Lucifer

ISP- Mid Review

IT18017502 - P. K. N. D. Panapitiya

IT18167306 - R.M.N.P.P Rathnayake

Introduction

Initially Capture the Flag (CTF) game can be identified as an outdoor game which is played among two teams in order to achieve the goal of capturing the flag of the opponent team and bringing it to the base station. In the computerized environment, CTF games can be identified as a puzzle solving about computer security issues and exploring creatively and safely which are not considered as malicious actions. In this instance a safe place is given to the player to explore, so that the player is able to understand the tools needed when playing against the opponent.

Capture The Flag games played on computers are mainly created on testing the Penetration Testing skills and Vulnerability Assessment of a person. There are many benefits of CTF as, by playing a CTF game, a player can get a clear understanding on the current skill level of them and they can practice existing skills, Development the ability of scanning for Vulnerabilities and penetration testing skills, understanding how to develop a secured system and etc. In the CTF we are about to develop, we mainly focus on the Cryptographic Technologies. With the help of this CTF we hope that the player will be able to get a clear understanding on his knowledge about the usage of cryptography, what are the cryptographic algorithms and how these algorithms are used in securing connections and what areas should be accessed.

A player does not need have a deep knowledge on the field of Cryptography as this game is created to enhance the player's knowledge on Cryptography. In order to keep the encouragement and the motivation of the players, there will be a storyline running behind. Players will be asked to solve each level with the knowledge on cryptography. A hint will be given through the story. And at the end of the 13 levels, the player will be able to solve the criminal case while gaining and improving knowledge on cryptography.

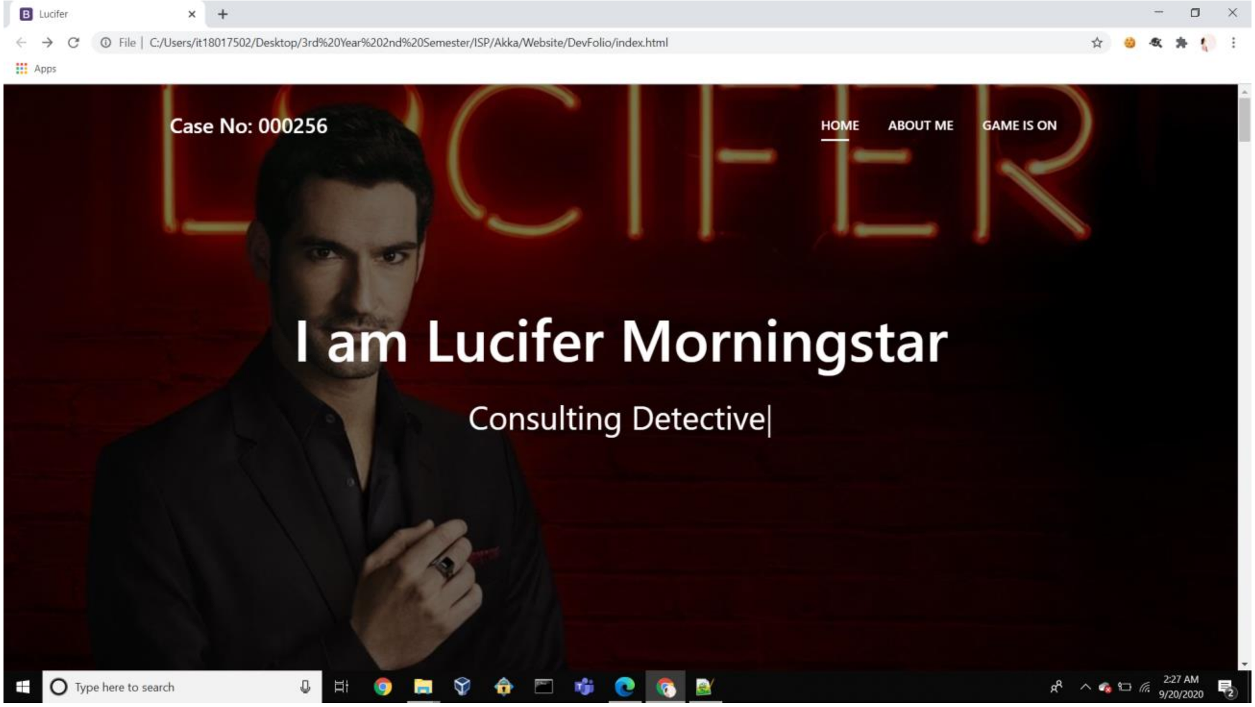
We are mainly focusing on the security using cryptography and we hope to check the knowledge from simple encoding and decoding skills to encrypting decrypting skills of a person. As the CTF is created with the aim of marketing, we have created it with an attractive web page. We started the creation of the CTF with the creation of the web page. Up to this point, in our CTF game, we have developed the webpage and 8 levels in the game. This report will explain what we have done so far.

In the proposal we are focusing on doing only 10 levels. But we thought of changing it as 13 levels as 03 from easy, 05 from medium and 05 from hard. At this stage we have completed up to 08th level which complete both easy and medium.

LUCIFER

Web Page

- This is the Home Page.

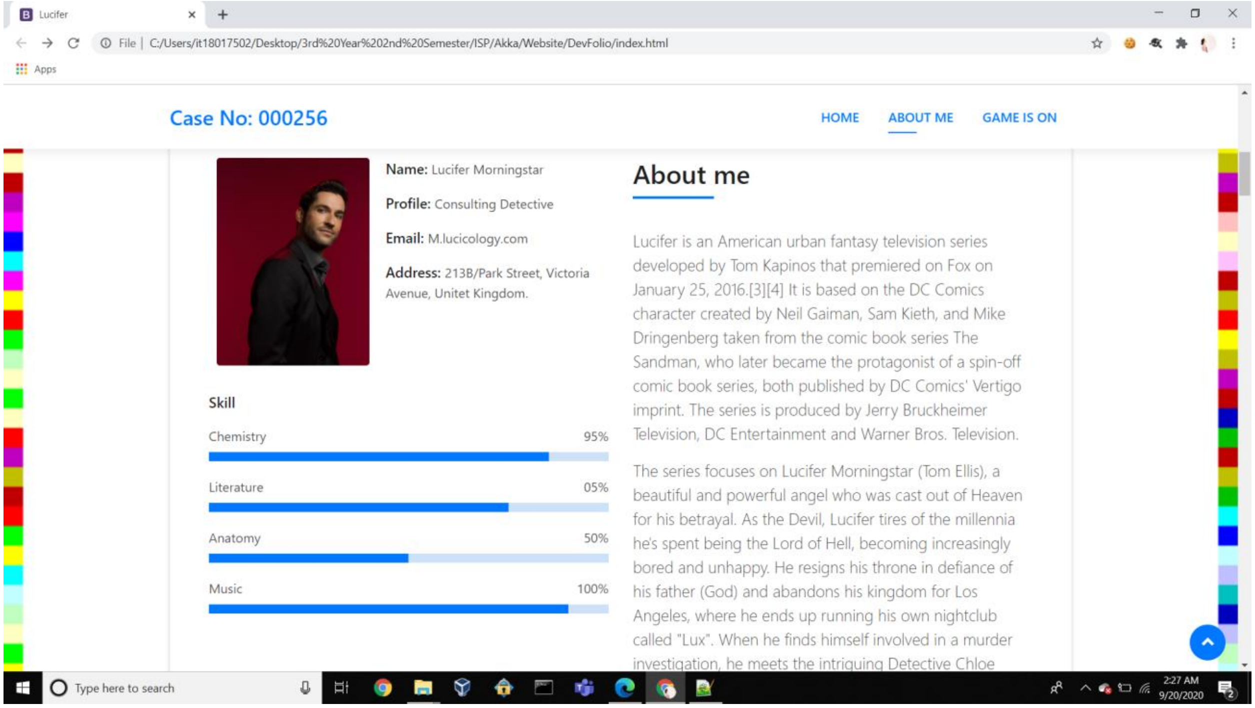

Lucifer
File | C:/Users/it18017502/Desktop/3rd%20Year%202nd%20Semester/ISP/Akka/Website/DevFolio/index.html
Apps
HOME
ABOUT ME
GAME IS ON
Type here to search
2:27 AM
9/20/2020

Case No: 000256

I am Lucifer Morningstar

Consulting Detective|

- Then we have entered the details of Lucifer (Theme).


Lucifer
File | C:/Users/it18017502/Desktop/3rd%20Year%202nd%20Semester/ISP/Akka/Website/DevFolio/index.html
Apps
HOME
ABOUT ME
GAME IS ON
Type here to search
2:27 AM
9/20/2020

Case No: 000256

Name: Lucifer Morningstar

Profile: Consulting Detective

Email: M.lucicology.com

Address: 213B/Park Street, Victoria Avenue, Unitet Kingdom.

Skill

Chemistry 95%

Literature 05%

Anatomy 50%

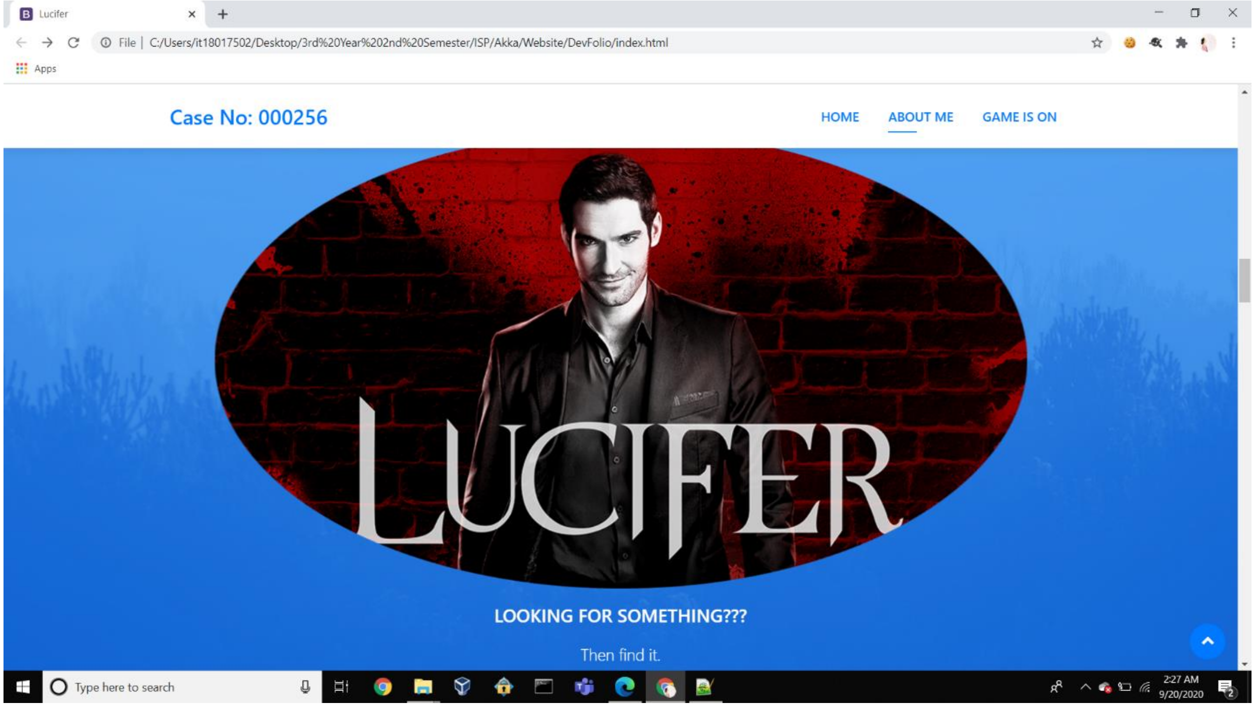
Music 100%

About me

Lucifer is an American urban fantasy television series developed by Tom Kapinos that premiered on Fox on January 25, 2016.[3][4] It is based on the DC Comics character created by Neil Gaiman, Sam Kieth, and Mike Dringenberg taken from the comic book series The Sandman, who later became the protagonist of a spin-off comic book series, both published by DC Comics' Vertigo imprint. The series is produced by Jerry Bruckheimer Television, DC Entertainment and Warner Bros. Television.

The series focuses on Lucifer Morningstar (Tom Ellis), a beautiful and powerful angel who was cast out of Heaven for his betrayal. As the Devil, Lucifer tires of the millennia he's spent being the Lord of Hell, becoming increasingly bored and unhappy. He resigns his throne in defiance of his father (God) and abandons his kingdom for Los Angeles, where he ends up running his own nightclub called "Lux". When he finds himself involved in a murder investigation, he meets the intriguing Detective Chloe

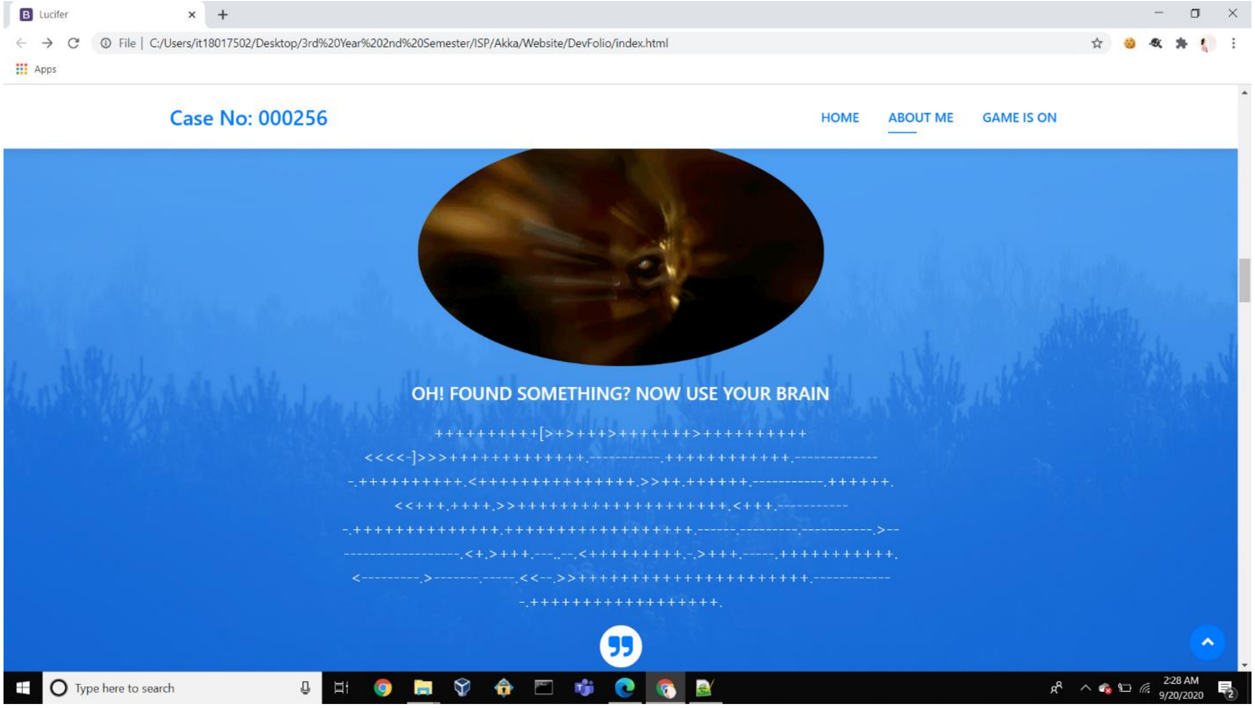
- Then an attractive phrase.



