byte. Please remember to set the remaining bytes of the structure to zero. Note that in every byte of the input file only the non-zero value should be recorded.

Sample Input

No sample input is provided.

Sample Output

No sample output is provided.