

### Q1 Commands

5 Points

List the commands used in the game to reach the first ciphertext.

climb  
read  
enter  
read

### Q2 Cryptosystem

5 Points

What cryptosystem was used at this level?

Substitution Cipher

### Q3 Analysis

25 Points

What tools and observations were used to figure out the cryptosystem?

NOTE: Failing to provide proper analysis would result in zero marks for this assignment.

As we looked at the ciphertext, initially we assumed that it may be a Substitution cipher. So we did the frequency analysis of the text and found out that letter Y came 37 times, M 28 times, A 27 times, W 25 times, E 22 times, G 14 times, S 13 times, P 13 times, H 12 times and others were below ten. We know that usually, letter e appears most of the time then t, a, o, i, s respectively. Then we replaced y with e and m with t as m was the most frequent after y. This made our intuition right that it is the Substitution Cipher. Then we started analysing the bigrams like ME, EY, WA and so on. So we started guessing the mapped characters. First we moved ahead with mapping the remaining characters by guessing. Lastly, when we completed our mapping of characters, we got that digits were substituted by shifting them right by 8 places. Now, figure 8 was also a digit which was substituted. So, it was clear that original digit was shifted by the same number and we got 8. Hence, we came to conclusion that the original digit was 4. We calculated the digits shifting back by 4 places and we got the password.

### Q4 Mapping

10 Points

What is the plaintext space and ciphertext space?

What is the mapping between the elements of plaintext space and the elements of ciphertext space? (Explain in less than 100 words)

Plaintext space=[a- z]U[0- 9], Ciphertext=[a-z]U[0-9]  
a-s, b-v, d-q, e-h, f-p, g-o, h-n, i-c, j-m, k-l, m-t, n-u, o-b, p-a, r-g, s-r, t-f, u-d, v-w, w-i, x-y, y-e  
0-6, 3-9, 4-8  
One to one mapping of each digit and character was followed.

### Q5 Password

5 Points

What is the final command used to clear this level?

tyRgU69diqq

### Q6 Codes

0 Points

Upload any code that you have used to solve this level

No files uploaded

### Q7 Team Name

0 Points

team\_9