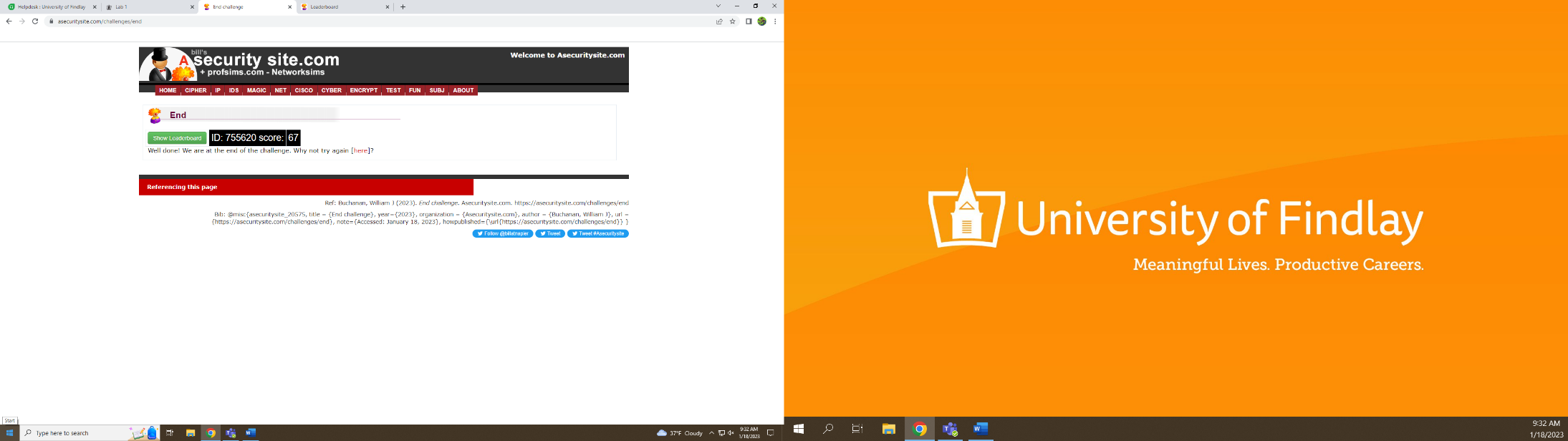
Student: Orry Willems  
Course: CSCI 402  
title: Lab 1, Ciphers and Fundamentals

A) Introduction

1. Do the Challenge
2. Testing prime numbers

91: NO

421: YES

1449: NO

1. Determine the GCD for the following

88, 46: 2

105, 35: 35

1. Determine the Base 64 and Hex values for the following strings:

Hello:

Base 64: SGVsbG8=  
 Hex Value: 48656C6C6F

Hello:

Base 64: aGVsbG8=  
 Hex Value: 68656C6C6F

HELLO:

Base 64: SEVMTE8=  
 Hex Value: 48454C4C4F

1. Determine the following ASCII strings for these encoded formats:

bGxveWRz: lloyds

6E6170696572: Napier

01000001 01101110 01101011

01101100 01100101 00110001

00110010 00110011: Ankle123

1. Determine the EX-OR of “hello” ex-ORed with the letter ‘t’

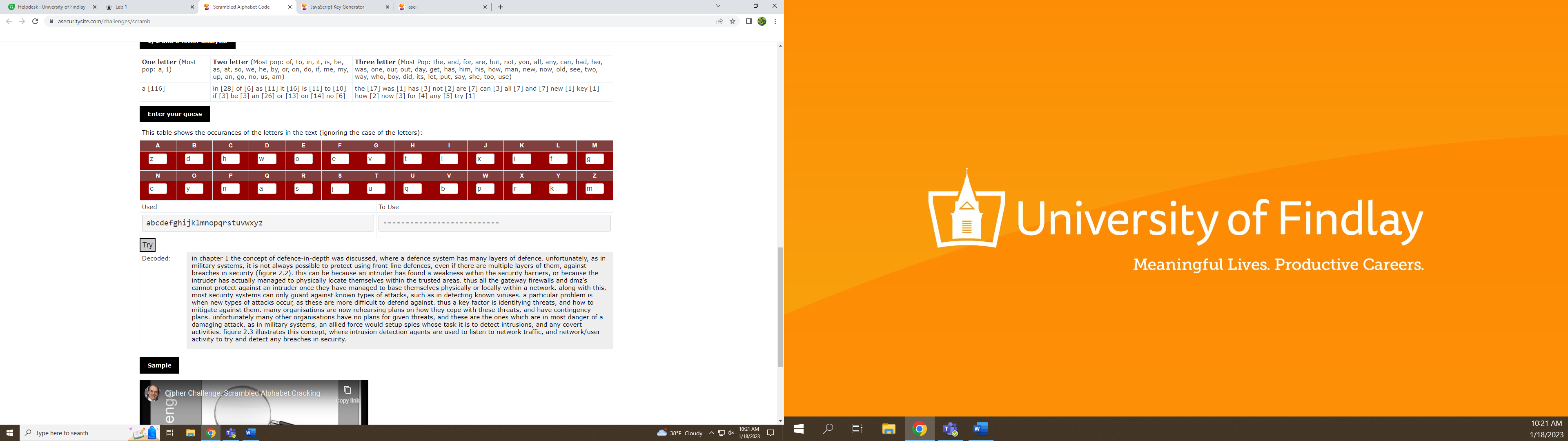
Hex: 68656C6C6F  
Base 64: aGVsbG8=  
Is the result printable in ASCII? Yes

1. What is the result of 53,431 mod 453?

430

1. Generate a random number  
   How many hex characters does the result have? 64

B) Frequency Analysis



C) Character mapping

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Char | Decimal | Binary | Hex | Oct | HTML |
| (Space) | 32 | 00100000 | 20 | 040 | &#160; |
| A | 65 | 01000001 | 41 | 101 | &#1; |
| } | 125 | 1111101 | 7D | 175 | &#125; |
| Ã | 195 | 11000011 | C3 | 303 | &#195; |
| ÿ | 255 | 11111111 | FF | 377 | &#255; |

D) Test

1.

A picture containing graphical user interface

Description automatically generated

2.

Graphical user interface, application

Description automatically generated

3.

Graphical user interface

Description automatically generated

4.

Graphical user interface, application

Description automatically generated