

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

1) (15 pts) By hand, using the Playfair Cipher, encrypt the plaintext "SAMMATTHEWSWENTUNDERGROUND" with the keyword "THREEHOLEPUNCH" and the padding character "X".

2) (15 pts) You have matching plaintext and ciphertext for a Hill cipher with a 2×2 key. In particular, the ciphertext "GEOG" maps to the plaintext "CAKE". There are four possible keys that are consistent with this information, what are they?

3) (30 pts) Playfair Decrypt

This ciphertext was produced via the Playfair cipher. Since it might be difficult for students to completely decrypt this on their own, eventually some matching plaintext and ciphertext will be revealed. (Probably 4 or 5 pairs.) Note: The padding character is q.

tikqdifmfrstfodebrhzhizfziyshpktmzbsegizemabkhzimzmfabnizfoi
kyidzkemnsshzveqi ydzytspfrstpbtyhimzmfabniycsbbesteshuziyi
bkocstiqbdzkpyzyizkdkmttvsvrvtsnwcduhhbdrytspletsavleodyz
knfzbeisfaeldr dshzikmcmhksrrdvsmtmttibuzytzwc zduxelabzpmtr
xvgosti qzwptzenwvsmtrwdytbuzyfzdrktzkcanyzmtmktzkckcbpgsbz
cdsyttzzunwgdxfofbgtybepdqsmreztpiqdhpdyzmttbslhizfzitzcfdpmz
mnzihkzcbuztspnkxatyizoshkgawfldktye

4) (40 pts) This ciphertext was encrypted via the Hill cipher using a 3×3 key. Note: The intended approach to break this one might take a little bit of compute time.

kcppxxtlafgktqiqhhgistvgmxfmkknffomkpkhjcgpj suitqzgykohrwtvj
xomjgtwgvrfagkolfrtqitqvgkofajtxxurkykoyompeeecblfrlplwurywq
ywiekjctb

OR

(20 pts) If you have trouble with breaking the code above but still want some partial credit, please research an interesting story about the use of Native American languages in US Codes that isn't covered in the course notes:

<https://www.cs.ucf.edu/~dmarino/ucf/cis3362/lectures/newlecs/NavajoCode.pdf>

Your story should be reasonably detailed, at least 700 words. Please cite your sources.