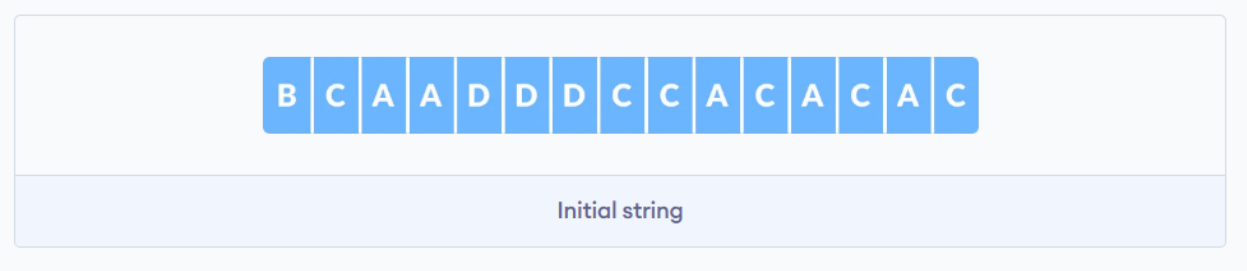
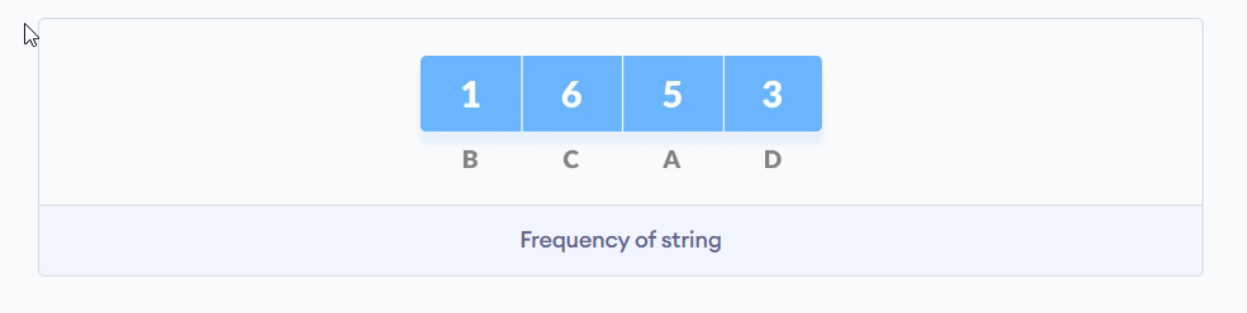
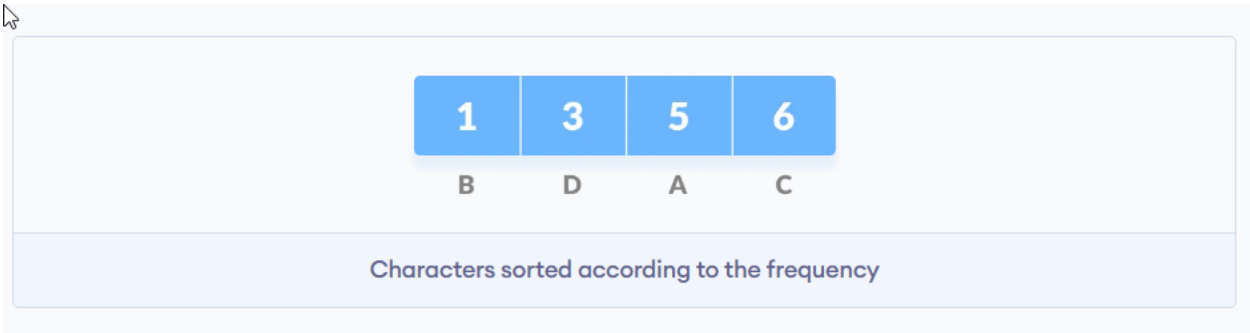
Huffman encoding

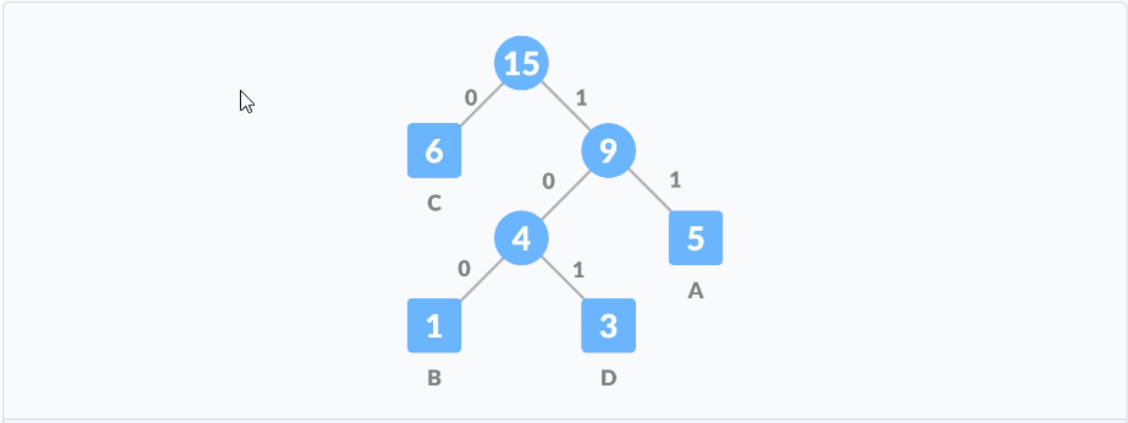
compressing data to reduce its size without losing any of the details. It was first developed by David Huffman.





After sorting based on frequency





Assign 0 to the left edge and 1 to the right edge

after converting the sorting array into a binary tree . p.s 4,9 and 15 are the results of addtions

Before encoding

Each character occupies 8 bits. There are a total of 15 characters in the above string.
Thus, a total of `8 * 15 = 120` bits are required to send this string.

After encoding

Character	Frequency	Code	Size
A	5	11	5*2 = 10
B	1	100	1*3 = 3
C	6	0	6*1 = 6
D	3	101	3*3 = 9
4 * 8 = 32 bits	15 bits		28 bits

Without encoding, the total size of the string was 120 bits. After encoding the size is reduced to `32 + 15 + 28 = 75`.

Time complexity = O(n log n)