Lucifer
File | C:/Users/it18017502/Desktop/3rd%20Year%202nd%20Semester/ISP/Akka/Website/DevFolio/index.html
Apps
Case No: 000256
HOME
ABOUT ME
GAME IS ON
LUCIFER
Type here to search
2:27 AM
9/20/2020

LOOKING FOR SOMETHING???

Then find it.



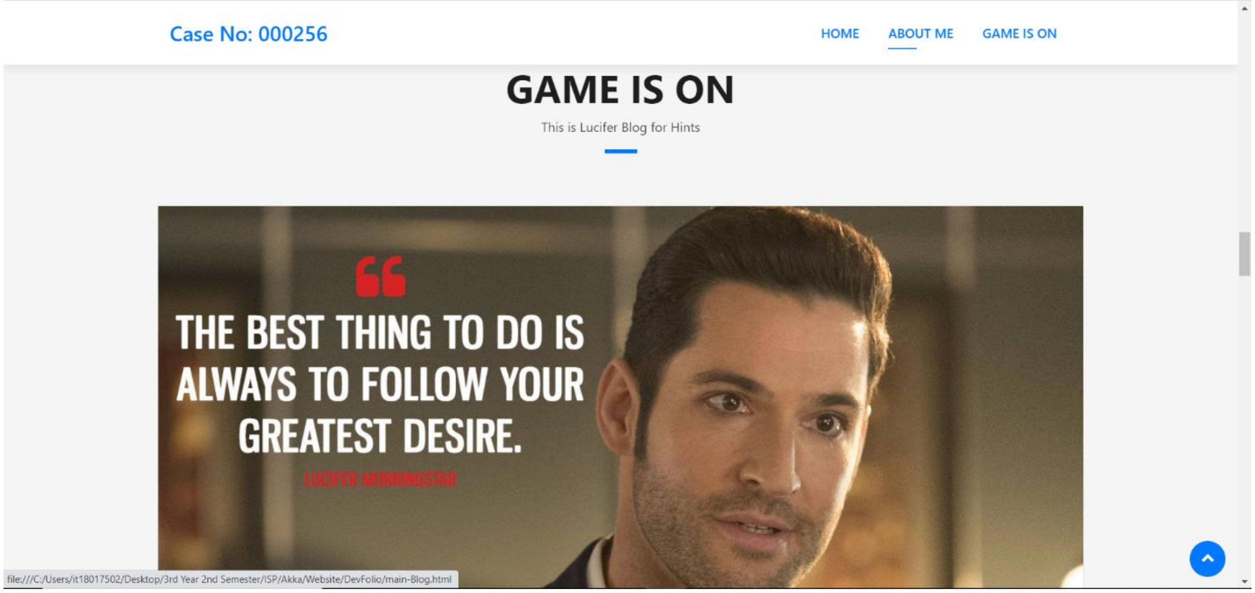
Lucifer
File | C:/Users/it18017502/Desktop/3rd%20Year%202nd%20Semester/ISP/Akka/Website/DevFolio/index.html
Apps
Case No: 000256
HOME
ABOUT ME
GAME IS ON
Type here to search
2:28 AM
9/20/2020

OH! FOUND SOMETHING? NOW USE YOUR BRAIN

```
++++++++++[>+>+++>+++++++>++++++++++
<<<<-]>>>+++++++++++++.-----------.++++++++++++.-------------
-.++++++++++.<+++++++++++++++.>>++.++++++.-----------.++++++.
<<+++.++++.>>++++++++++++++++++++.<+++.-----------
-.++++++++++++++.++++++++++++++++++.------.---------.-----------.>--
------------------.<+.>+++.---..--.<+++++++++.-.>+++.-----.+++++++++++.
<---------.>-------.-----.<<--.>>++++++++++++++++++++++.------------
-.++++++++++++++++++.
```

Story Line and Levels

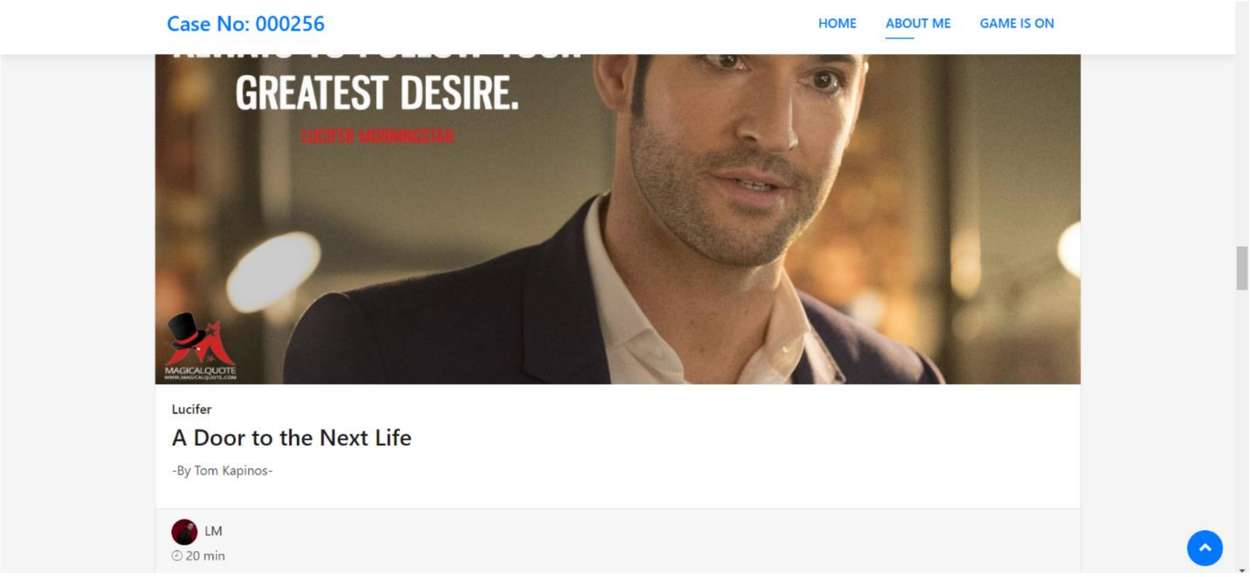
The story begins here. When you click on this image, you get the start of the story. Then gradually at each level, story will be completed. At the end of the 13 levels, we can have the completed story.


Case No: 000256
HOME
ABOUT ME
GAME IS ON
THE BEST THING TO DO IS ALWAYS TO FOLLOW YOUR GREATEST DESIRE.
LUCIFER MORNINGSTAR

GAME IS ON

This is Lucifer Blog for Hints

file:///C:/Users/it18017502/Desktop/3rd Year 2nd Semester/ISP/Akka/Website/DevFolio/main-Blog.html



Lucifer

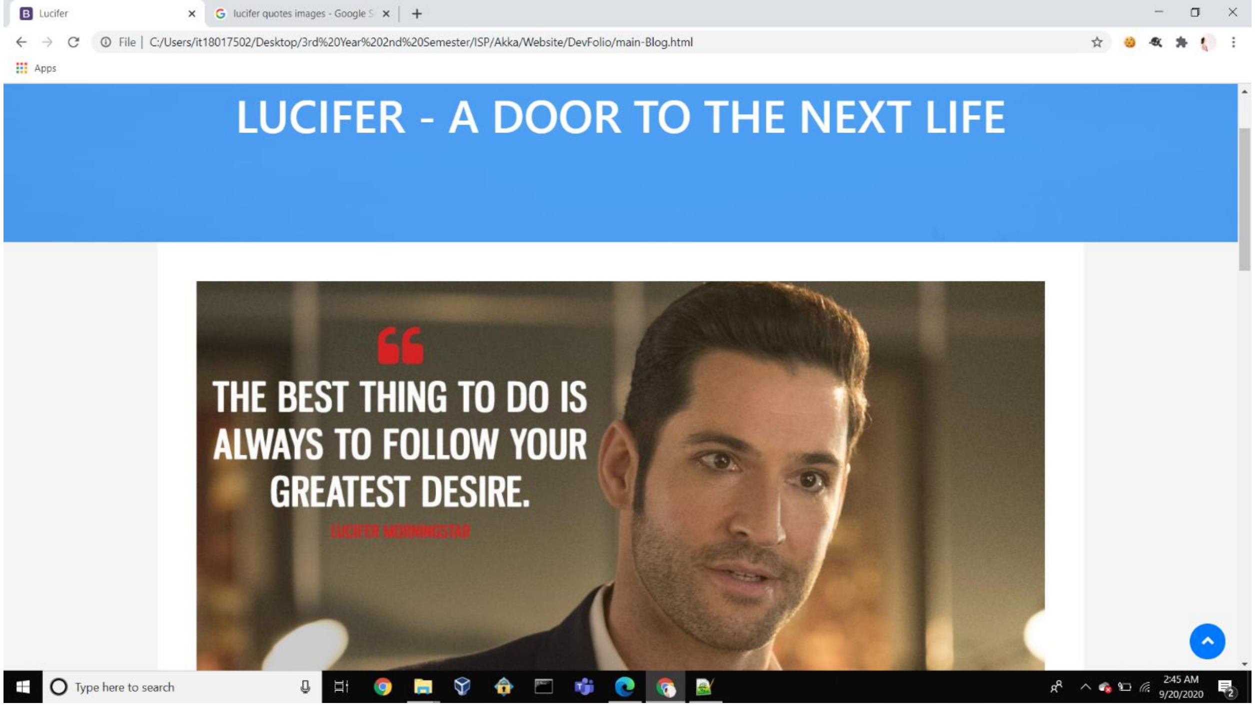
A Door to the Next Life

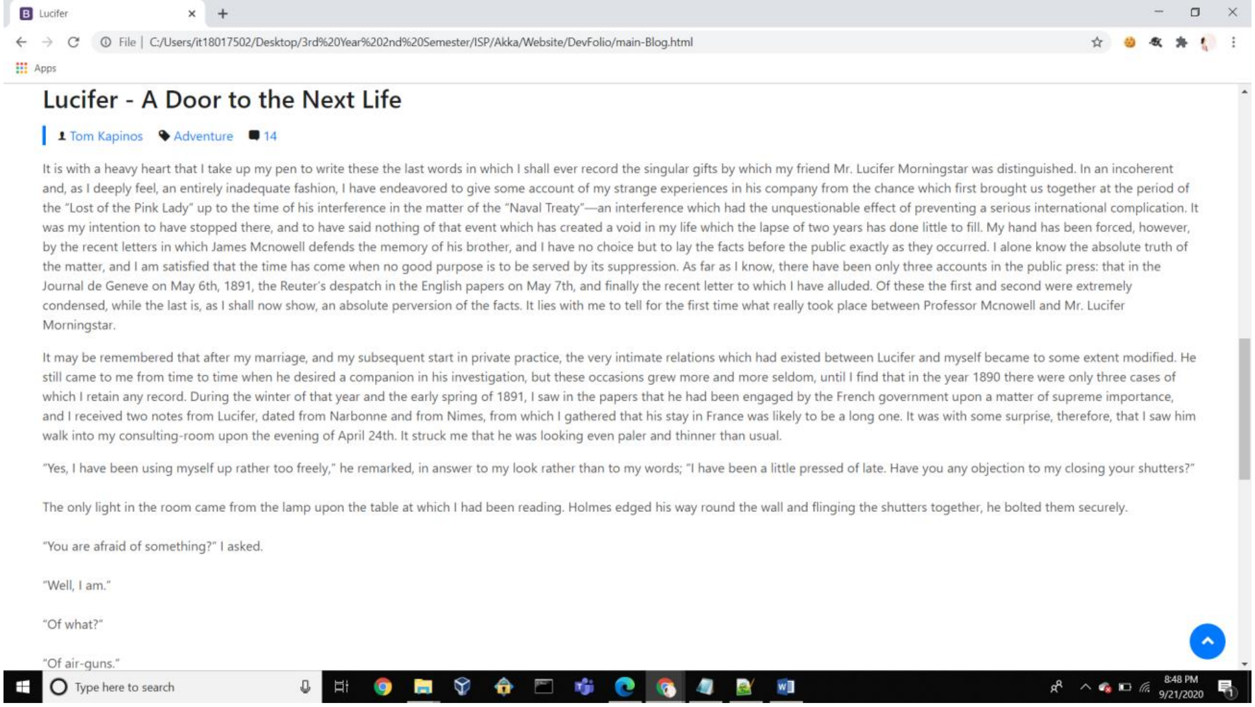
-By Tom Kapinos-

LM

20 min

- When we click on the Image in the Home page, it re dirrects it to another page as below. There you can find the storyline.


Lucifer
lucifer quotes images - Google S
File | C:/Users/it18017502/Desktop/3rd%20Year%202nd%20Semester/ISP/Akka/Website/DevFolio/main-Blog.html
Apps
LUCIFER - A DOOR TO THE NEXT LIFE
THE BEST THING TO DO IS ALWAYS TO FOLLOW YOUR GREATEST DESIRE.
LUCIFER MORNINGSTAR
Type here to search
2:45 AM
9/20/2020


Lucifer
File | C:/Users/it18017502/Desktop/3rd%20Year%202nd%20Semester/ISP/Akka/Website/DevFolio/main-Blog.html
Apps
Type here to search
8:48 PM
9/21/2020

Lucifer - A Door to the Next Life

Tom Kapinos Adventure 14

It is with a heavy heart that I take up my pen to write these the last words in which I shall ever record the singular gifts by which my friend Mr. Lucifer Morningstar was distinguished. In an incoherent and, as I deeply feel, an entirely inadequate fashion, I have endeavored to give some account of my strange experiences in his company from the chance which first brought us together at the period of the "Lost of the Pink Lady" up to the time of his interference in the matter of the "Naval Treaty"—an interference which had the unquestionable effect of preventing a serious international complication. It was my intention to have stopped there, and to have said nothing of that event which has created a void in my life which the lapse of two years has done little to fill. My hand has been forced, however, by the recent letters in which James Mcnowell defends the memory of his brother, and I have no choice but to lay the facts before the public exactly as they occurred. I alone know the absolute truth of the matter, and I am satisfied that the time has come when no good purpose is to be served by its suppression. As far as I know, there have been only three accounts in the public press: that in the Journal de Geneve on May 6th, 1891, the Reuter's despatch in the English papers on May 7th, and finally the recent letter to which I have alluded. Of these the first and second were extremely condensed, while the last is, as I shall now show, an absolute perversion of the facts. It lies with me to tell for the first time what really took place between Professor Mcnowell and Mr. Lucifer Morningstar.

It may be remembered that after my marriage, and my subsequent start in private practice, the very intimate relations which had existed between Lucifer and myself became to some extent modified. He still came to me from time to time when he desired a companion in his investigation, but these occasions grew more and more seldom, until I find that in the year 1890 there were only three cases of which I retain any record. During the winter of that year and the early spring of 1891, I saw in the papers that he had been engaged by the French government upon a matter of supreme importance, and I received two notes from Lucifer, dated from Narbonne and from Nimes, from which I gathered that his stay in France was likely to be a long one. It was with some surprise, therefore, that I saw him walk into my consulting-room upon the evening of April 24th. It struck me that he was looking even paler and thinner than usual.

