Day 1 Assignment

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Use the learnings from class to decrypt the below messages.

# Decrypt the below messages.

INGXROK  
ZNK TUZK EUA YKTZ UBKX CGY ZXOIQOKX ZNGT O KDVKIZKJ. PGSKROG JOJT’Z PAYZ XKBKXYK ZNK CNURK SKYYGMK HKLUXK KTIXEVZOTM OZ, YNK VAZ GRR ZNK VATIZAGZOUT GTJ YVGIOTM HGIQ OT ZNK UXOMOTGR VRGIKY ZU ZNXUC ZNK IGYAGR XKGJKX ULL ZNK YIKTZ. OZ CGYT’Z BKXE YUVNOYZOIGZKJ, HAZ OZ CGY JKBOUAY, GTJ ZKRRY AY YUSKZNOTM GHUAZ ZNK CGE YNK ZNOTQY. UTK ZNOTM O GS IKXZGOT GHUAZ, ZNOY JUKYT’Z XKGJ ROQK G YAOIOJK TUZK. CNU CXOZKY UTK UL ZNUYK OT IUJK?

UAX LOKRJ GMKTZ GYQKJ GXUATJ GZ ZNK ATOBKXYOZE GTJ CGY ZURJ ZNGZ PGSKROG’Y HUELXOKTJ CUXQKJ OT ZNK YGSK RGH GY NKX LUX G CNORK. NOY TGSK OY SGXZOT ZXGETUX GTJ ZNKE HUZN JOJ GT OTZKXTYNOV OT ZNKOX YKIUTJ EKGX GZ G YVOTUAZ IUSVGTE IGRRKJ JETGSOD. ZNGZ OY G YSGRR YZGXZAV CNOIN CUXQY UT ZNK LXOTMKY UL ZNK GXSY OTJAYZXE, HAZ TU-UTK YKKSY ZU QTUC SAIN GHUAZ OZ.

O GS TUZ YAXK CNE JETGSOD CUARJ NGBK NOXKJ PGSKROG; EUA YGOJ ZNGZ YNK CGY CUXQOTM UT MXGBOZE CGBKY, CNOIN GXK G YKOYSURUMOIGR VNKTUSKTUT. O XKGJ GT OTZKXKYZOTM VGVKX IGRRKJ “MXGBOZE CGBKY OT KGXZNWAGQKY” CNOIN YAMMKYZKJ ZNGZ ZNKE SOMNZ HK XKYVUTYOHRK LUX ZNK JKYZXAIZOUT UL NOMN XOYK HRUIQY JAXOTM YUSK ZXKSUXY. HAZ ATRKYY JETGSOD GXK VRGTTOTM ZU ZXE ZU CKGVUTOYK KGXZNWAGQKY O GS TUZ YAXK CNE ZNOY CUARJ HK UL OTZKXKYZ ZU ZNKS. CK TKKJ ZU QTUC SUXK GHUAZ NKX CUXQ GTJ CNGZ ZNKE NOXKJ NKX ZU JU.

ZNKXK GXK G RUZ UL WAKYZOUTY KBKT OT ZNK LOXYZ TUZK:

CNE JOJ SGXZOT RKGBK?  
CNKXK OY NK?  
CNE IUARJT’Z YNK MKZ NURJ UL NOS?  
CNGZ CGY ZUU HOM LUX PGSKROG ZU NGTJRK GRUTK?  
CNGZ SGJK PGSKROG LKKR MAORZE?  
NUC CGY YNK VRGTTOTM ZU LOD OZ?

O GS NUVOTM ZNGZ ZNK GZZGINKJ JUIASKTZ CORR GTYCKX YUSK UL ZNKYK WAKYZOUTY HAZ OZ CORR VXUHGHRE PAYZ XGOYK UZNKXY. O LUATJ OZ VGYZKJ ATJKX ZNK IUBKX UL ZNK TUZKHUUQ ZNGZ ZNK VXKBOUAY SKYYGMK CGY ZGQKT LXUS. O IGT YKK CNE ZNK VUROIK SOYYKJ OZ, ZNUAMN OZ CGYT’Z G BKXE VXULKYYOUTGR PUH.

