

The escapades of *The Masked Lady* have had varying prominence over the years. Whilst never completely out of print, stories have been lost, banned, rediscovered, made legal case law, lost again and generally have provided a steady income for the author's descendants. They have been reprinted in numerous collections, including the sought-after *Annotated Mask* which also provided intriguing insights to the imaginative intellect of the innovative instigator.

Discussing "... and the Zinc Zygosphere" the annotated volume notes that in the original draft, the artefacts selected included some that had been adjacent and one item was actually selected twice in error. The correction of the error and the decision to have our heroine avoid picking adjacent items came later. The author noted in the margin of the manuscript that all such original selections could be changed, although the margin itself was too small to contain the wonderful proof thereof.

In the book the first two items were worth $1z_{-}$ and $2z_{-}$ and each successive artefact was worth "as much as the previous two combined!". The Zinc Zygosphere was worth $50z_{-}$:

- The first antiquities in the row were valued (in z_{-}) at 1, 2, 3, 5, 8, 13, 21 and 34;
- In the draft our heroine picked those worth $21z_{-}$ (twice), $5z_{-}$ and $3z_{-}$;
- In the final version our heroine picked those worth $3z_{-}$, $13z_{-}$ and $34z_{-}$.

The annotations also note that the author experimented with having millions of artefacts, along with one character explaining at length about hyperinflation, but wisely dropped this from the final story.

SAMPLE INPUT

2001100

SAMPLE OUTPUT

10100100

Write a program that reads in an integer n (of up to 1,000,000 digits) indicating the selected artefacts. The i^{th} digit from the right indicates the number of times the i^{th} artefact was selected. At most one artefact will have been selected twice and all other artefacts will have been selected once or not at all. The left-most digit will be non-zero; you may assume any additional artefacts were not selected.

You should output a number whose left-most digit is 1 (using the format of the input) indicating the selected artefacts, where no adjacent artefacts are selected and no artefact is selected more than once. The sum of the values of the selected artefacts in the input and output should be the same.