"Yes, I have been using myself up rather too freely," he remarked, in answer to my look rather than to my words; "I have been a little pressed of late. Have you any objection to my closing your shutters?"

The only light in the room came from the lamp upon the table at which I had been reading. Holmes edged his way round the wall and flinging the shutters together, he bolted them securely.

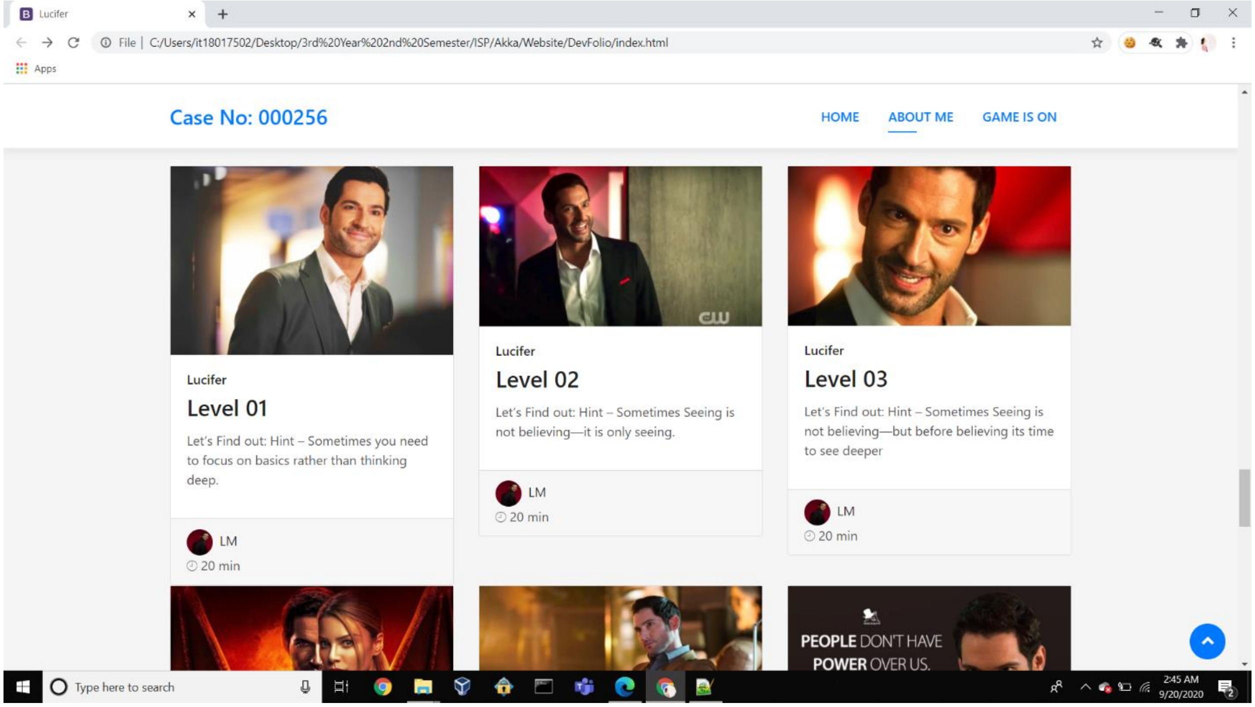
"You are afraid of something?" I asked.

"Well, I am."

"Of what?"

"Of air-guns."

- Here are other levels links on the Home Page.


Lucifer
File | C:/Users/it18017502/Desktop/3rd%20Year%202nd%20Semester/ISP/Akka/Website/DevFolio/index.html
Apps
Type here to search
2:45 AM
9/20/2020

Case No: 000256

HOME ABOUT ME GAME IS ON

Lucifer

Level 01

Let's Find out: Hint – Sometimes you need to focus on basics rather than thinking deep.

LM

20 min

Lucifer

Level 02

Let's Find out: Hint – Sometimes Seeing is not believing—it is only seeing.

LM

20 min

Lucifer

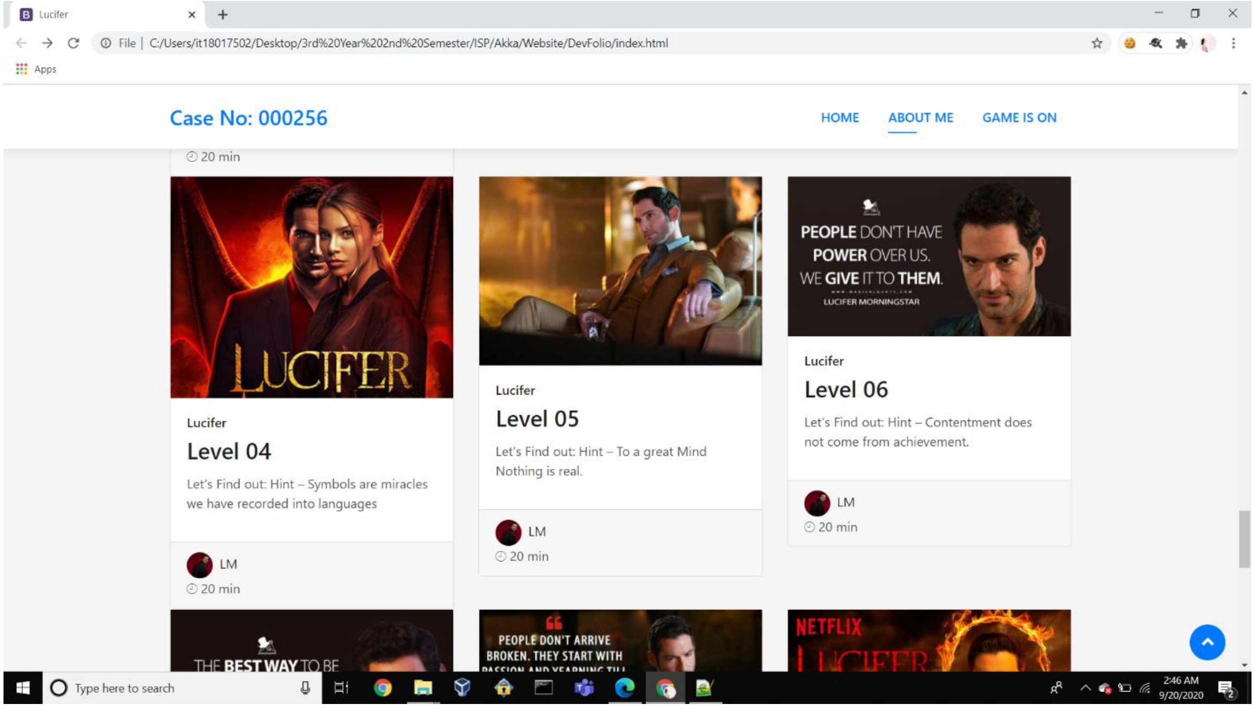
Level 03

Let's Find out: Hint – Sometimes Seeing is not believing—but before believing its time to see deeper

LM

20 min

PEOPLE DON'T HAVE
POWER OVER US.


Lucifer
File | C:/Users/it18017502/Desktop/3rd%20Year%202nd%20Semester/ISP/Akka/Website/DevFolio/index.html
Apps
Type here to search
2:46 AM
9/20/2020

Case No: 000256

HOME ABOUT ME GAME IS ON

20 min

Lucifer

Level 04

Let's Find out: Hint – Symbols are miracles we have recorded into languages

LM

20 min

Lucifer

Level 05

Let's Find out: Hint – To a great Mind Nothing is real.

LM

20 min

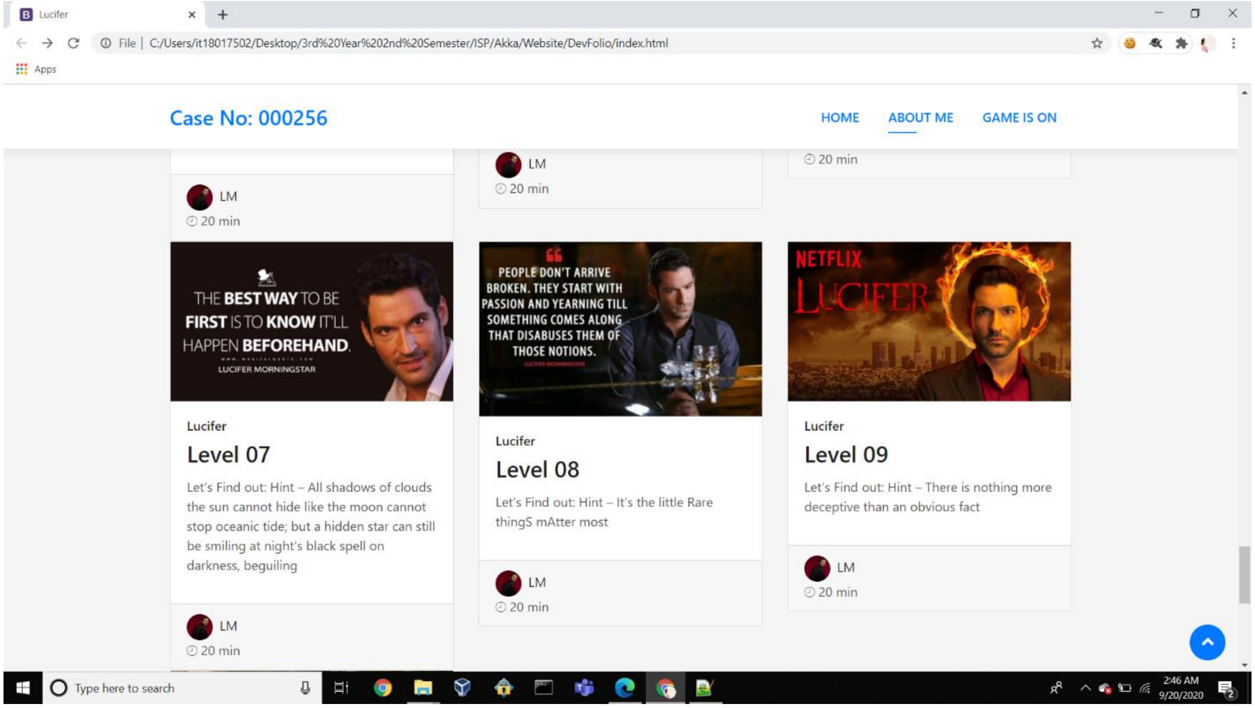
Lucifer

Level 06

Let's Find out: Hint – Contentment does not come from achievement.

LM

20 min



Lucifer

File | C:/Users/it18017502/Desktop/3rd%20Year%202nd%20Semester/ISP/Akka/Website/DevFolio/index.html

Apps

Case No: 000256

HOME ABOUT ME GAME IS ON

LM
20 min

LM
20 min

20 min

THE BEST WAY TO BE FIRST IS TO KNOW IT'LL HAPPEN BEFOREHAND.
LUCIFER MORNINGSTAR

Lucifer

Level 07

Let's Find out: Hint – All shadows of clouds the sun cannot hide like the moon cannot stop oceanic tide; but a hidden star can still be smiling at night's black spell on darkness, beguiling

LM
20 min

PEOPLE DON'T ARRIVE BROKEN. THEY START WITH PASSION AND YEARNING TILL SOMETHING COMES ALONG THAT DISABUSES THEM OF THOSE NOTIONS.

Lucifer

Level 08

Let's Find out: Hint – It's the little Rare thingS mAtter most

LM
20 min

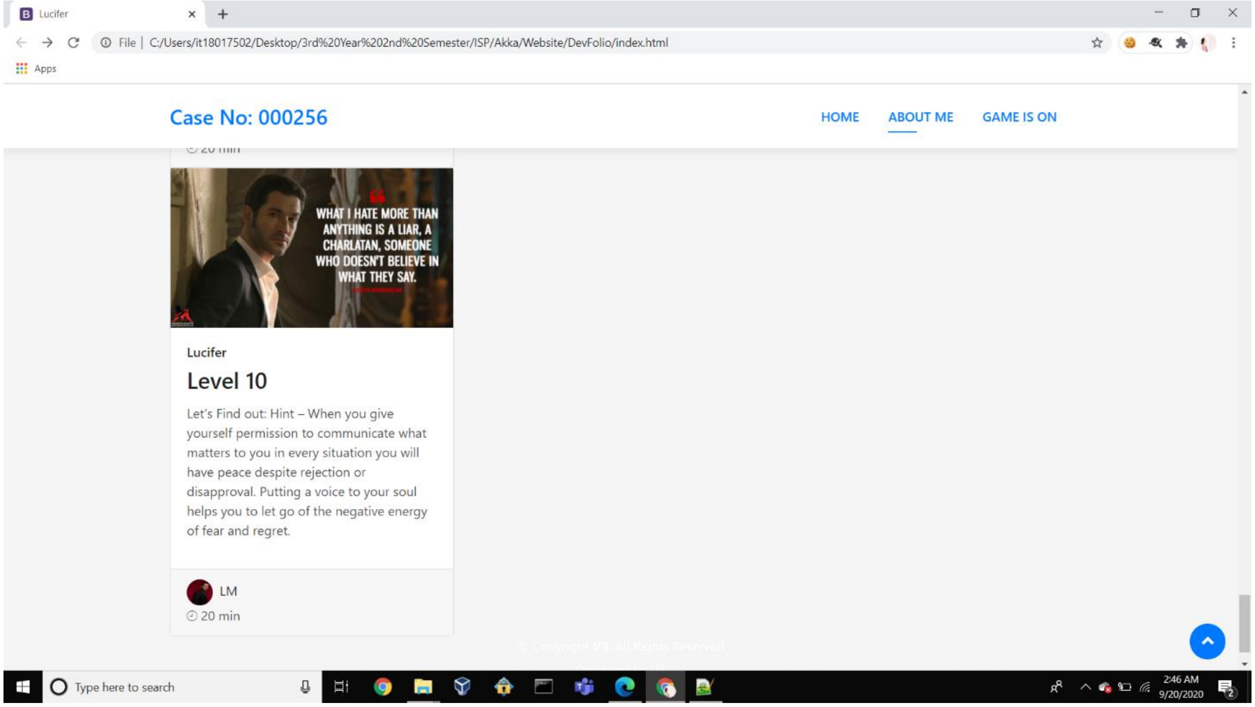
Lucifer

Level 09

Let's Find out: Hint – There is nothing more deceptive than an obvious fact

LM
20 min

Type here to search
2:46 AM
9/20/2020



Lucifer

File | C:/Users/it18017502/Desktop/3rd%20Year%202nd%20Semester/ISP/Akka/Website/DevFolio/index.html

Apps

Case No: 000256

HOME ABOUT ME GAME IS ON

WHAT I HATE MORE THAN ANYTHING IS A LIAR, A CHARLATAN, SOMEONE WHO DOESN'T BELIEVE IN WHAT THEY SAY.

Lucifer

Level 10

Let's Find out: Hint – When you give yourself permission to communicate what matters to you in every situation you will have peace despite rejection or disapproval. Putting a voice to your soul helps you to let go of the negative energy of fear and regret.

