Q1 Commands
10 Points

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

go -> back -> read
or only 'read' at the start will get you to ciphertext, but wont be able to figure out the key size of 10 and key-word itself by not visiting the screen with the figure.

Q2 Cryptosystem
10 Points

What cryptosystem was used in this level?

Vigenere Cipher

Q3 Analysis
20 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.

We tried using Substitution Cipher and Frequency analysis, but couldn't make sense.
As we observed the pattern of the Cipher text, we found out the same cipher-word for the same plain-word(unknown as of now), they are at a distance of 20 letters, like cjjwg and cjn, so we thought that a Vigenere Cipher was used with key-word length being factor of 20.
from the screen where we were told to count the number of lines of figure in horizontal dimension, the count is 10,

which is a factor of 20(10x2), so the cipher used can be a Vigenere cipher of key-word length 10.
and then it is said to bow and look up. we tried counting no of dash/obliques in each of the 10 rows of the figure in horizontal dimension, it is 1 2 2 2 5 5 2 9 2 9, it translates to "bcccffcjcj" as a key-word of vigenere cipher.

but could not able to decrypt the cipher text, So we tried the reverse of what we got because we were told bow down and slowly look up, so go from bottom to top i.e. "jcjcffcccb" as key-word i.e. 9 2 9 2 5 5 2 2 2 1 as respective keys of caeser cipher for each of respective 10 letters.

and we verified it with our guess strings in the cipher-text "rbbufqwi - cbjcjcff - password" and "cjjwg - jcffc - there", the parts of key are visible repeating in the hit and trial analysis. thus confirmed that 'jcjcffcccb' is indeed the key and the cipher is indeed the Vigenere cipher.

So, now we were able to decrypt it using an online tool(https://www.dcode.fr/vigenere-cipher), Decrypted Plaintext is provided in the answer of Q4.

Q4 Decryption Algorithm
15 Points

Briefly describe the decryption algorithm used. Also mention the plaintext you deciphered. (Use less than 350 words)

Decryption Algorithm:
as now we are sure what the key-word is, which is "jcjcffcccb", now to generate the key we will repeat this string till the length of the cipher text, i.e. "jcjcffcccbjcjcffcccbjcjcffcccbjcjcffcccb...b".

Now for every cipher-text-letter we have a key-word-letter i.e
Ciphertext: Kg fcwd qh vin pnzy hjcocnt, cjjwg ku wnth nnyvng kxa cjjwg .....

Keytext: jc jcff cc cbj cjcf fcccbjc jcffc cc bjcj cffccc bjc jcffc ……..
Keys: K 92 9255 22 219 2925 5222192 92552 22 1929 255222 192 92552…….. are the respective keys of the caeser cipher for each of the letter in the cipher text.
i.e. for the first letter in cipher text 'k' we have to use the caeser cipher decryption with key value 9, and for 'g' key of value 2 and so on for every letter of the cipher text, which gives 'Be' and so on respectively for each corresponding Cipher-key pairs, will give the decrypted text.

Di = (Ei - Ki + 26) mod 26 for every 1 <= i <= string-length of cipher text.

or we can use the encryption table of vigenere cipher to decrypt also,
if key-letter is say 'c' and cipher-text-letter is 'q', in the encryption table go to column 'c' and search for letter 'q', the row-index-letter where you hit 'q' in the column of 'c' is the plain-text-letter for cipher letter 'q', i.e. letter 'o'.

and we passed the cipher text and the key to an online tool(https://www.dcode.fr/vigenere-cipher) and got the decrypted text as shown below.

Decrypted Plaintext:
Be wary of the next chamber, there is very little joy there. Speak out the password "the_cave_man_be_pleased" to go through. May you have the strength for the next chamber. To find the exit, you first will need to utter magic words there.

Q5 Password
10 Points

What was the final command used to clear this level?

the_cave_man_be_pleased

Q6 Codes
0 Points

Upload any code that you have used to solve this level

No files uploaded

Q7 Team Name
0 Points

Cryptosenpai

Assignment 2

Graded

Group

VAMSEE KRISHNA KAKUMANU
Rumit Pingleshwar Gore
Kuruma Abhinav
View or edit group

Total Points

60 / 65 pts

Question 1

Commands **10** / 10 pts

Question 2

Cryptosystem **10** / 10 pts

Question 3

Analysis **20** / 20 pts

Question 4

Decryption Algorithm **10** / 15 pts

Question 5

Password **10** / 10 pts

Question 6

Codes **0** / 0 pts

Question 7

Team Name **0** / 0 pts