Deloitte Coding Assignment for Interview

Write a utility class that encrypts and decrypts names.

- Your utility class should contain a cache of previously encrypted names so that if you encrypt or decrypt a name, the cache is checked first to see if the name is there. You can implement the cache any way you would like.

- Encryption algorithm:
    - Split the name into two equal parts. if it is an odd number length, then add a # at the end of the name to make the length even.
        - Example: Amin -> "Am" "in"
        - Example: Vimal -> "Vim" "al#"
    - Reverse the parts and concatenate back into one string
        - Example: Amin -> Am in -> inAm
        - Example: Vimal -> Vim al# -> al#Vim
    - Decryption would reverse this algorithm and remove the '#' symbol if present.

- Encryption method:
    - If the non-encrypted name is in the cache, just return the encrypted name
    - Otherwise encrypt the name per the encryption algorithm, add to the cache, and return the encrypted name

- Decryption method:
    - If the encrypted name is in the cache, return the non-encrypted name
    - Otherwise decrypt the name by reversing the encryption algorithm, add to the cache, and return the non-encrypted name

You should test your utility class using a variety of names of different length. For example, your output might look something like this as driven from a main method in the class (as an example):

```
encrypting Sridhar
adding to cache
result = har#Srid

encrypting Sridhar
Sridhar found in cache
result = har#Srid

encrypting Amin
adding to cache
result = inAm

decrypting inAm
inAm found in cache
result = Amin

decrypting ilAn
adding to cache
result = Anil
```

```
decrypting ilAn
ilAn found in cache
result = Anil
```

Make sure your code is production ready. This should represent some of your best work as will be part of the basis for selection for an interview.