LM
20 min

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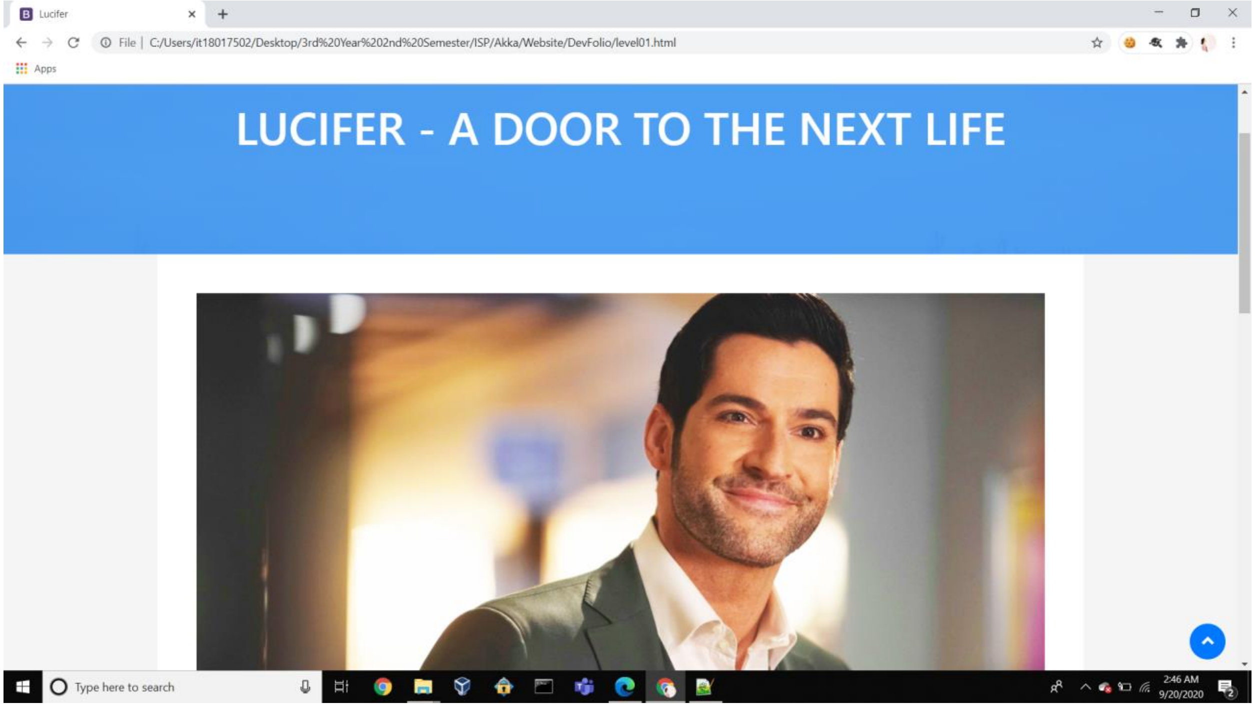
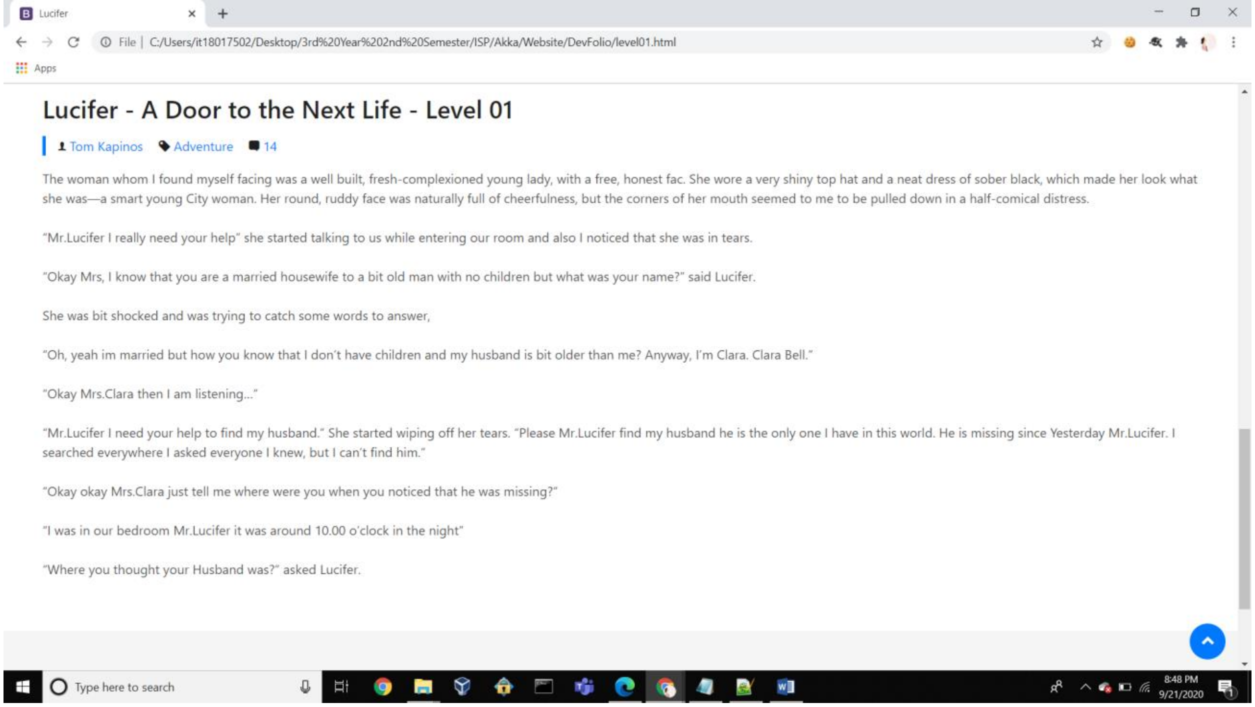
- Each layer consists of a web page like this.


Lucifer
File | C:/Users/it18017502/Desktop/3rd%20Year%202nd%20Semester/ISP/Akka/Website/DevFolio/level01.html
Apps
Type here to search
2:46 AM
9/20/2020

LUCIFER - A DOOR TO THE NEXT LIFE


Lucifer
File | C:/Users/it18017502/Desktop/3rd%20Year%202nd%20Semester/ISP/Akka/Website/DevFolio/level01.html
Apps
Type here to search
8:48 PM
9/21/2020

Lucifer - A Door to the Next Life - Level 01

Tom Kapinos Adventure 14

The woman whom I found myself facing was a well built, fresh-complexioned young lady, with a free, honest fac. She wore a very shiny top hat and a neat dress of sober black, which made her look what she was—a smart young City woman. Her round, ruddy face was naturally full of cheerfulness, but the corners of her mouth seemed to me to be pulled down in a half-comical distress.

"Mr.Lucifer I really need your help" she started talking to us while entering our room and also I noticed that she was in tears.

"Okay Mrs, I know that you are a married housewife to a bit old man with no children but what was your name?" said Lucifer.

She was bit shocked and was trying to catch some words to answer,

"Oh, yeah im married but how you know that I don't have children and my husband is bit older than me? Anyway, I'm Clara. Clara Bell."

"Okay Mrs.Clara then I am listening..."

"Mr.Lucifer I need your help to find my husband." She started wiping off her tears. "Please Mr.Lucifer find my husband he is the only one I have in this world. He is missing since Yesterday Mr.Lucifer. I searched everywhere I asked everyone I knew, but I can't find him."

"Okay okay Mrs.Clara just tell me where were you when you noticed that he was missing?"

"I was in our bedroom Mr.Lucifer it was around 10.00 o'clock in the night"

"Where you thought your Husband was?" asked Lucifer.

Levels

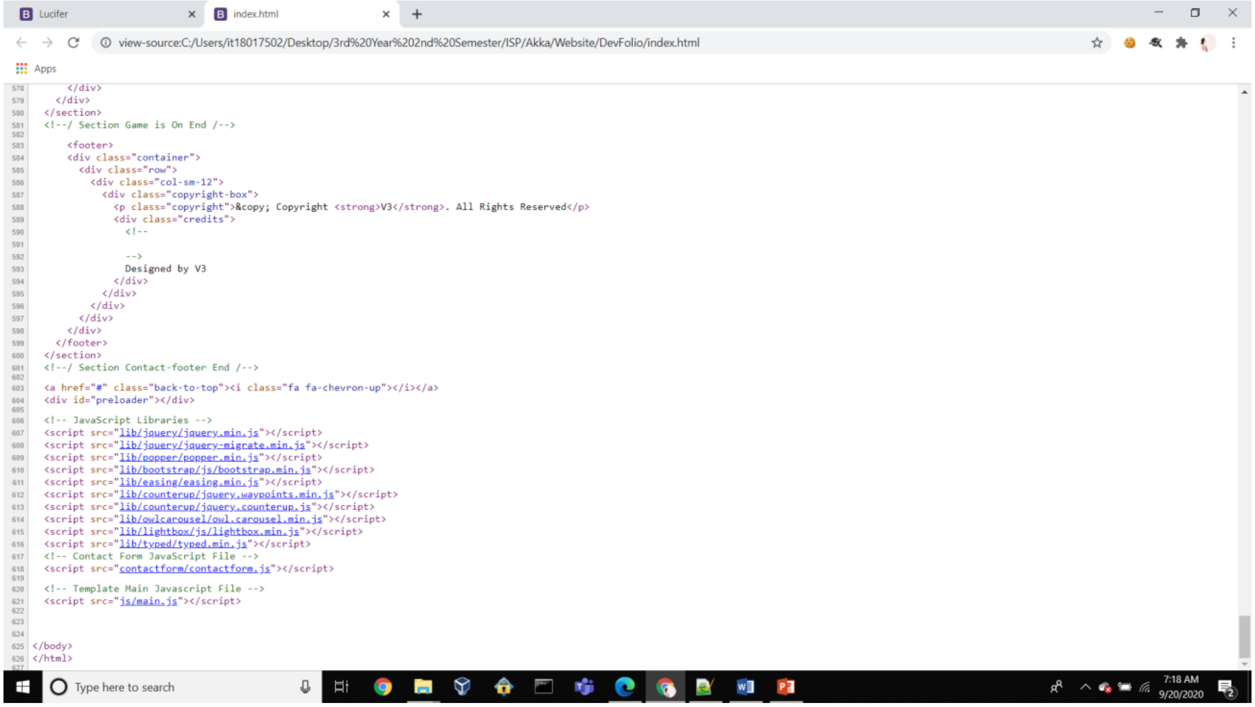
Although there are only 10 flags proposed in the proposal, we thought of changing the scenario to 13 levels. We have categorized the levels as, easy, medium and hard. Newly added three levels will be in the easy section. This was done to attract the player to the game.

Each flag is the answer to the question asked at the end of the relevant episode of the story.

Now up to this point we have implemented 08 levels.

Flag 01

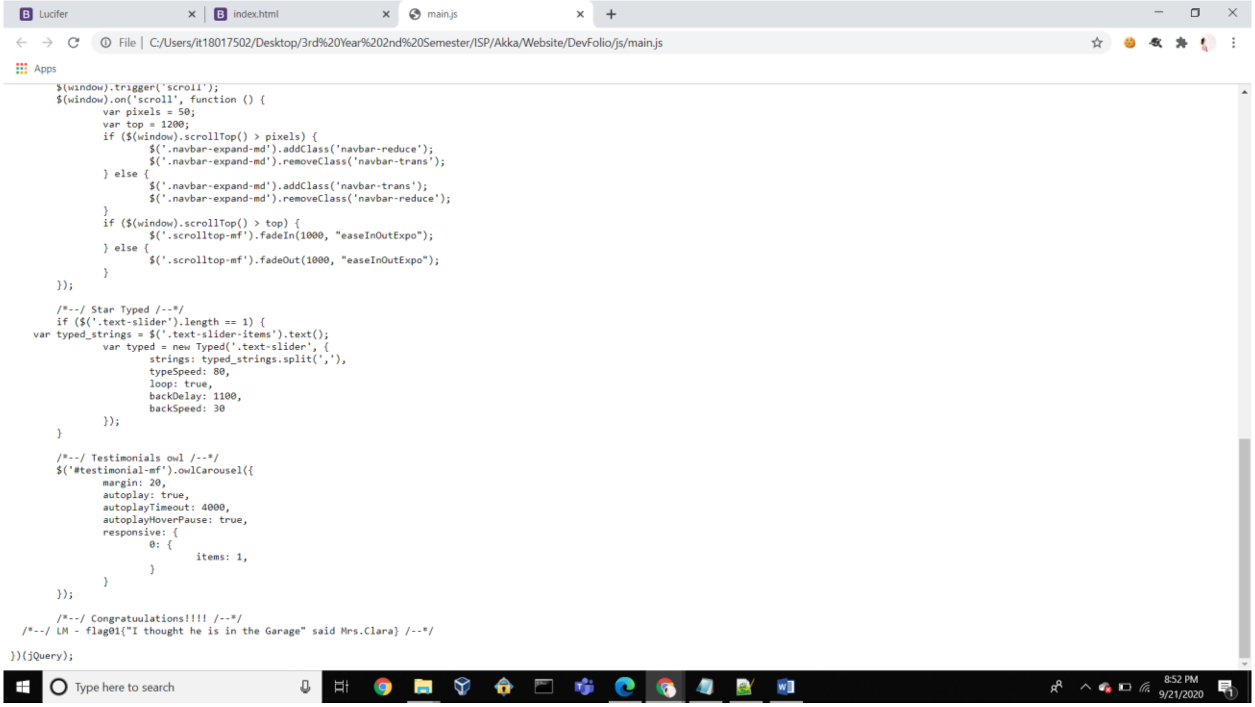
First check the source code. In index page DoubleClick on the page and select view page source. First need to manually analyze the HTML content of the index page for any clue and some JavaScript's, which can be seen in the following screenshot.



view-source:C:/Users/it18017502/Desktop/3rd%20Year%202nd%20Semester/ISP/Akka/Website/DevFolio/index.html

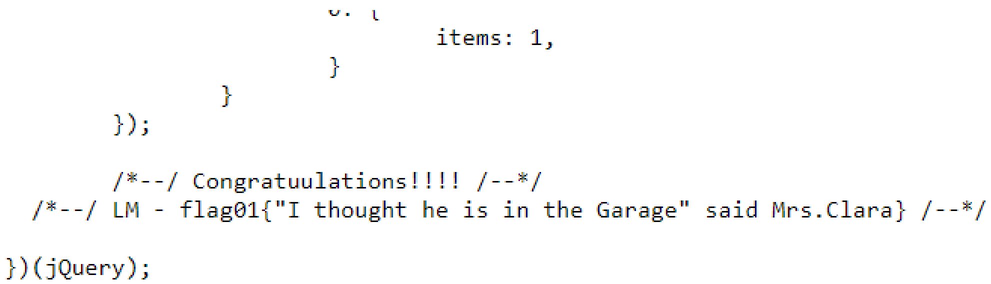
```
    </div>
   </div>
  </section>
  <!--/ Section Game is On End /-->

    <footer>
    <div class="container">
     <div class="row">
      <div class="col-sm-12">
       <div class="copyright-box">
        <p class="copyright">&copy; Copyright <strong>V3</strong>. All Rights Reserved</p>
        <div class="credits">
         <!--

         -->
         Designed by V3
        </div>
       </div>
      </div>
     </div>
    </div>
   </footer>
  </section>
  <!--/ Section Contact-footer End /-->

  <a href="#" class="back-to-top"><i class="fa fa-chevron-up"></i></a>
  <div id="preloader"></div>

  <!-- JavaScript Libraries -->
  <script src="lib/jquery/jquery.min.js"></script>
  <script src="lib/jquery/jquery-migrate.min.js"></script>
  <script src="lib/popper/popper.min.js"></script>
  <script src="lib/bootstrap/js/bootstrap.min.js"></script>
  <script src="lib/easing/easing.min.js"></script>
  <script src="lib/counterup/jquery.waypoints.min.js"></script>
  <script src="lib/counterup/jquery.counterup.js"></script>
  <script src="lib/owlcarousel/owl.carousel.min.js"></script>
  <script src="lib/lightbox/js/lightbox.min.js"></script>
  <script src="lib/typed/typed.min.js"></script>
  <!-- Contact Form JavaScript File -->
  <script src="contactform/contactform.js"></script>

  <!-- Template Main Javascript File -->
  <script src="js/main.js"></script>



</body>
</html>
```

In the page source Click MAIN.JS file. As you can see, we have hit the jackpot this time! Flag can be found there. Its bit easy to find as this is the beginning of the game.


