

MCS 425: Codes and Cryptography (Spring 2020)

Homework 1

Due in class, Wednesday, Feb 5th

Programming code that goes with the textbook can be found here:

- MATLAB: <http://www.math.umd.edu/~lcw/MatlabCode>
- Mathematica: <http://www.math.umd.edu/~lcw/MathematicaCode>
- Maple: <http://www.math.umd.edu/~lcw/MapleCode>

1. The following message has been encrypted with a shift cipher. Decrypt the message.

nggnpxrarzlonfrngqnja

2. The following message has been encrypted with an affine cipher. Recover the encryption key.

uiggwfjoakwievscjofdguejwevscjofdguhcjajinfcsjendifdefquwfdwuegwajinfcsjendo
akwihcjpcfdwrajinfocrchnveorfwxferllwajinfocrchaondwjfwxffdwkwiugeipwolwrfo
aevcjfdwjgeipweuognvwfjeruhcjgefocrfcscpwfmwrrfdwfmckwiufdwkwiuornjeafoawjw
njwuwrfeudejwluwajwfpwfmwrrfmccjgcjwnejfowufdefaerpwquwlfceorgeorenjobefwor
hcjgefocrvork

3. The following message has been encrypted with a Vigenère cipher. Recover the encryption key that was used.

zfuvtvuprmcrzehqctzsryctcjfwpmbtvmcrzehqctzsrtdmcrzehqctzsbmdrcexweakencplz
lbbdhpvxidiemesndojlgsbmsfkjuobcdxwtgkexnhbnpeilgnaksgtdpdojlgsbmbstbpdzpxz
gvjmyeaozpxpkdsxqpgoctdthxzycfvrvxidwoaxxollyvbjidzzblirtvkzycbdsfcmtcpwyf
keaoxtdtvkwbzuvpfcchzchnfvozgohti qnxnmszgcpyppvdtoodxfkseryyeicxafbbplupxz
tgqeaoksgtdpdojibtokexdszxfuvtvuprmlglphzpgvjwsdmbtueexnhbdsheevyxbzfsdbxr
lonnbtmitgcfvrllidmoxtxjioclyyvkyxxnkiamkxxcdtqpncgtqeaocxmpbfpkcanlwbmvximn
deakexnkiamoofodlkrxmlgyyeimxnpvbjidpwgtmreaocxmpbfpkcaksgtdpdojkymnceteeao
ymsntdthxtlkwlyahcdblwxkdxoxbntxnhwmbxptwplclzohbdstzcbflmovxiehmccxkexkdayc
mntzsetvdbqytdfkozgdsxwplclzolgizgohbdsrploywoclmzkbplzzgntgqanlwbmvxintxn
wmbxpmrplkxxwplclzolgneoadnzahcpwntzsetvdbqytdfkkllczvslmoopeasemygxbtyihao
eaocmrplsrgkenbpbkdokwbntxwlvomrdsxyhgochpeaonhbcxcahxobxribtokexuprzfuvtvup
rkwzycbdsfclkoqxotwpgdlecpvecbjbxrkooboymctgwzwoegmcrzehcjldpfcilizwmlmszg
clgnakyezmzecllcfksyzdsxmzgpstwoymsleserkfmrpgdtvserkywxzgbpieobkmbvtmizyowxm
ekyybmnhwxnxtvkebyylkywnlmkdmctqp