Shannon-Fano

The following diagram presents shannon-fano compression algorithm

Encode

```
        ┌─────────────────┐
        │      Start      │
        │  (string input) │
        └─────────────────┘
                 │
                 ▼
        ┌─────────────────┐
        │ Create word-code│
        │       map       │
        └─────────────────┘
                 │
                 ▼
        ┌─────────────────┐
        │   Create word   │
        │ probability storage│
        │ (a simple map will│
        │      suffice)   │
        └─────────────────┘
                 │
                 ▼
        ┌─────────────────┐
        │ For each character in│
        │ input, calculate│
        │ probability and save│
        │ result to storage│
        └─────────────────┘
                 │
                 ▼
        ┌─────────────────┐
        │  Sort words by  │
        │   probability   │
        │   descending    │
        └─────────────────┘
                 │
                 ▼
        ┌─────────────────┐
        │     i  = 0      │
        │  lastCode = "0" │
        └─────────────────┘
                 │
                 ▼
```

Map each character to code in Word-Code storage and put everything into the result ◄─── i < sortedWords.Count ◄───

return result

Yes

Add pair to word-code storage sortedWords[i] and lastCode

i++

lastCode = "1" + lastCode

Decode

```
        ┌─────────────────┐
        │      Start      │
        │  (string input) │
        └─────────────────┘
                 │
                 ▼
        ┌─────────────────┐
        │      i = 0      │
        │    length = 1   │
        │   result = ""   │
        └─────────────────┘
                 │
                 ▼
```

return result ◄─no── i < input.Length ◄───

yes

true == true ───►

yes

length++ ◄─no── If word taken from i to length exists in word-code map

yes

result+=code
i += length
length = 1