Lucifer
index.html
main.js
File | C:/Users/it18017502/Desktop/3rd%20Year%202nd%20Semester/ISP/Akka/Website/DevFolio/js/main.js
Apps
Type here to search
8:52 PM
9/21/2020

```
	$(window).trigger('scroll');
	$(window).on('scroll', function () {
		var pixels = 50;
		var top = 1200;
		if ($(window).scrollTop() > pixels) {
			$('.navbar-expand-md').addClass('navbar-reduce');
			$('.navbar-expand-md').removeClass('navbar-trans');
		} else {
			$('.navbar-expand-md').addClass('navbar-trans');
			$('.navbar-expand-md').removeClass('navbar-reduce');
		}
		if ($(window).scrollTop() > top) {
			$('.scrolltop-mf').fadeIn(1000, "easeInOutExpo");
		} else {
			$('.scrolltop-mf').fadeOut(1000, "easeInOutExpo");
		}
	});

	/*--/ Star Typed /--*/
	if ($('.text-slider').length == 1) {
    var typed_strings = $('.text-slider-items').text();
		var typed = new Typed('.text-slider', {
			strings: typed_strings.split(','),
			typeSpeed: 80,
			loop: true,
			backDelay: 1100,
			backSpeed: 30
		});
	}

	/*--/ Testimonials owl /--*/
	$('#testimonial-mf').owlCarousel({
		margin: 20,
		autoplay: true,
		autoplayTimeout: 4000,
		autoplayHoverPause: true,
		responsive: {
			0: {
				items: 1,
			}
		}
	});

	/*--/ Congratuulations!!!! /--*/
  /*--/ LM - flag01{"I thought he is in the Garage" said Mrs.Clara} /--*/

})(jQuery);
```

This is how the flag can be seen inside the source code.

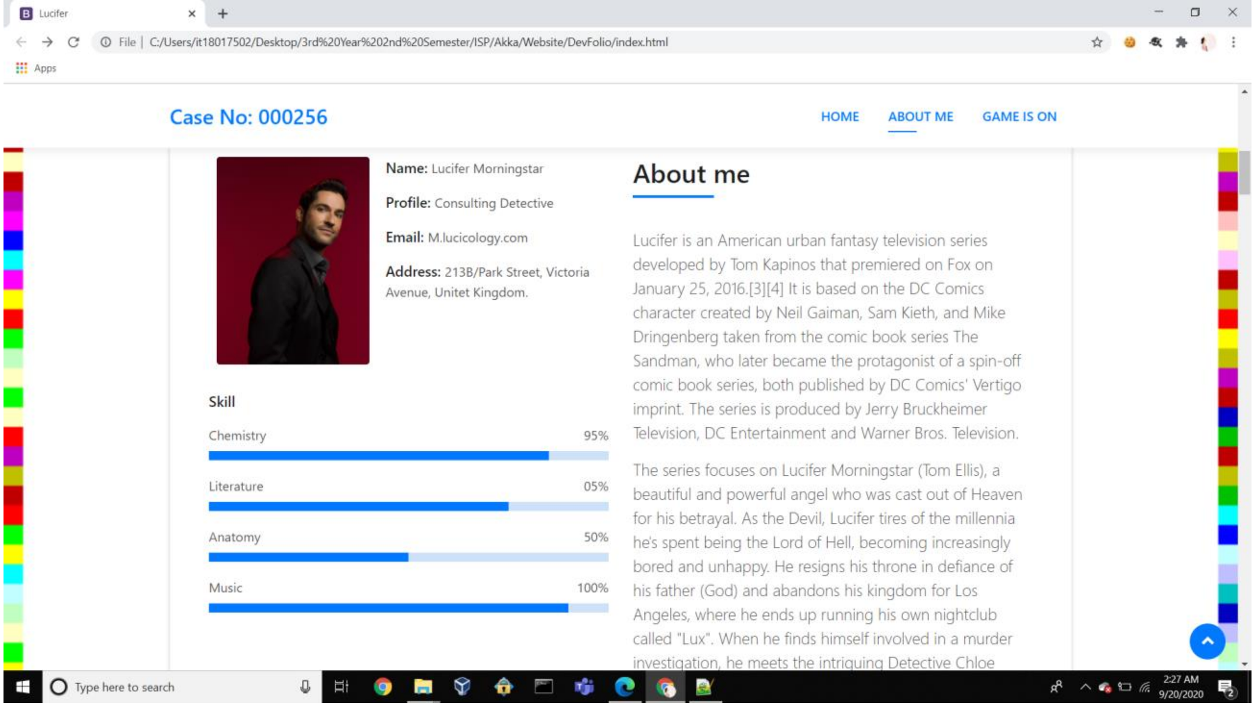


```
			0: {
				items: 1,
			}
		}
	});

	/*--/ Congratuulations!!!! /--*/
  /*--/ LM - flag01{"I thought he is in the Garage" said Mrs.Clara} /--*/

})(jQuery);
```

Advantage of the Layer:

Player will understand, without encryption it is easy to access in to hidden data. Attacker will be access the sensitive data by executing few codes.

Flag 02


Lucifer
File | C:/Users/it18017502/Desktop/3rd%20Year%202nd%20Semester/ISP/Akka/Website/DevFolio/index.html
Apps
HOME
ABOUT ME
GAME IS ON
Type here to search
2:27 AM
9/20/2020

Case No: 000256

Name: Lucifer Morningstar

Profile: Consulting Detective

Email: M.lucicology.com

Address: 213B/Park Street, Victoria Avenue, Unitet Kingdom.

Skill

Chemistry	95%
Literature	05%
Anatomy	50%
Music	100%

About me

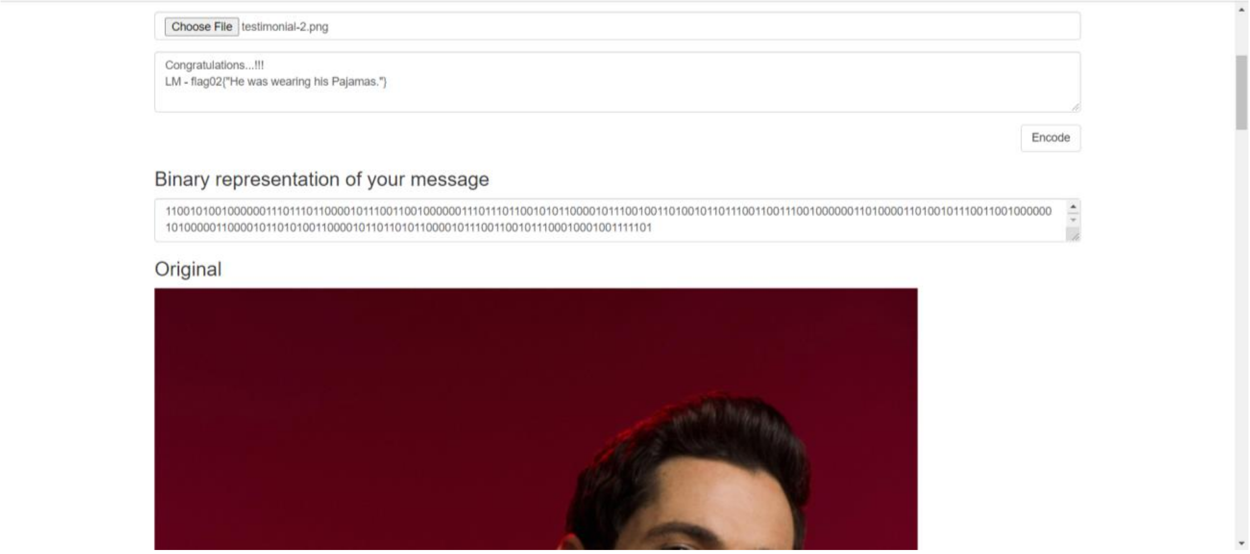
Lucifer is an American urban fantasy television series developed by Tom Kapinos that premiered on Fox on January 25, 2016.[3][4] It is based on the DC Comics character created by Neil Gaiman, Sam Kieth, and Mike Dringenberg taken from the comic book series The Sandman, who later became the protagonist of a spin-off comic book series, both published by DC Comics' Vertigo imprint. The series is produced by Jerry Bruckheimer Television, DC Entertainment and Warner Bros. Television.

The series focuses on Lucifer Morningstar (Tom Ellis), a beautiful and powerful angel who was cast out of Heaven for his betrayal. As the Devil, Lucifer tires of the millennia he's spent being the Lord of Hell, becoming increasingly bored and unhappy. He resigns his throne in defiance of his father (God) and abandons his kingdom for Los Angeles, where he ends up running his own nightclub called "Lux". When he finds himself involved in a murder investigation, he meets the intriguing Detective Chloe

Here in this page we have given a short description about "Lucifer" simply it's his portfolio. As well as we have included his image at the top left corner of the page. This is a starter challenge to get one acquainted with the concept of steganography and is therefore quite straightforward where the flag is hidden in an image. So the challenge has to do something with the steghide.

It's a simple JPEG image, Downloaded the image file and with the use of an online stenographic tool very easily we can Decode it and get the flag. As it's the beginning of the game we kept the flag directly without encrypting the flag.

We implemented these levels to increase the enthusiasm of the player. And the player will get the idea of what is encrypting means.



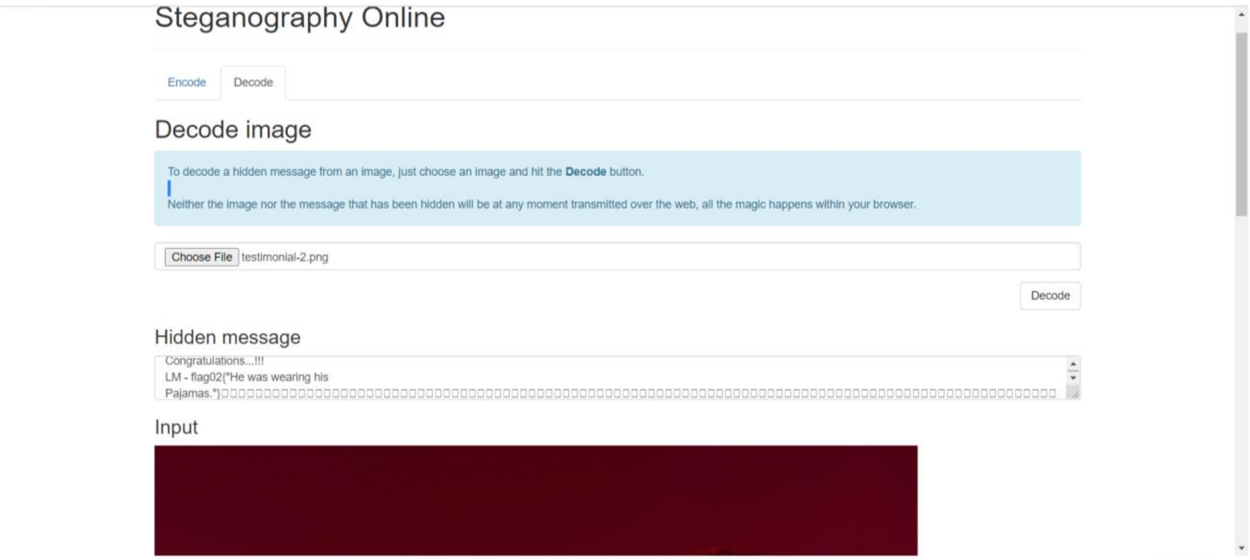
testimonial-2.png

Congratulations...!!!
LM - flag02{"He was wearing his Pajamas."}

Binary representation of your message

```
110010100100000011101110110000101110011001000000111011101100101011000010111001001101001011011100110011100100000011010000110100101110011001000000
10100000110000101101010011000010110110101100001011100110010111000100010011111101
```

Original


Steganography Online

Decode image

To decode a hidden message from an image, just choose an image and hit the **Decode** button.

Neither the image nor the message that has been hidden will be at any moment transmitted over the web, all the magic happens within your browser.

testimonial-2.png

Hidden message

Congratulations...!!!
LM - flag02{"He was wearing his
Pajamas."}□□□

Input

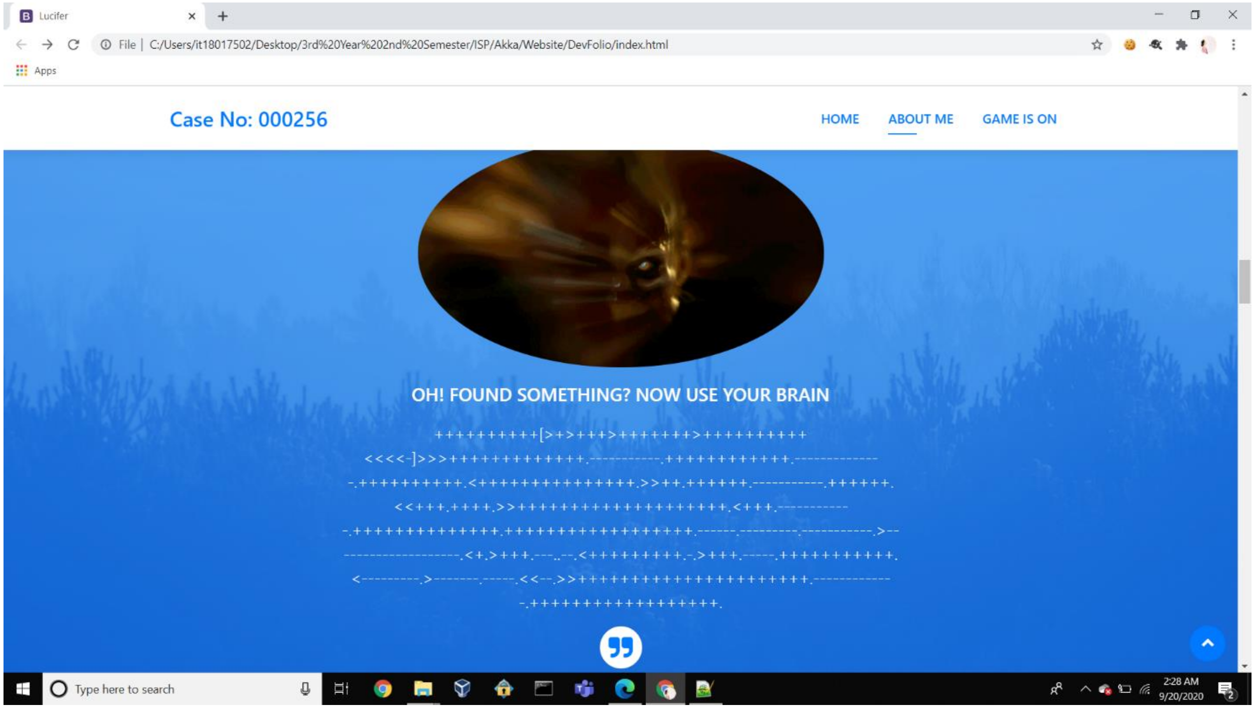
Advantage of the Layer:

Player will understand just doing steganography is not enough to save the data from leaking. A proper method of encryption is needed.