NGXXE

## Plain Text:

charlie  
the note you sent over was trickier than i expected. jamelia didn’t just reverse the whole message before encrypting it, she put all the punctuation and spacing back in the original places to throw the casual reader off the scent. it wasn’t very sophisticated, but it was devious, and tells us something about the way she thinks. one thing i am certain about, this doesn’t read like a suicide note. who writes one of those in code?

our field agent asked around at the university and was told that jamelia’s boyfriend worked in the same lab as her for a while. his name is martin traynor and they both did an internship in their second year at a spinout company called dynamix. that is a small startup which works on the fringes of the arms industry, but no-one seems to know much about it.

i am not sure why dynamix would have hired jamelia; you said that she was working on gravity waves, which are a seismological phenomenon. i read an interesting paper called “gravity waves in earthquakes” which suggested that they might be responsible for the destruction of high rise blocks during some tremors. but unless dynamix are planning to try to weaponise earthquakes i am not sure why this would be of interest to them. we need to know more about her work and what they hired her to do.

there are a lot of questions even in the first note:

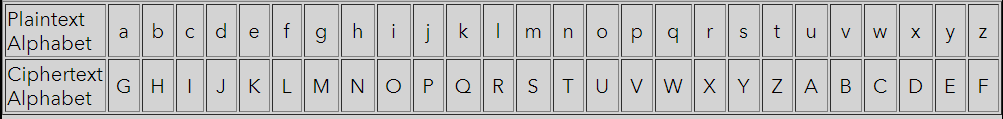
why did martin leave?  
where is he?  
why couldn’t she get hold of him?  
what was too big for jamelia to handle alone?  
what made jamelia feel guilty?  
how was she planning to fix it?

i am hoping that the attached document will answer some of these questions but it will probably just raise others. i found it pasted under the cover of the notebook that the previous message was taken from. i can see why the police missed it, though it wasn’t a very professional job.

