271. Encode and Decode Strings Premium

Medium Topics Companies

Design an algorithm to encode **a list of strings** to **a string**. The encoded string is then sent over the network and is decoded back to the or

Machine 1 (sender) has the function:

```
string encode(vector<string> strs) {
  // ... your code
  return encoded_string;
}
```

Machine 2 (receiver) has the function:

```
vector<string> decode(string s) {
  //... your code
  return strs;
}
```

So Machine 1 does:

```
string encoded_string = encode(strs);
```

and Machine 2 does:

```
vector<string> strs2 = decode(encoded_string);
```

`strs2` in Machine 2 should be the same as `strs` in Machine 1.

Implement the `encode` and `decode` methods.

You are not allowed to solve the problem using any serialize methods (such as `eval`).

Example 1:

```
Input: dummy_input = ["Hello","World"]
Output: ["Hello","World"]
Explanation:
Machine 1:
Codec encoder = new Codec();
String msg = encoder.encode(strs);
Machine 1 ---msg---> Machine 2

Machine 2:
Codec decoder = new Codec();
String[] strs = decoder.decode(msg);
```

Example 2:

```
Input: dummy_input = [""]
Output: [""]
```

Constraints:

- `1 <= strs.length <= 200`
- `0 <= strs[i].length <= 200`
- `strs[i]` contains any possible characters out of `256` valid ASCII characters.

Follow up: Could you write a generalized algorithm to work on any possible set of characters?