Flag 03

Here we have used Brainfuck programming language.it is the most famous esoteric programming language, and has inspired the creation of a host of other languages. This language only consists of 8 operators. we have encoded the flag using this language and with the use of an online decoder can obtain the meaningful message or the flag.

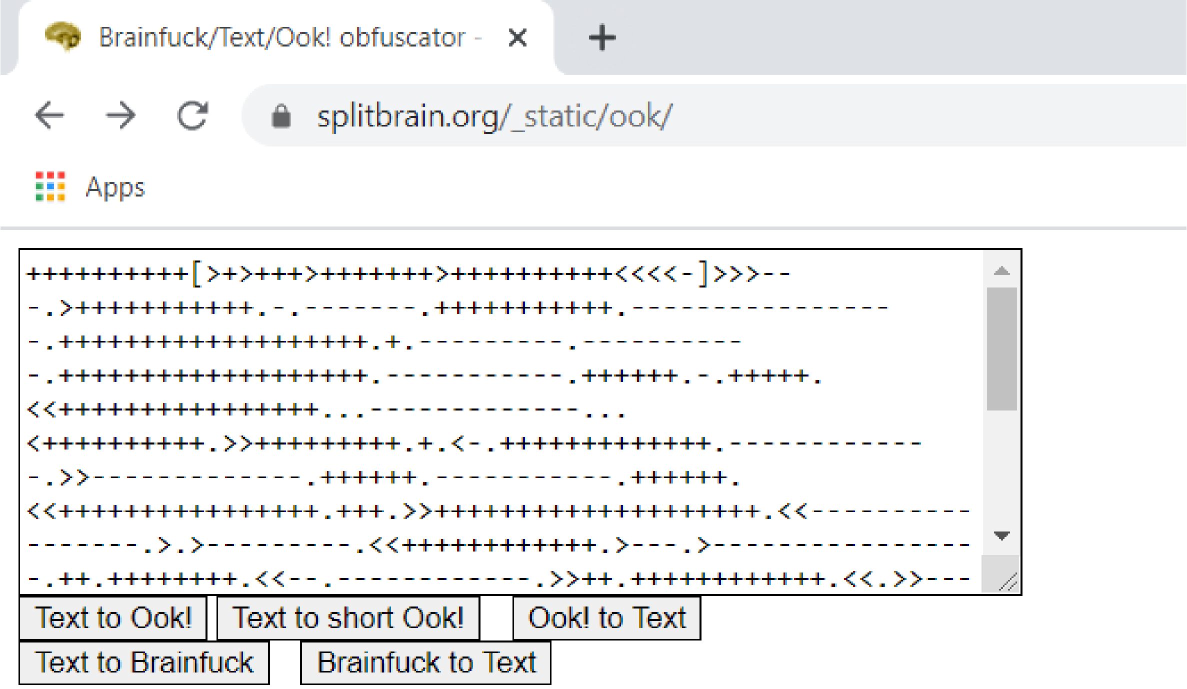
In here we are keeping a step closer to encryption. We can see that, the plain text is hidden inside an encrypted message and a normal person cannot understand what is in it.


Lucifer
File | C:/Users/it18017502/Desktop/3rd%20Year%202nd%20Semester/ISP/Akka/Website/DevFolio/index.html
Apps
Case No: 000256
HOME
ABOUT ME
GAME IS ON
Type here to search
2:28 AM
9/20/2020

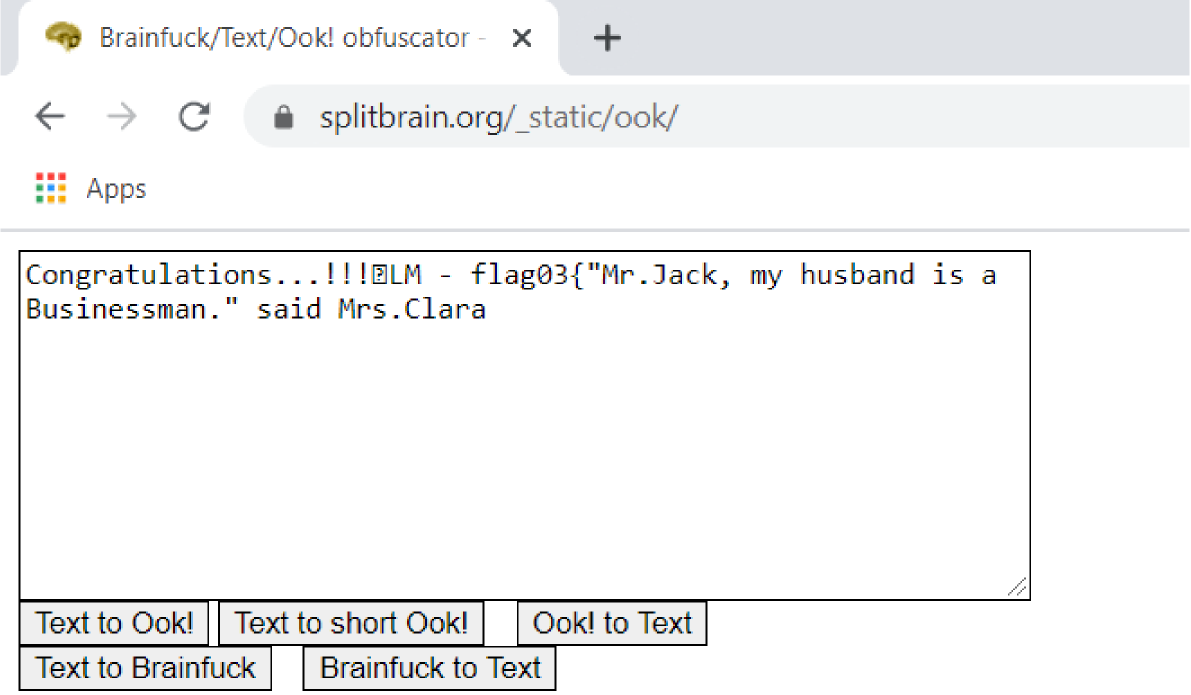
OH! FOUND SOMETHING? NOW USE YOUR BRAIN

```
++++++++++[>+>+++>+++++++>++++++++++
<<<<-]>>>++++++++++++++.-----------.+++++++++++++.-------------
-.++++++++++.<+++++++++++++++++.>>++.+++++++.-----------.++++++.
<<+++.++++.>>++++++++++++++++++++++++.<+++.-----------
-.++++++++++++++.++++++++++++++++++++.------.---------.-----------.>--
------------------.<+.>+++.---..---.<++++++++++.-.>+++.-----.++++++++++++.
<---------.>-------.-----.<<--.>>+++++++++++++++++++++++.------------
-.++++++++++++++++++.
```

As below, we can use an online decoder to the decode the message from Brainfuck Programming Language to Plain text.



```
++++++++++[>+>+++>+++++++>++++++++++<<<<-]>>>--
-.>+++++++++++.-.-------.+++++++++++.----------------
-.+++++++++++++++++++.+.---------.----------
-.+++++++++++++++++++.-----------.++++++.-.+++++.
<<++++++++++++++++...-------------...
<+++++++++++.>>+++++++++.+.<-.+++++++++++++.------------
-.>>-------------.++++++.-----------.++++++.
<<++++++++++++++++.+++.>>++++++++++++++++++++.<<----------
-------.>.>---------.<<++++++++++++.>---.>----------------
-.++.++++++++.<<--.------------.>>++.++++++++++++.<<.>>---
```

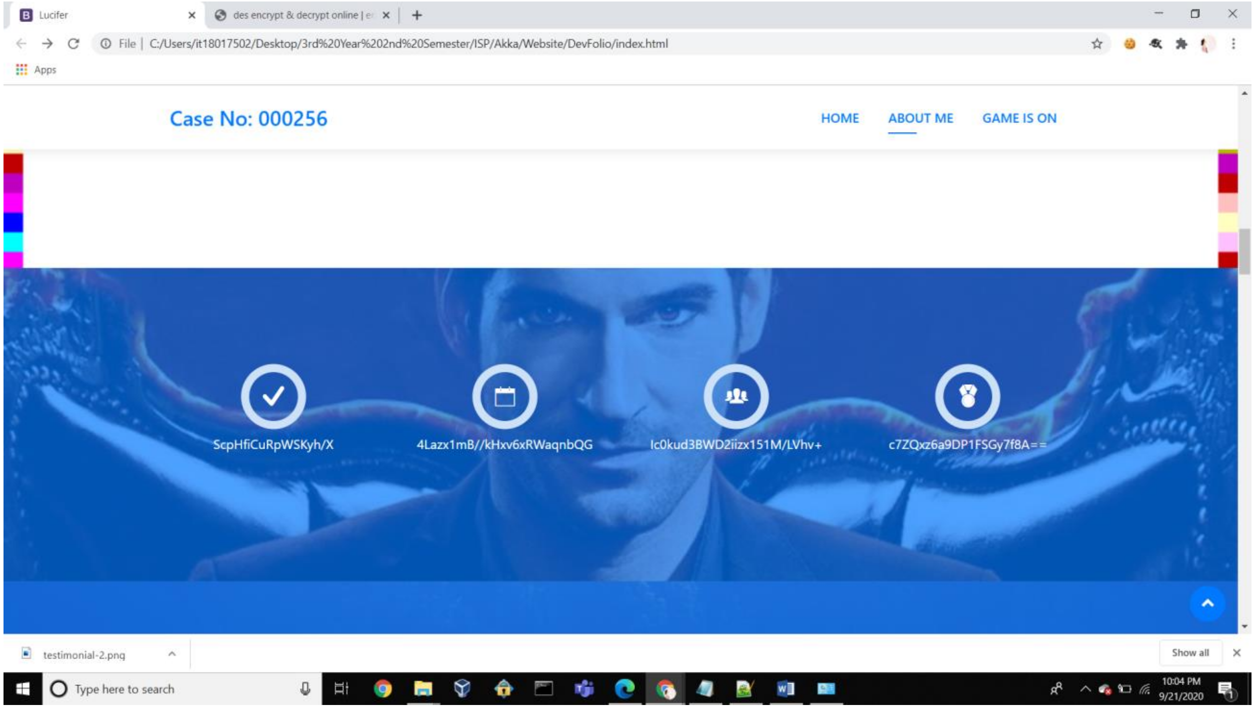


```
Congratulations...!!!LM - flag03{"Mr.Jack, my husband is a
Businessman." said Mrs.Clara
```

Flag 04

From the flag 04 onwards we planned to use encrypting and decrypting algorithms to continue on CTF. This is the Level 01 in the Medium levels. We implemented a simple encrypted text to decrypt it using an online decrypting website. The encrypted message can be find in the website.

First the player has to combine the four encrypted messages together. Player must notice every strange unreadable word in the webpage to find these messages.



Lucifer
des encrypt & decrypt online | e
File | C:/Users/it18017502/Desktop/3rd%20Year%202nd%20Semester/ISP/Akka/Website/DevFolio/index.html
Apps
Case No: 000256
HOME
ABOUT ME
GAME IS ON
testimonial-2.png
Show all
Type here to search
10:04 PM
9/21/2020

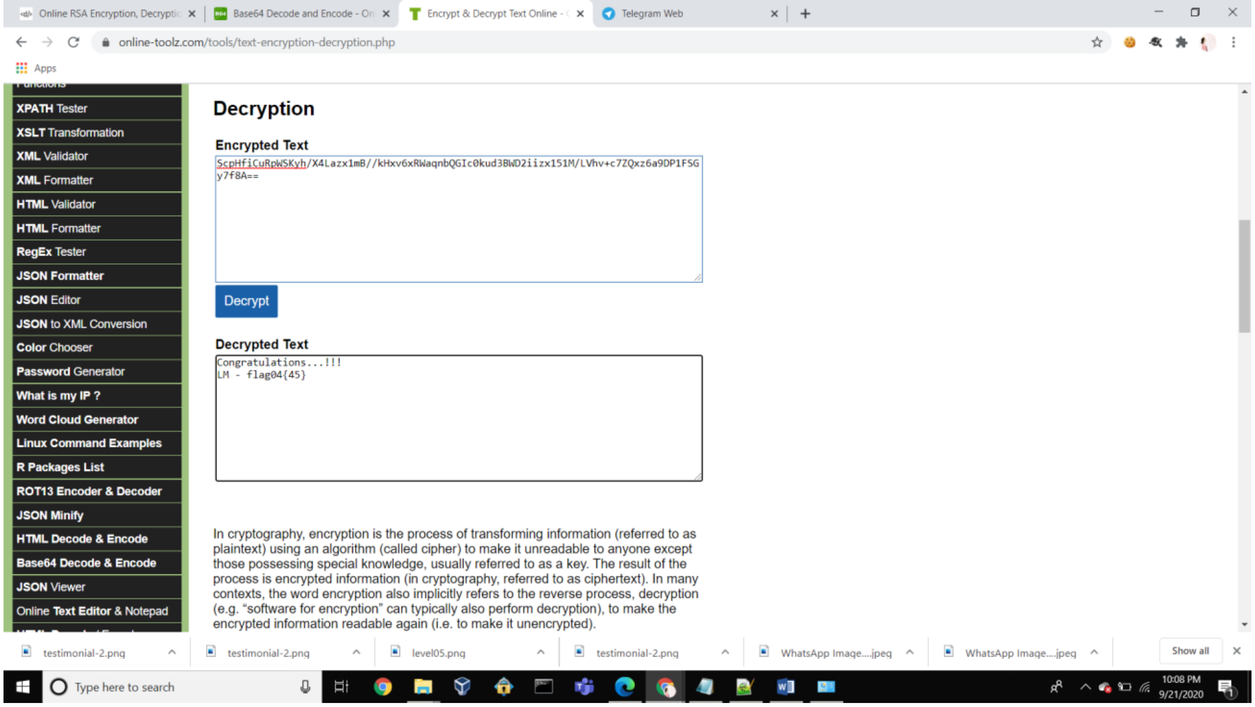
ScpHfiCuRpWSKyh/X

4Lazx1mB//kHxv6xRWaqnbQG

Ic0kud3BWD2iizx151M/LVhv+

c7ZQxz6a9DP1FSGy7f8A==

Then he can use an online decrypting site to decrypt the message.



