**TASK 1**

Go to the website:

<http://www.bagill.com/text-converter.php>



Convert your name into binary.

**Run-length encoding** is a simple computer method of LOSSLESS compressing or encoding data.

When there is a pair or more than TWO bits the same (a ‘run length’ of common digits), we can compress those bits by writing how many - length - of those common bits (run) there are.

For example:

11000010 🡪 114010 - this means there is a string of four zeroes in the sequence

|  |  |
| --- | --- |
| **Data** | **Number of bits** |
| 11000010 | 8 bits |
| 214010 | 6 bits (‘compressed’) |

***EXAMPLE***

|  |  |  |
| --- | --- | --- |
| **MY NAME (ASCII characters)** | JOHN SMITH | **HOW MANY DIGITS?** |
| **MY NAME (in BINARY - uncompressed)** | 01001010011011110110100001101110001000000101001101101101011010010111010001101000 | 80 digits |
| **MY NAME (in BINARY – compressed)** | 0120101202104102101402103130160101202102102101021012010310130210130 | 67 digits= 17% compression |

\* COUNTING BITS IN THE ‘UNCOMPRESSED’ NAME 🡪 EACH LETTER = 1 BYTE = 8 BITS

Using the website:

 <http://www.bagill.com/text-converter.php>

- fill in the table below with:

 - your name

 - your name in BINARY

 - your name ‘compressed’ using **RUN-LENGTH ENCODING**

 - how many digits storage space your name takes UNCOMPRESSED

 - how many digits storage space your name takes COMPRESSED

 - the compression %age

|  |  |  |
| --- | --- | --- |
| **MY NAME (ASCII characters)** |  | **HOW MANY DIGITS?** |
| **MY NAME (in BINARY - uncompressed)** |  | \_\_\_ digits |
| **MY NAME (in BINARY – compressed)** |  | \_\_\_ digits= \_\_\_ % compression |

\* COUNTING BITS IN THE ‘UNCOMPRESSED’ NAME 🡪 EACH LETTER = 1 BYTE = 8 BITS

**TASK 2**

Write down the run length encoding for the following images. 0 means white and 1 means black.



|  |  |  |  |
| --- | --- | --- | --- |
| Original num of bits | Original bits | Compressed characters | Compressed num of characters |
|  |  |  |  |



|  |  |  |  |
| --- | --- | --- | --- |
| Original num of bits | Original bits | Compressed characters | Compressed num of characters |
|  |  |  |  |



|  |  |  |  |
| --- | --- | --- | --- |
| Original num of bits | Original bits | Compressed characters | Compressed num of characters |
|  |  |  |  |



|  |  |  |  |
| --- | --- | --- | --- |
| Original num of bits | Original bits | Compressed characters | Compressed num of characters |
|  |  |  |  |



|  |  |  |  |
| --- | --- | --- | --- |
| Original num of bits | Original bits | Compressed characters | Compressed num of characters |
|  |  |  |  |