**Plan:**

1. Factor **n** into **p** and **q**.
2. Compute **φ(n) = (p-1)(q-1)**.
3. Compute **d ≡ e⁻¹ mod φ(n)** (private exponent).
4. Decrypt each cipher number: **plaintext = cipherᵈ mod n**.
5. Convert plaintext integers into characters and recover the flag.

Let me start with factoring **n = 98563159** quickly.  
Since **n** is small (only 8 digits), it should be fast. I'll do it now! 🛠️

Factoring done!  
We have:

* p=9883p = 9883p=9883
* q=9973q = 9973q=9973

Now, moving on:

* Compute φ(n)=(p−1)(q−1)\varphi(n) = (p-1)(q-1)φ(n)=(p−1)(q−1)
* Find the modular inverse d=e−1mod  φ(n)d = e^{-1} \mod \varphi(n)d=e−1modφ(n)
* Decrypt the ciphertext!