Decryption

Encrypted Text

```
ScpHfiCuRpWSKyh/X4Lazx1mB//kHxv6xRWaqnbQGIc0kud3BWD2iizx151M/LVhv+c7ZQxz6a9DP1FSG
y7f8A==
```

Decrypted Text

```
Congratulations...!!!
LM - flag04{45}
```

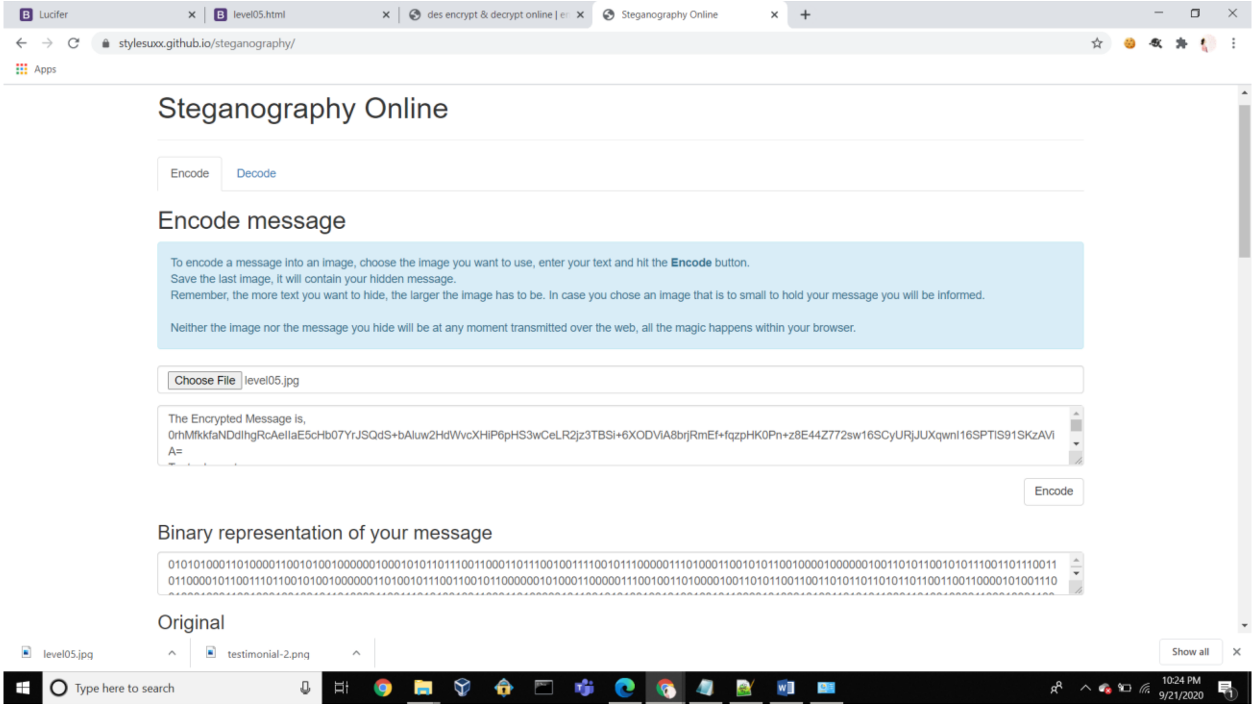
In cryptography, encryption is the process of transforming information (referred to as plaintext) using an algorithm (called cipher) to make it unreadable to anyone except those possessing special knowledge, usually referred to as a key. The result of the process is encrypted information (in cryptography, referred to as ciphertext). In many contexts, the word encryption also implicitly refers to the reverse process, decryption (e.g. “software for encryption” can typically also perform decryption), to make the encrypted information readable again (i.e. to make it unencrypted).

Advantage of the Level:

Having an algorithm is the best method to protect the messages. In here the player understand that without having a key to encrypt the message an attacker is able to decrypt them easily.

Flag 05

DES algorithm will be used in here. The player will understand the faults in DES algorithm. Level 02 in the Medium levels. As DES is a symmetric key cryptographic algorithm, the player will have to find a key to use in the decryption process. The encryption key will be hidden inside the source code of the page of the level. And key will be hidden as a stenographic message.



Steganography Online

Encode message

To encode a message into an image, choose the image you want to use, enter your text and hit the **Encode** button.
Save the last image, it will contain your hidden message.
Remember, the more text you want to hide, the larger the image has to be. In case you chose an image that is to small to hold your message you will be informed.

Neither the image nor the message you hide will be at any moment transmitted over the web, all the magic happens within your browser.

Choose File level05.jpg

```
The Encrypted Message is,
0rhMfkkfaNDdIhgRcAeIlaE5cHb07YrJSQdS+bAluw2HdWvcXHiP6pHS3wCeLR2jz3TBSi+6XODViA8brjRmEf+fqzpHK0Pn+z8E44Z772sw16SCyURjJUXqwnl16SPTIS91SKzAVi
A=
```

Encode

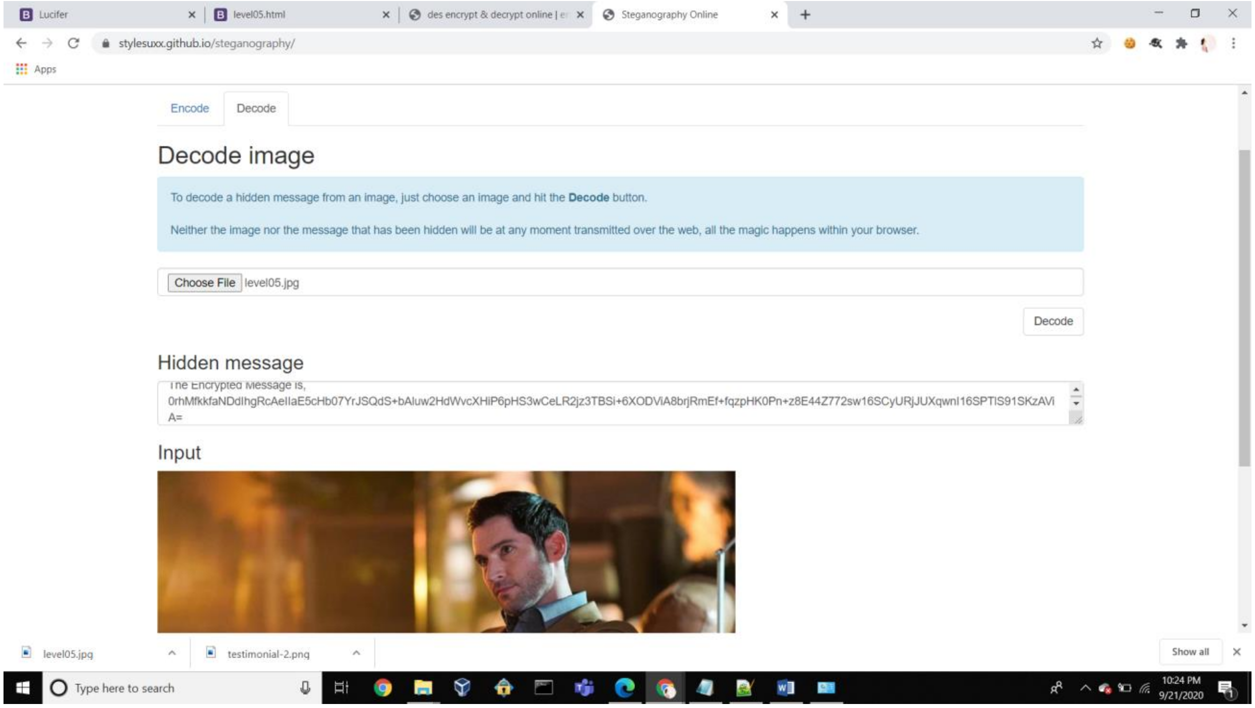
Binary representation of your message

```
0101010001101000011001010010000001000101011011100110001101110010011110010111000001110100011001010110010000100000010011010110010101011100110111001 1
0110000101100111011001010010000001101001011100110010110000001010001100000111001001101000010011010110011001101011011010110110011001100001010011 10
```

Original

To get the flag, the player has to

- Decode the stenographic image.
- Then get the encrypted message.
- Get the encryption key from the source code.
- Then find the relevant algorithm according to the hints given.
- Then decrypt the encrypted message to get the flag.


Lucifer
level05.html
des encrypt & decrypt online | e
Steganography Online
stylesuxx.github.io/steganography/
Apps
Encode
Decode

Decode image

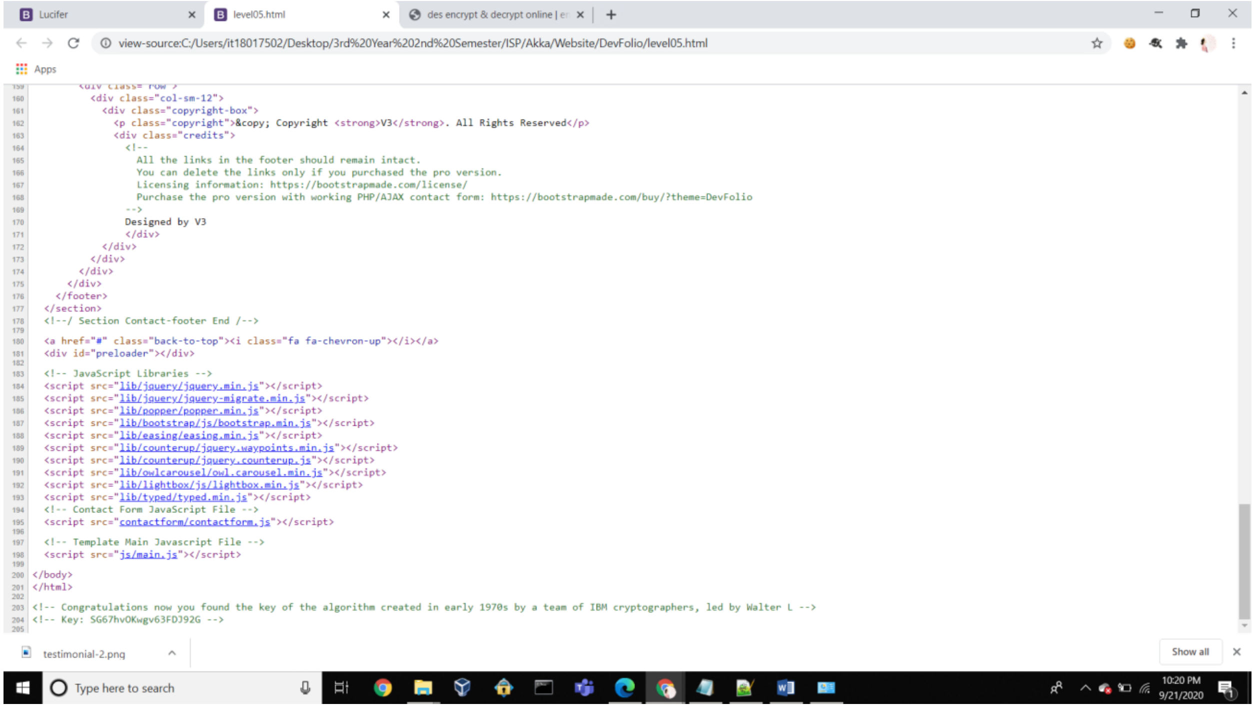
To decode a hidden message from an image, just choose an image and hit the **Decode** button.

Neither the image nor the message that has been hidden will be at any moment transmitted over the web, all the magic happens within your browser.

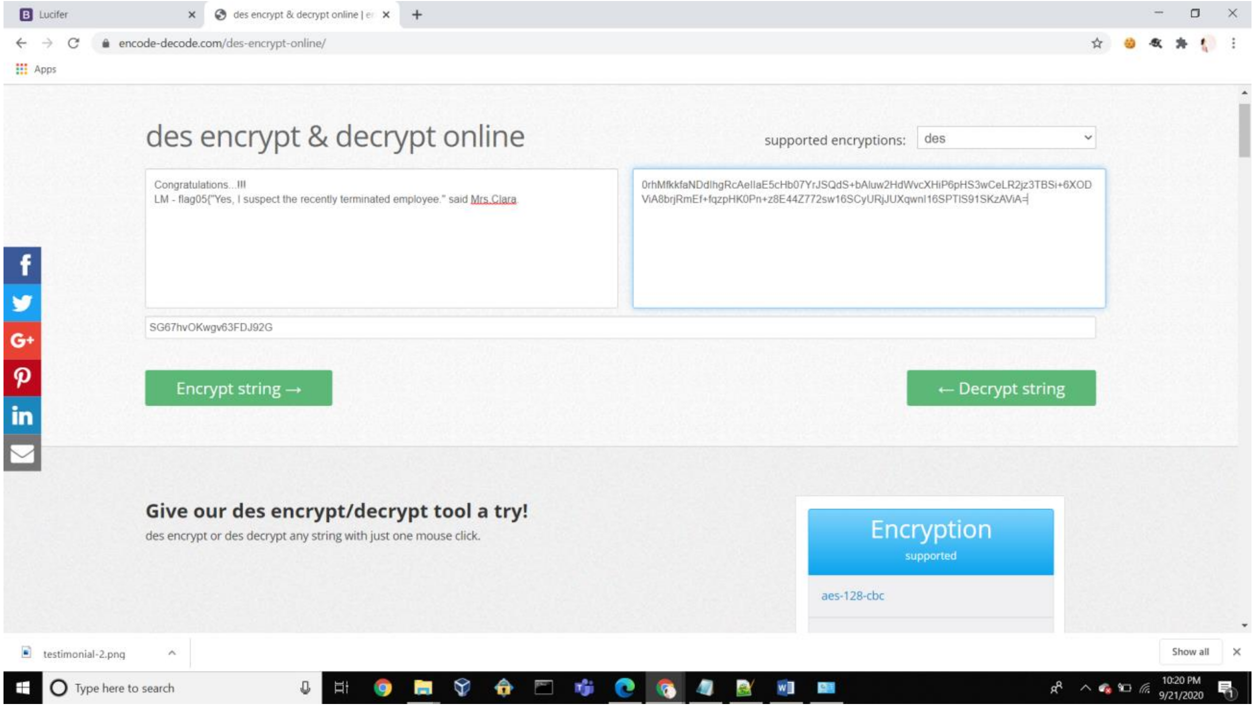
Hidden message

The Encrypted Message is,
0rhMfkkfaNDdIhgRcAeIlaE5cHb07YrJSQdS+bAluw2HdWvcXHiP6pHS3wCeLR2jz3TBSi+6XODViA8brjRmEf+fqzpHK0Pn+z8E44Z772sw16SCyURjJUXqwnI16SPTIS91SKzAVi
A=

Input


Lucifer
level05.html
des encrypt & decrypt online | e
view-source:C:/Users/it18017502/Desktop/3rd%20Year%202nd%20Semester/ISP/Akka/Website/DevFolio/level05.html
Apps

```html
        <div class="row">
          <div class="col-sm-12">
            <div class="copyright-box">
              <p class="copyright">&copy; Copyright <strong>V3</strong>. All Rights Reserved</p>
              <div class="credits">
                <!--
                  All the links in the footer should remain intact.
                  You can delete the links only if you purchased the pro version.
                  Licensing information: https://bootstrapmade.com/license/
                  Purchase the pro version with working PHP/AJAX contact form: https://bootstrapmade.com/buy/?theme=DevFolio
                -->
                Designed by V3
                </div>
            </div>
          </div>
        </div>
      </div>
    </footer>
  </section>
  <!--/ Section Contact-footer End /-->

  <a href="#" class="back-to-top"><i class="fa fa-chevron-up"></i></a>
  <div id="preloader"></div>

  <!-- JavaScript Libraries -->
  <script src="lib/jquery/jquery.min.js"></script>
  <script src="lib/jquery/jquery-migrate.min.js"></script>
  <script src="lib/popper/popper.min.js"></script>
  <script src="lib/bootstrap/js/bootstrap.min.js"></script>
  <script src="lib/easing/easing.min.js"></script>
  <script src="lib/counterup/jquery.waypoints.min.js"></script>
  <script src="lib/counterup/jquery.counterup.js"></script>
  <script src="lib/owlcarousel/owl.carousel.min.js"></script>
  <script src="lib/lightbox/js/lightbox.min.js"></script>
  <script src="lib/typed/typed.min.js"></script>
  <!-- Contact Form JavaScript File -->
  <script src="contactform/contactform.js"></script>

  <!-- Template Main Javascript File -->
  <script src="js/main.js"></script>

</body>
</html>

<!-- Congratulations now you found the key of the algorithm created in early 1970s by a team of IBM cryptographers, led by Walter L -->
<!-- Key: SG67hvOKwgv63FDJ92G -->
```



des encrypt & decrypt online

supported encryptions: des

Congratulations...!!!
LM - flag05{"Yes, I suspect the recently terminated employee." said Mrs.Clara

0rhMfkkfaNDdlhgRcAellaE5cHb07YrJSQdS+bAluw2HdWvcXHiP6pHS3wCeLR2jz3TBSi+6XOD
ViA8brjRmEf+fqzpHK0Pn+z8E44Z772sw16SCyURjJUXqwnl16SPTIS91SKzAViA=

SG67hvOKwgv63FDJ92G

Give our des encrypt/decrypt tool a try!

