

## HW5—Encryption

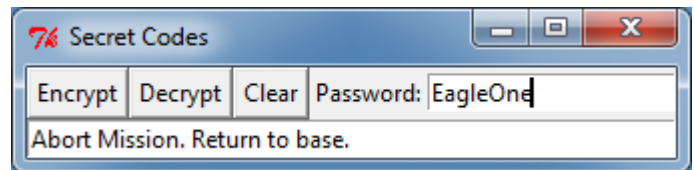
15 points

**Assignment:** This assignment is an exercise in String manipulation, and creating gui's. Create a gui that encrypts and decrypts secret messages, as described below.

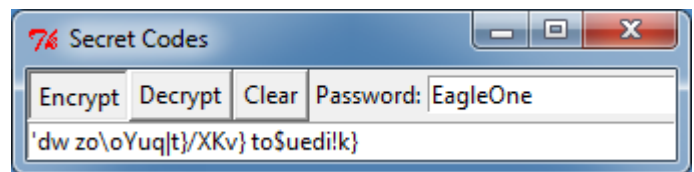
**Due:** Friday 9/27, 5PM

**Turn in:** Submit your sources to BBV.

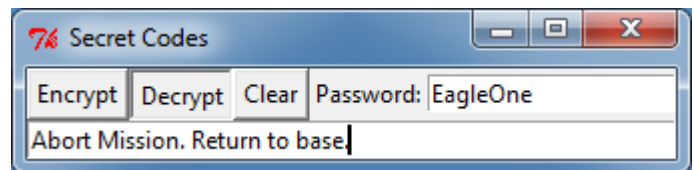
Create a gui with two 'Entry' widgets, 3 buttons, and a label like this.



When the 'Encrypt' button is clicked, the message should be encrypted as described below.



The 'Decrypt' button should decrypt the message, as described below.



To encrypt a message:

- Let `index` range from 0 up to (but not including) the length of the message
- Get the character at location `index` from the message.
- Get the character at location `(index % password length)` from the password.
- Get the integer value of that message character, using the `ord()` function. Subtract 32, then add the integer value of the password character. Find that result `% (127-32)`. Add 32 to get the final numeric result; get the corresponding character using `chr()` and append it to your result string.

To decrypt a message: perform the encryption process above, except that in the last step you'll subtract the value of the password character instead of adding it. Everything else is the same.

The `ord()` function converts characters into their Unicode value. For example:

`x = ord('a')` would set `x` to 97 (see the table on the back of this sheet).

To convert a Unicode value back to a letter, use the `chr()` function. For example:

`c = chr(97)` would set `c` to 'a'.

For reference purposes, a copy of the Unicode characters 32-126 appears on the next page.

32	(space)
33	!
34	"
35	#
36	\$
37	%
38	&
39	'
40	(
41	)
42	*
43	+
44	,
45	-
46	.
47	/
48	0
49	1
50	2
51	3
52	4
53	5
54	6
55	7
56	8
57	9
58	:
59	;
60	<
61	=
62	>
63	?
64	@

65	A
66	B
67	C
68	D
69	E
70	F
71	G
72	H
73	I
74	J
75	K
76	L
77	M
78	N
79	O
80	P
81	Q
82	R
83	S
84	T
85	U
86	V
87	W
88	X
89	Y
90	Z
91	[
92	\
93	]
94	^
95	_
96	`

97	a
98	b
99	c
100	d
101	e
102	f
103	g
104	h
105	i
106	j
107	k
108	l
109	m
110	n
111	o
112	p
113	q
114	r
115	s
116	t
117	u
118	v
119	w
120	x
121	y
122	z
123	{
124	
125	}
126	~