

Public Page

## 12.07 Collaboration



**12.07 COLLABORATION**

PLEASE SIGN IN WITH FIRST LAST (TEACHER)

NEXT LIVE LESSON:

# Slide 2

[illegible]

## Escape room!

### ESCAPE ROOM!

- Your quest is to decode (or encode) the messages in the rooms as a team!
- This lesson will review recursion concepts and introduce cryptography algorithms and concepts.
- Each person will select a role.
- There are 4 locks to solve.
- Work together to complete the tasks.
- How quickly can you escape?

## Choose Your role

**CHOOSE YOUR ROLE**

**Team Leaders**  
(have a working microphone)

Owen Barron  
Liam Rosenfeld  
Carlos Zorrilla

**Cryptographer**  
(record all locks for exit slide)

Yonathan T.  
Albert Coriat  
Josh Mett  
Sonny Russano

**Support Staff**  
(assist and support)

Gregory Karcz  
Wsnchy Dutreuil  
abdurrahim birik  
Kevin Cam  
Chirag Narang  
Aubrianna Harris  
Nathalie Leave  
Alexander

**Quality Control**  
(check teammates work)

Brynn Koefler

## Slide 5

<http://tinyurl.com/ELVSAPCS-Blue>

The Green  
Mile  
La La Land  
Black Swan

Star Wars

Would you rather

Click the link in your color box.  
Follow the instructions!

Happy Gilmore

**TIME TO PRACTICE**

PVRIS

queen

<http://tinyurl.com/ELVSAPCS-Red>

The Office

<--- The Office

It's Always Sunny In Philadelphia

It's Always Sunny In Philadelphia

Dont stop believing

In the end

## Escape room instructions

## ESCAPE ROOM INSTRUCTIONS

- You will be moved into separate work rooms where you are responsible for working together to the clues and obtain the lock for each room within the work room (4 rooms).
- Participation is required by ALL members!
- Remember your role
  - Team Leaders lead and guide,
  - Cryptographers record,
  - Support Staff assist and support
  - Quality Control checks all answers.
- Use the colored boxes to guide you to your part in the room!
- Use your mics, whiteboard tools and chat box to interact!
- Raise your hand to ask for instructor help and/or to advance to the next room when the lock is solved.

## Slide7

**Puzzle #1**

**DOWN**

- In \_\_\_ analysis, the study of the number of letters is used to decode cyphertext
- In cryptography, this key is only known to the owner
- In cryptography, this key is used to verify that a message was sent from the owner

**ACROSS**

- A type of encryption algorithm based on substitution where letters are replaced by another letter x number of positions down the alphabet (two words, no spaces)
- A sequence of characters that reads the same forwards as backwards
- A method that calls itself to dived and conquer a problem
- The stopping point for recursion (two words, no space)

**Directions:** Click on your colored link to get information for part of the crossword puzzle. Then return here and put your answers in the puzzle. When all members are done, work together to unjumble the circled letters to form the KEY phrase and move to the next room!

**Clues A3**

**Clue A1 & D2**

**Clues A6 & A7**

**Clues D4 & D5**

**Room Lock:** T a c o C A T

**Hint:** Room Lock is a palindrome

**Locksmith:** don't forget to record the key!

**Unjumbled Key Phrase:** I wrote it lol

**Handwritten Notes:** + tap, RECURSION, BASE CASE, PALINDROME, CIPHER, KEY

**URL:** <http://timward.com/ELV/APCS/Palindrome>



## PUZZLE #2 - CAESAR SHIFT

<http://tinyurl.com/FLVSAPCS-CipherKey>

City ayl Rm best  
buzbuz h Du

ybbp fk bees in <sup>h</sup>

E oaa ✓ i see <http://> bff

I see - bees in - a cave - 9

v xyqz ✓  
~~1000~~ - a cave

Hint: Room Lock is a palindrome

## Puzzle #3 - Decrypt Using Private Key

## PUZZLE #3 - DECRYPT USING PRIVATE KEY

Two factor authentication first encodes a message and then encrypts it. Here will use private key encryption to decrypt a coded message and then decode it.