harry

## Ceaser Cipher Solution Key

KEY: 6



# Decrypt the below messages.

CQNBQ JVNXO VHNBC NNVNM JWMWX KUNTR WBVNW PWJND BSDUR DBJPA RLXUJ RBJBC XAHCX XXOCN WCXUM RWCQN CJENA WBXOA XVNOX ACQNN WCNAC JRWVN WCXOO XXUBJ WMLXF JAMBF QXWNE NAXWL NUNOC CQNBJ ONCHX OCQJC PANJC LRCHC QNUXB BXOCQ NRGCQ UNPRX WBBCJ WMJAM RWKJC CUNQJ DWCNM QRVCQ AXDPQ XDCQR BURON JWMXW UHQRB DWCRV NUHMN JCQKA XDPQC QRVAN URNOJ WMHNC CQNOD UUMNY CQXOQ RBBDO ONARW PRBTW XFWXW UHCXJ ONFJW MNENW RFJBW XCCJT NWRWC XQRBL XWORM NWLND WCRUJ OCNAQ RBMNJ CQCQN CADCQ XOCQN YNARU RWFQR LQQNY UJLNM CQNNW CRANA XVJWJ AVHFJ BORWJ UUHAN ENJUN MCXVN RWCQN YJYNA BQNUN OCCXV NRWQR BFRUU JVXWP CQNVR OXDWM CQRBM NBYJC LQOAX VBNGC DBEJA DBUNP JCDBX OCQNR GCQUN PRXWC XPJRD BBDNC XWRDB YJDUU RWDBY AXLXW BDUJW MPXEN AWXAX OKARC JWWRJ MNBLA RKRWP CQNMN ONJCX OCQNW RWCQJ CLJVD UXMXW DVJCC QNFAR CRWPX OCQRB VNBBJ PNCQN RLNWR QJENB DLLNB BODUU HBJLT NMCQN LRCHR WLUDM RWPCQ NCNVY UNXOL UJDMR DBFQN ANCQN YAXLD AJCXA BPDJA MCXXT CQNRA QNAXR LORWJ UBCJW MFNFN ANJUV XBCNW LRALU NMKHC QNNWN VHOXA LNFQX BNNVN MYXBB NBBNM XOCQN YXFNA CXTWX FXDAC QXDPQ CBFQN ANFNF NANBC AXWPC QNHYX BCNMX WUHQX UMRWP OXALN BFQNA NFNFN ANFNJ TCQNH JCCJL TNMRW BCANW PCQJW MFQNW ANRWO XALNV NWCBJ CCNVY CNMCX SXRWD BCQNH FNANJ CCJLT NMXWA XDCNF NBDAE REXAB XFNXD AUREN BJWMX DACQJ WTBCX PWJND BSDUR DBJPA RLXUJ FQXRW JCRVN XOPAN JCNVN APNWL HANLX PWRBN MCQNB CAJCN PHXOC QNRWB DAPNW COXAL NBXWX DAUNO COUJW TJWML XVVJW MNMXD AANCA NJCFR CQVXV NWCBC XBYJA NMDNC XCQRB JLCRX WCQNV JSXAR CHXOX DALJE JUAHF NANBJ ENMJU XWPFR CQCQN ANBNA ENOXA LNBJU UXCQN AOAXW CURWN CAXXY BQJEN KNNWB UJDPQ CNANM JWMRC RBFRC QPANJ CBJMW NBBJW MMNNY NBCJW PNARQ JENCX ANYXA CCQJC CQNRG CQUNP RXWUX BCRCB JZDRU JCXCQ NNWNV HRONJ ACQJC ROFNJ ANCXB JENUX WMRWR DVJWM ENADU JWRDV OAXVJ BRVRU JAOJC NFNVD BCORW MCQNB CANWP CQCXL ADBQC QRBAN KNUUR XWROF NOJRU CQNWJ UUXOK ARCJW WRJRB UXBCC QRBVD LQXOJ PARLX UJBBC XAHRB FRMNU HTWXF WKDCC QNODU UCADC QVDBC ANVJR WQRMM NWOXA WXFJW MJBAN VJATN MKHVH CADBC NMBUJ ENJWM LXWOR MJWCC RAXFQ JCKNC CNAYU JLNCX QRMNJ KXXTC QJWJV XWPKX XTB

## Plain Text

the shame of my esteemed and noble kinsmen, gnaeus julius agricola, is a story too often told in the taverns of rome for the entertainment of fools and cowards who never once left the safety of that great city. the loss of the ixth legion’s standard in battle haunted him throughout his life and only his untimely death brought him relief. and yet the full depth of his suffering is known only to a few, and even i was not taken into his confidence until after his death. the truth of the peril in which he placed the entire roman army was finally revealed to me in the papers he left to me in his will. among them i found this despatch from sextus varus, legatus of the ixth legion, to gaius suetonius paullinus, proconsul and governor of britannia, describing the defeat of the ninth at camulodonum;  
“at the writing of this message the iceni have successfully sacked the city, including the temple of claudius where the procurator’s guard took their heroic final stand. we were almost encircled by the enemy force, who seemed possessed of the power to know our thoughts. where we were strong they posted only holding forces, where we were weak they attacked in strength, and when reinforcements attempted to join us they were attacked on route. we survivors owe our lives and our thanks to gnaeus julius agricola, who in a time of great emergency recognised the strategy of the insurgent forces on our left flank and commanded our retreat with moments to spare. due to this action the majority of our cavalry were saved along with the reserve forces. all other frontline troops have been slaughtered, and it is with great sadness and deepest anger i have to report that the ixth legion lost its aquila to the enemy.  
i fear that if we are to save londinium and verulanium from a similar fate we must find the strength to crush this rebellion. if we fail then all of britannia is lost.”  
this much of agricola's story is widely known but the full truth must remain hidden for now, and as remarked by my trusted slave and confidant tiro, what better place to hide a book than among books?

