The Secure Comms Breach

To Find the flag,Decrypt the given encrypted message using the RSA private key. However, we don't have the private key directly, but we have the flipped bits of the private key. We need to flip the bits back to get the original private key.

Flipped bits:
 The 100th bit (counting from 1) of the private key modulus n has been flipped (changed from 1 to 0).
The 200th bit (counting from 1) of the private key modulus n has been flipped (changed from 1 to 0).
The 300th bit (counting from 1) of the private key modulus n has been flipped (changed from 0 to 1).
Note: the flipped bits are provided in binary form.

Now the prime factors p and q, then compute phi(n) = (p-1)*(q-1) and use the extended Euclidean algorithm to find the modular inverse of e = 65537 modulo phi(n).
With the private key (n, d), we can decrypt the message.