First you decrypt the message using the private key and then decode code it.

You can find an example of how to decrypt and then decode here:

Private Key: 5

Message: 9 0 17 0 13  
Decrypted: 14 5 22 5 18  
Decoded: N E V E R

Message: 10 -1 -1  
Decrypted: 15 4 4  
Decoded: 0 0 0

Message: 10 13  
Decrypted: 15 18  
Decoded: 0 1

Message: 0 17 0 9  
Decrypted:  
Decoded:

Room Lock:

Never odd or even?

## Puzzle #4 - Public Key Encryption

**PUZZLE #4 - PUBLIC KEY ENCRYPTION**

*Handwritten notes: "me too", "Yup", "race car", "18, 1, 3, 5, 5, 1, 18", "11, -6, -4, 2, -1, -6, 11", "pub: 7", "http://anyurl.com/ELVSAPCS-Encrypt/Exercise4/15611"*

- In this last step in our game, our team will encode and encrypt a palindrome to be decrypted and decoded by another team in the main room
- You can find an example of how to encode and encrypt a message here:
- To encode a message to send to someone, use the public key
- Use your room number as the private key for this exercise
- Multiply the private key by -1 to determine the public key
- Pick a palindrome between 1 and 3 words, and up to 12 characters. You can find some possible palindromes from here:
- Encode and encrypt the message – be ready to write the message and public key on the board
- Cryptographer – be ready to record all 4 lock passwords including your encrypted palindrome

## Slide11

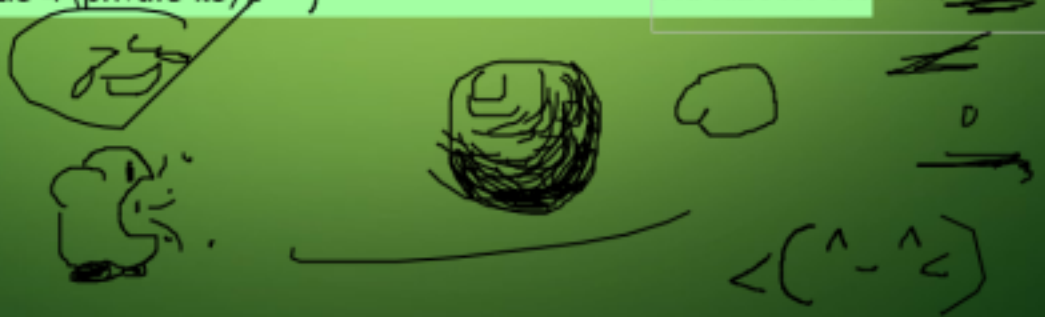
Directions: Fill in the keys for each of the locks. (cryptographer)

Puzzle 1 (crossword):

Puzzle 2 (Caesar Shift):

