Assignment

**Even parity**

Read a text file which contains lines of 9 bits. Even parity is used to validate each line of bits.

There may be at most 1 erroneous bit in the file. Find out its position.

Identify the invalid bit and correct its value.

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| data | data | data | data | data | data | data | data | parity  bit | sum | %2 | valid |
| 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 |  |
| 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 4 | 0 |  |
| 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 3 | 1 | invalid |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |  |
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 8 | 0 |  |
| 0 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 4 | 0 |  |
| 2 | 4 | 2 | 4 | 2 | 1 | 2 | 2 | 2 |  |  |  |
|  |  |  |  |  | invalid |  |  |  |  |  |  |

error detection and correction

Test your program. Check against the following sample output.

File name e.g. 4C03ChanTaiMan\_parity.py

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Enter the data file name:data3.txt

Error not found.

Press ENTER to quit.

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Enter the data file name:data4.txt

Error line number: 521

Error bit position: 4

Press ENTER to quit.

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