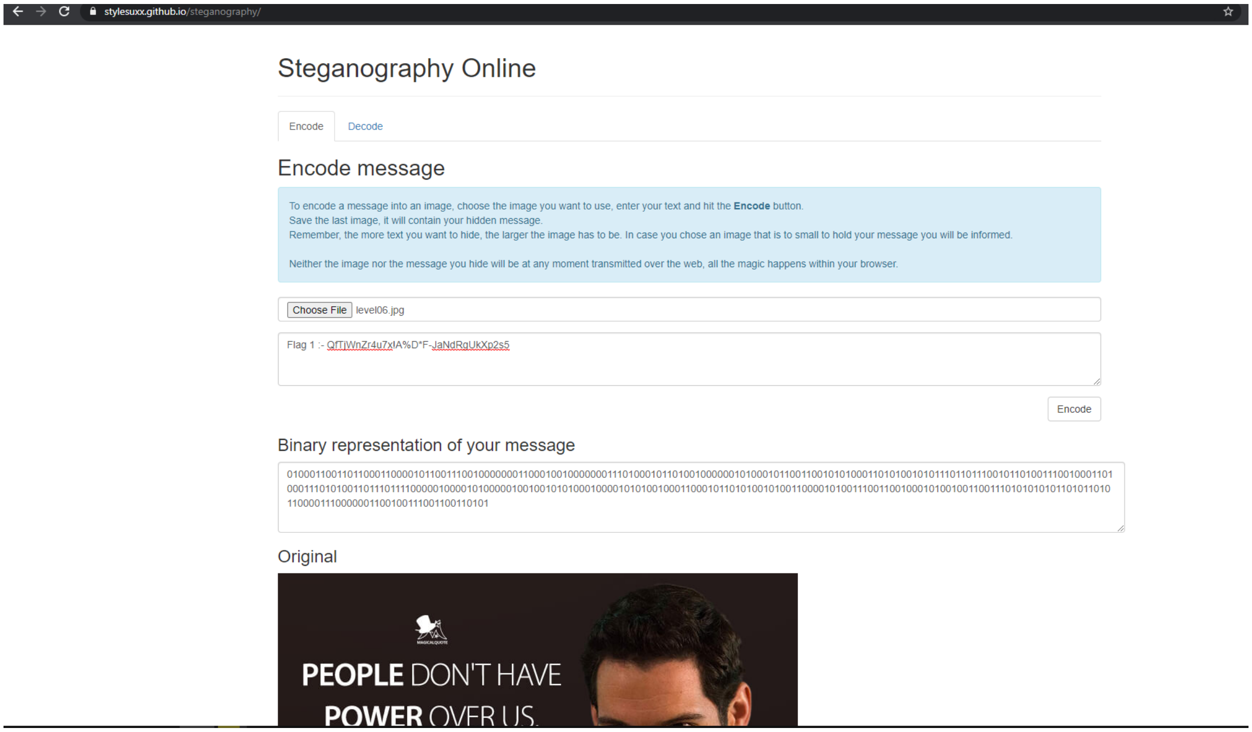
des encrypt or des decrypt any string with just one mouse click.

Advantage of the Level:

The player will understand that by having encryption algorithms, we can secure the messages effectively. Also to increase the security we can hide the encryption key. So with the use of the DES algorithm we can ensure the **security in transmission** of a message over an insecure network.

Flag 06

This level is planned to demonstrate the usage of Triple DES algorithm. As triple DES uses three different keys to encrypt the message, user have to use three keys decrypt the message. Not to forget we are talking about the 3 – key Triple DES here, although have another type (2 – key Triple DES) we are not talking about it here as it is much easier with respect to Triple DES here. The encryption keys will be hidden inside the sources code and images.



stylesuxx.github.io/steganography/

Steganography Online

Encode | Decode

Encode message

To encode a message into an image, choose the image you want to use, enter your text and hit the **Encode** button.
Save the last image, it will contain your hidden message.
Remember, the more text you want to hide, the larger the image has to be. In case you chose an image that is to small to hold your message you will be informed.

Neither the image nor the message you hide will be at any moment transmitted over the web, all the magic happens within your browser.

Choose File level06.jpg

Flag 1 :- QfTjWnZr4u7x!A%D*F-JaNdRgUkXp2s5

Encode

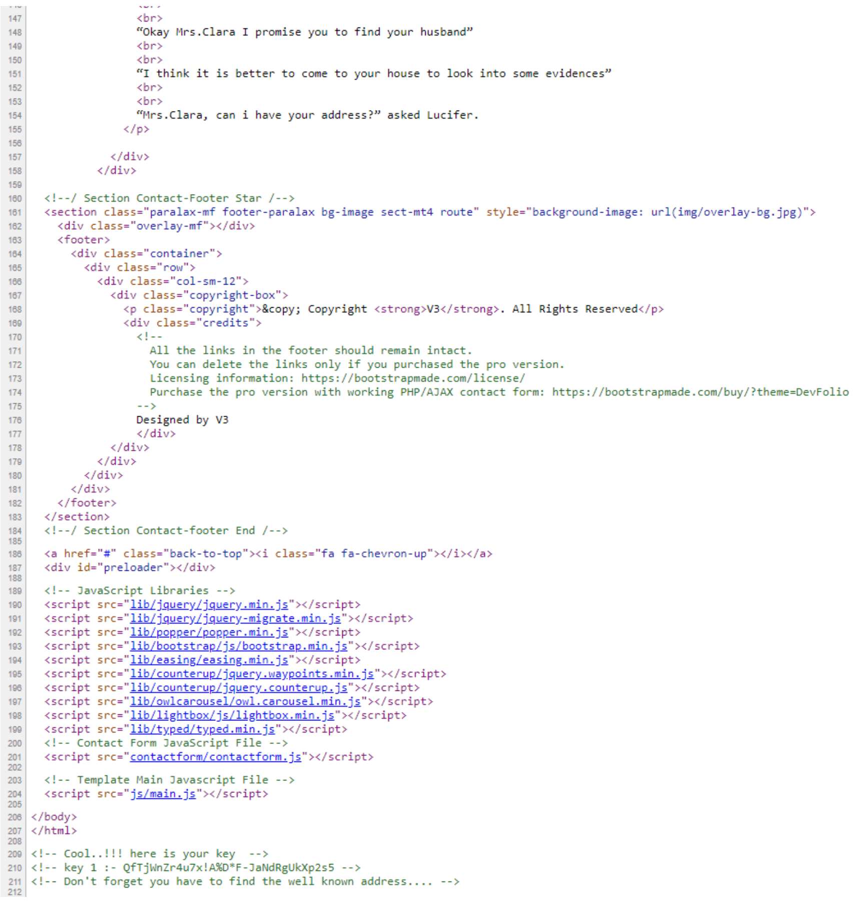
Binary representation of your message

```
010001100110110001100001011001110010000000110001001000000011101000101101001000000101000101100110010101000110101001010111011011100101101001110010001101
000111010100110111011110000010000101000001001001010100010000101010010001100010110101001010011000010100111001100100010100100110011101010101011010111010
1100001110000001100100111001100110101
```

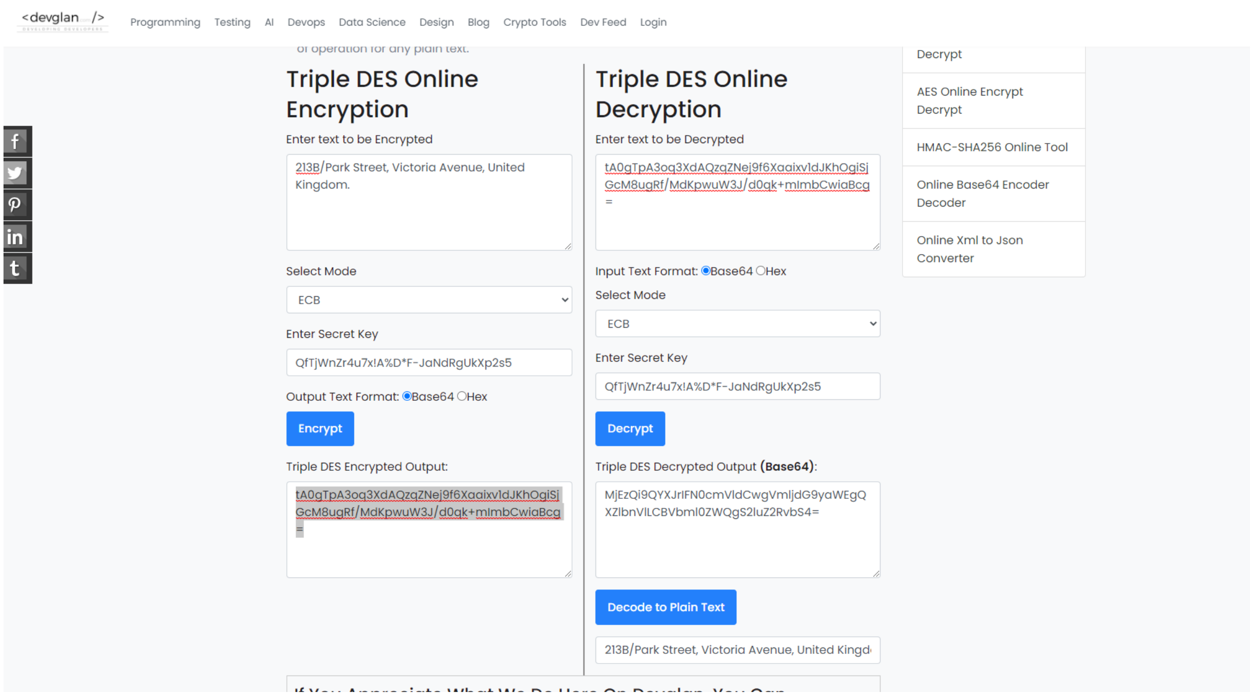
Original

To get the flag player has to

- Decode the stenographic image.
- Then get the encrypted message.
- Get the encryption key from the source code.
- Then find the relevant algorithm according to the hints given.
- Then decrypt the encrypted message to get the flag.



```
                <br>
                "Okay Mrs.Clara I promise you to find your husband"
                <br>
                <br>
                "I think it is better to come to your house to look into some evidences"
                <br>
                <br>
                "Mrs.Clara, can i have your address?" asked Lucifer.
              </p>

            </div>
          </div>

  <!--/ Section Contact-Footer Star /-->
  <section class="paralax-mf footer-paralax bg-image sect-mt4 route" style="background-image: url(img/overlay-bg.jpg)">
    <div class="overlay-mf"></div>
    <footer>
      <div class="container">
        <div class="row">
          <div class="col-sm-12">
            <div class="copyright-box">
              <p class="copyright">&copy; Copyright <strong>V3</strong>. All Rights Reserved</p>
              <div class="credits">
                <!--
                  All the links in the footer should remain intact.
                  You can delete the links only if you purchased the pro version.
                  Licensing information: https://bootstrapmade.com/license/
                  Purchase the pro version with working PHP/AJAX contact form: https://bootstrapmade.com/buy/?theme=DevFolio
                -->
                Designed by V3
                </div>
            </div>
          </div>
        </div>
      </div>
    </footer>
  </section>
  <!--/ Section Contact-footer End /-->

  <a href="#" class="back-to-top"><i class="fa fa-chevron-up"></i></a>
  <div id="preloader"></div>

  <!-- JavaScript Libraries -->
  <script src="lib/jquery/jquery.min.js"></script>
  <script src="lib/jquery/jquery-migrate.min.js"></script>
  <script src="lib/popper/popper.min.js"></script>
  <script src="lib/bootstrap/js/bootstrap.min.js"></script>
  <script src="lib/easing/easing.min.js"></script>
  <script src="lib/counterup/jquery.waypoints.min.js"></script>
  <script src="lib/counterup/jquery.counterup.js"></script>
  <script src="lib/owlcarousel/owl.carousel.min.js"></script>
  <script src="lib/lightbox/js/lightbox.min.js"></script>
  <script src="lib/typed/typed.min.js"></script>
  <!-- Contact Form JavaScript File -->
  <script src="contactform/contactform.js"></script>

  <!-- Template Main Javascript File -->
  <script src="js/main.js"></script>

</body>
</html>

<!-- Cool..!!! here is your key  -->
<!-- key 1 :- QfTjWnZr4u7x!A%D*F-JaNdRgUkXp2s5 -->
<!-- Don't forget you have to find the well known address.... -->
```



of operation for any plain text.

Triple DES Online Encryption

Enter text to be Encrypted

213B/Park Street, Victoria Avenue, United Kingdom.

Select Mode: ECB

Enter Secret Key: QfTjWnZr4u7x!A%D*F-JaNdRgUkXp2s5

Output Text Format: ● Base64 ○ Hex

Encrypt

Triple DES Encrypted Output:

tA0gTpA3oq3XdAQzqZNej9f6Xaaixv1dJKhOgiSjGcM8ugRf/MdKpwuW3J/d0qk+mImbCwiaBcg=

Triple DES Online Decryption

Enter text to be Decrypted

tA0gTpA3oq3XdAQzqZNej9f6Xaaixv1dJKhOgiSjGcM8ugRf/MdKpwuW3J/d0qk+mImbCwiaBcg=

Input Text Format: ● Base64 ○ Hex

Select Mode: ECB

Enter Secret Key: QfTjWnZr4u7x!A%D*F-JaNdRgUkXp2s5

Decrypt

Triple DES Decrypted Output **(Base64)**:

MjEzQi9QYXJrIFN0cmVldCwgVmljdG9yaWEgQXZlbnVlLCBVbml0ZWQgS2luZ2RvbS4=

Decode to Plain Text

213B/Park Street, Victoria Avenue, United Kingd

If You Appreciate What We Do Here On Devglan, You Can

Well the player may feel there is not much going in this level as this seems to be quite similar to the previous one. But don't forget we are using triple DES here which is much secure than the single DES algorithm.

Flag 07

SQL injection and another Cryptographic algorithm will be used.

Flag 08

XSS and another Cryptographic algorithm will be used.

LUCIFER