Puzzle 3 (public key): *never add an even* *taco cat*

Puzzle 4 (private key): *7* *eva can i see bees in a ~~hive~~*

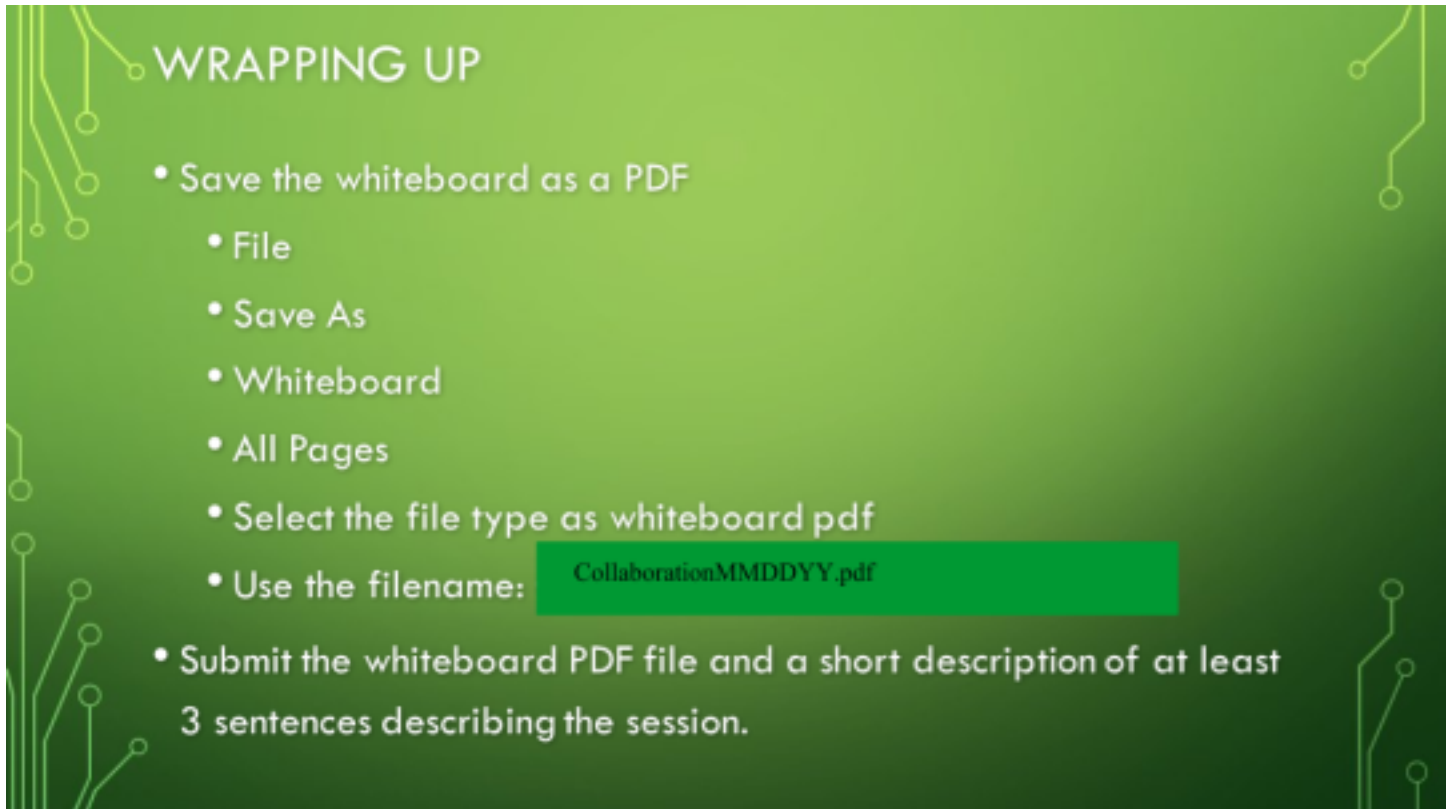


Return to main room/groups present for decode

## RETURN TO MAIN ROOM/GROUPS PRESENT FOR DECODE

Public Key	Message
-1	
-2	-1, 0,19,18, 18,19,0,-1
-3	-2 17 12 22 12 17 -2
-4	QZBD BZQ
-5	MVXZVNONVZXVM
-6	24 7 9 11 9 7 24
-7	
-8	

## Wrapping up



## WRAPPING UP

- Save the whiteboard as a PDF
  - File
  - Save As
  - Whiteboard
  - All Pages
  - Select the file type as whiteboard pdf
  - Use the filename: CollaborationMMDDYY.pdf
- Submit the whiteboard PDF file and a short description of at least 3 sentences describing the session.

Thank you for participating



# THANK YOU FOR PARTICIPATING

"Encryption...is a powerful defensive weapon for free people. It offers a technical guarantee of privacy, regardless of who is running the government... It's hard to think of a more powerful, less dangerous tool for liberty." -  
Esther Dyson