Cyber-Security: Attacks, Protection and Impact

Journal:
Describe the "trust model" that the Internet was originally designed upon.
List the problems with using the trust model now that anybody can access the Internet.

yeet

Objectives
- Students will understand types of security violations.
- Students will understand types of protections.
- Students will compare negative impacts of different types of attacks.

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CyberCrime & CyberWarfare

☐ Define cyber crime and cyber warfare. How are they different from everyday crime and warfare?

    ☐ cyber crime: https://us.norton.com/cybercrime-definition

    ☐ cyber warfare: http://time.com/3928086/these-5-facts-explain-the-threat-of-cyber-warfare/)

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Cyber Attacks in the News

- Read your assigned news article.

- On a sticky note, record the following information: *title or description*
  - The type of cyber attack described
  - The impact of the cyber attack

  to find location

  # of article

- Place the sticky note on the board in the appropriate place.

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Discuss the results

□ What are the different types of attacks?
  □ Explain the differences

□ Are there any types more likely to impact some groups more than others?

Discussion

Student data, including your courses, grades, attendance, home address, and birth date, is stored in a database so that is easily accessible to teacher, administrators, and other staff from any computer connected to the Internet.

☐ What security concerns does this raise?

☐ What can be done to protect student data?

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How to secure the data…

Secret Communication

Alice would like to send a message to her friend Li in China but wants to keep it secret from everybody else.

If Alice sends the message to Li by email over the Internet, will her message remain secret?

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Secret Communication

Steganography

- "Hiding in plain sight"

Cryptography

- Hide the meaning of the message by making the text indecipherable

  - "dttfsedhswotatfneaalhcleelee"

Cryptography – 2 Strategies

Transposition:

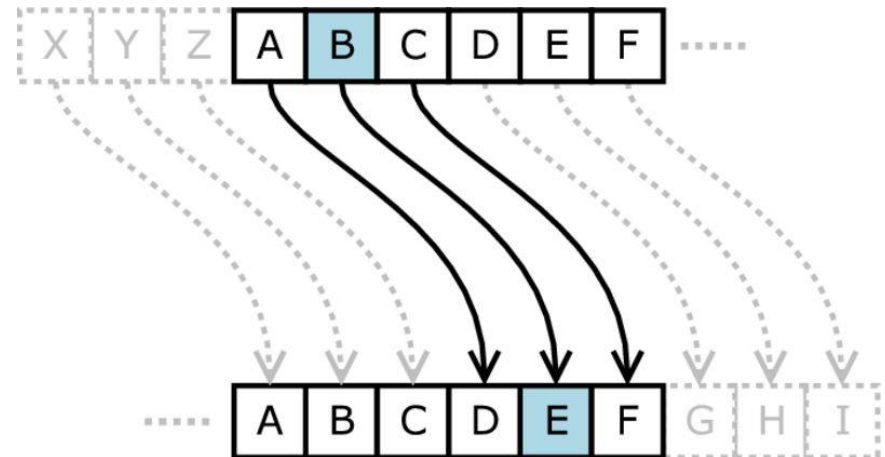- Rearrange the letters in the message.
- Example: Rail Fence *FTNOENRINTSNNMYIAS*

Cryptography – 2 Strategies

Substitution

Replace each letter with a letter or symbol.

Example: Caesar Cipher

Python Practice

☐ Complete the Caesar Cipher program

☐ Download and complete the Cipher.py program online

32	(space)	48	0	64	@	80	P	96	`	112	p
33	!	49	1	65	A	81	Q	97	a	113	q
34	"	50	2	66	B	82	R	98	b	114	r
35	#	51	3	67	C	83	S	99	c	115	s
36	$	52	4	68	D	84	T	100	d	116	t
37	%	53	5	69	E	85	U	101	e	117	u
38	&	54	6	70	F	86	V	102	f	118	v
39	'	55	7	71	G	87	W	103	g	119	w
40	(	56	8	72	H	88	X	104	h	120	x
41	)	57	9	73	I	89	Y	105	i	121	y
42	*	58	:	74	J	90	Z	106	j	122	z
43	+	59	;	75	K	91	[	107	k	123	{
44	,	60	<	76	L	92	\	108	l	124		
45	-	61	=	77	M	93	]	109	m	125	}
46	.	62	>	78	N	94	^	110	n	126	~
47	/	63	?	79	O	95	_	111	o		

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Homework

- Cyber Security at Home

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