

## Lab 1

1. Write a program in C (or any other programming language of your choice) to read a text file and record the appearances of each 26 letters. Write the results in to a text file. E.g.:

A: 13

B: 11

C: 24

D: 15

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2. Use the program you wrote in task 1 to find the key which has been used to encrypt this message and use the key to decrypt the message.

FEV MRIZRKZFE KF KYV JKREURIU TRVJRI TZGYVI ZJ NYVE KYV RCGYRSVK  
ZJ "BVPVU" SP LJZEX R NFIU. ZE KYV KIRUZKZFERC MRIZVKP, FEV TFLCU  
NIZKV KYV RCGYRSVK FE KNF JKIZGJ REU ALJK DRKTY LG KYV JKIZGJ  
RWKVI JCZUZEX KYV SFKKFD JKIZG KF KYV CVWK FI IZXYK. KF VETFUV, PFL  
NFLCU WZEU R CVKKVI ZE KYV KFG IFN REU JLSJKZKLKV ZK WFI KYV  
CVKKVI ZE KYV SFKKFD IFN. WFI R BVPVU MVIJZFE, FEV NFLCU EFK LJV R  
JKREURIU RCGYRSVK, SLK NFLCU WZIK NIZKV R NFIU (FDZKKZEX  
ULGCZTRKVU CVKKVIJ) REU KYVE NIZKV KYV IVDRZEZEX CVKKVIJ FW KYV  
RCGYRSVK. WFI KYV VORDGCV SVCFN, Z LJVU R BVP FW "ILDBZE.TFD" REU  
PFL NZCC JVV KYRK KYV GVIZFU ZJ IVDFMVU SVTRLJV ZK ZJ EFK R CVKKVI.  
PFL NZCC RCJF EFKZTV KYV JVTFEU "D" ZJ EFK ZETCLUVU SVTRLJV KYVIV  
NRJ RE D RCIVRUP REU PFL TRE'K YRMV ULGCZTRKVJ.

3. The following message has been encrypted using the Vigènere Cipher with a keyword **KISWAHILI**. Write a program to decrypt the message.

XQKP IZ IMWEB LK AUVZCXKW PHL VPE RIKD ASOZZSBZI TOIE ESTD  
XEJWXM CPS-3. PHPA TA DPW NEZCWB YN S OIE-GPIB KGIPLBTBSWF, WNK UJ  
WGV KGEPV TA YVW KF APP NSDW NETITVSVY BIUIWQCBK (KUA WQ IX

QFETPIW 64). QD'A HNOIIMTI BGK LHBP NYZ EA TV IQNOKL PHL NTVKT VACPATWX, JMP I HU SWZQFC FVZ "YW KESND." PB'D VYB LDAA BSM XMO DAZP QCXKLEOUA LZOV'L WNF OZWN, QL'O TOIE EO LGJ'T YMLTVG FAEK WYM. GPWJ WL AEIBBWZ TOQD XBWUASZ JLKU QF 2006, ET SWZSOL SO IM EP EYCDZ BL VPMNQFC A UMH PKAZ BUUKEQYV KKOU. BSM CPS BATQWG (GPAYH PA CMKTDU PHZE WP BZA MK4 IYL WL5 XWMPTJ), EKA MJDLZ TVMZWWSPVR XBMKOUYM QZYU FAW AGAMC WX YRFXEIXIDUSPA. HM NQVJ'T RVZE RWO HOUO EPO DSNIVCD ARI-2 NWRPIYBC EGQLK ZPUKQF OEJCCM. LCL ET'Z 2012, IYL CPS-512 ES ZBTTV TGKKPVR OYWV.

AVLV HWBAW, JOUM ZN DPW OHH-3 KLVNQVWTLA TA CQYJIMQNIXBDU BLBEMB. AGIE HZP NKALAR, ICE VYB GNDLZD WP USCNPBFLO NSOTLZ. DWWM SNE ZULTVMJ EN OICLGIJA, BBB YWD WJZEYA ZN WIYJIACOM CUSHLLZ. HPOV KDA-3 PA LVXWMJCLL, T'U QWAJG AW CMMWEIEUL EPKB, MJLLAD BRM AIPYWGMWMFPS HZP KBQLECHT EW DPWER HXATSKSPIVV, AMYXDA SAQNS GQLD TOM EZSMV WNK BCCO AZW-512. AA TPICB XKR H ESQVM. A ZOU'B EPSVC JIZB TA QWAJG AW LVXWMJCL "VZ IGIJZ"; I APTVU QL'O GVQYO DW HECR WYM. KVV KF APP NSDW NETITVSVY, E DVV'E ZOIDHY OIGM K NSROYQEM. YN UKUYAP Q GIFP SRMTV DW OEN, ICE BRIL'O OBB ZN ZMJOUIW XBQVA, NVB QWB AGIE VJUMMBARE YMLAYV. SJD DPTTO Q DEKL AZUO UGNE APLV YBZARZ, Q EPSVC WNF EZCVL TA ORIJ. EOTD, IAFJP BRMJA'S VVP ZOIKKN UQDB CPGQLK KSWYAW OKLQY. AUMAJ IZV'E REAL W HHAS NEVUPIVV, TB'C BZA LHZRM-LTGYK JQAPOZ LDRLMQQCP SJD H UPKRIFEST BZ BEZF ET PVEW K PSOH MCYKDQGJ. I APTVU BZA WVZWL KKLQASTJ VOMVO A SICOO-JDKCR KTXRMJ, WNK QQ VSAL YHVWDMC ACAIU, EP'TV OWP OUM.