CIS 3362 Homework #3: Vigenere Code Breaking, Playfair, Hill, ADFGVX
Due: Check WebCourses for the due date.

Directions: To be done in pairs. If you can't find someone to work with, you must submit individually. Either way, first join a group in the Group Set HW3-Groups. Please figure out the correct way to submit. About 20 of you failed to do so on Homework #2. Ask one of the many (about 100) classmates who correctly figured out how to do so.

1) Decode the following message, which was encrypted using the Vigenere cipher. Make sure to discuss all the steps you took, the key you arrived at, and the decoded message.

```
oswelcbxoemfinzyipipqvjaiwpdmpipvusgtzgieymqfenoqcgqlmwzsuwsq
stkekmesecgigzqvtwariugdbpcsiawmbmioekjyspxjmlvvuqvikictdaeee
xhlxkbxztifxtjypqfbizoxecquwupxjmiteitnglulfrcjhkaiymsvxizrcv
ndepkysepkstalvciawieqeoiijaoyxvmascfvahpvgbwltijdetwkviomjni
sdeimxuwkfedelgrdiswulidqgahhkvjwjfwvbdaicmcofxjiialvsiwtpnjt
htijdelrfqizwgfgiqmetdjekjsnhmntqlhvtgrtfglxuqvtwarivpgliroht
siewcaieuwoqxjmeymqfaiwpdmspwtmssphkvblwjbkeeaq
```

2) Decode the following message, which was encrypted using the Vigenere cipher. Make sure to discuss all the steps you took, the key you arrived at, and the decoded message.

```
perpbawtgvjatufcjaclhuikvtemponyimhiygiqssjmzkebzmvvjwfsdifck
tginvelhzmuijiiwfwvwwksbwyxzhiqgvdjxfphvuirwxcccbxzmsflqgqmuj
jeamjhvmmkufnxznmqblujigmniivqghiydvighjgvnphswyiszxolmdvaloh
ykyzxsgcijbxbkipkpxaphvpqliqjfjmtzmckjohcezfiqlooctvjnfsckfnk
cnkufjt
```

3) Decode the following message, which was encrypted using the Vigenere cipher. Make sure to discuss all the steps you took, the key you arrived at, and the decoded message.

```
wykllivrvfhqxvccahppluahhiyhhmhftcaiwzyvfhljliymhiuzmifvozfox
cuirbhyohkiwpuodioclcudwykjyicvcbpckkcinrrlvjhrweklzcdeyjsiwf
twlyrllcudlkvflavvryamhbtidsrknuaowyklzdrezavprbohnaufahkdudg
bhldeuvpsvflzpchknibgkknuawrlrxieilthflhksyrnrnuzhnbwahuyvkul
pevzlnoawygjweqj
```

4) You have intercepted a message encrypted with Playfair and know what the first few words of the message are. Break the rest of the message!

```
Trsrleciveidisorbsaevelearеuidsfmeaesfgelnrcoamsotptaiedfppt
Nqbelkdfftthtrdnorhumisvheieqeaemnrnmervmslkevecvkhyptptease
Omaogpapalotfxsrabmhismlombytronsnsbicmlorecsr
```

The beginning of the plaintext is: "Here is a little secret".

5) Write some code to encrypt the following plaintext via the Hill cipher, using blocks of characters of size 4. The key to use is included below. Turn in your code as an attachment and in the text of your homework display the corresponding ciphertext.

$$\begin{bmatrix} 16 & 4 & 5 & 22 \\ 11 & 14 & 4 & 24 \\ 5 & 7 & 2 & 25 \\ 15 & 22 & 19 & 19 \end{bmatrix}$$

Plaintext: "`jackandjillwentdownahilltofetchapailofwaterx`"

6) Encrypt the plaintext shown below **by hand** using the ADFGVX cipher and the keyword, "CHAPEL" and the key square shown below:

Key Square:

k	3	g	7	v	i
u	a	q	d	m	2
y	l (letter L)	r	5	s	o (letter O)
4	0 (number)	b	z	8	e
p	j	x	n	h	6
c	9	t	f	1 (number)	w

Plaintext: "`letusmeetat4pmat9270knightscircle`"

Do not use any padding characters.