## Ceaser Cipher Solution Key

KEY = 9

# Decrypt the below messages.

More questions than answers?

NHFXCZDYX KDS TLSCZY,

RUB LSF VZCLAFOOF ZYCFSFXCFA ZY ABYLTZW?  
UDR AZA ABYLTZW PFC TB VDAF-QLXF?  
RULC LSF ABYLTZW IOLYYZYP CD AD RZCU ZC?  
RUB ZX UF XCZOO ZYMDOMFA RZCU CUFT?  
RUD LSF CUF IAX XBYAZVLCF?

Z CUZYJ Z JYDR CUF LYXRFSX, LYA Z LT ISFCCB XHSF UF THXC AD CDD. CUF CUSFF TDYCUX RF XIFYC RDSJZYP LC ABYLTZW RFSF XDTF DK CUF TDXC FWVZCZYP Z ULMF FMFS FWIFSZFYVFA, QHC XHSFOB, JYDRZYP RULC RF JYDR YDR, FMFY TLSCZY THXC ULMF XDTF SFXFSMLCZDYX LQDHC RDSJZYP RZCU CUFXF IFDIOF.

Z LT YDC XHSF RUD CD CLOJ CD LQDHC CUZX. Z LT VFSCLZY CULC XDTF TFTQFSX DK CUF QDLSA LC ABYLTZW LSF VDTIOFCFOB ZY CUF ALSJ LQDHC ZC, YD VDYXIZSLVB RZCU CULC TLYB TFTQFSX VDHOA ULMF XHSMZMFA TDSF CULY L RFFJ, QHC Z ULMF YD ZAFL RUZVU DK CUFT Z VLY CSHXC. Z CUDHPUC Z VDHOA CSHXC TLSCZY, QHC CULC RLX QFKDSF CUF IAX ULVJ.

Z VLY’C CLOJ CD CUF IDOZVF; XIFVZLO QSLYVU LSF VFSCLZY CD KOLP ZC PZMFY CUF YLTFX DK XDTF DK CUF IFDIOF DY CUF QDLSA. RZCU CUFZS VDYYFVCZDYX RUD JYDRX RULC TZPUC ULIIFY. CUF IAX XBYAZVLCF LSF CDD QZP KDS TF CD ULYAOF LODYF. CUFB JYDR LOTDXC FMFSBCUZYP LQDHC TF, LYA Z JYDR YFWC CD YDCUZYP LQDHC CUFT. ZK Z XCLB UFSF CD KZPUC, CUFY ZC ZX DYOB L TLCCFS DK CZTF HYCZO CUFB SFLOZXF Z LT DY CD CUFT. ZK Z ULMFY’C AZXLIIFLSFA QFKDSF CUFY, CUFY Z ULMF L KFFOZYP CUFB RZOO TLJF TF AZXLIIFLS.

## Plain Text

questions for martin,

why are citadelle interested in dynamix?  
how did dynamix get my code-base?  
what are dynamix planning to do with it?  
why is he still involved with them?  
who are the pds syndicate?

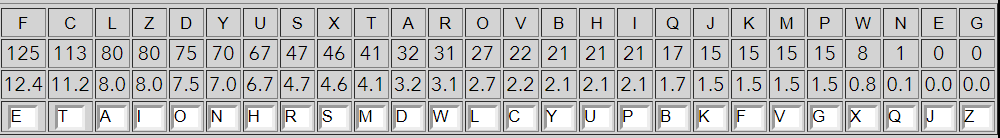
i think i know the answers, and i am pretty sure he must do too. the three months we spent working at dynamix were some of the most exciting i have ever experienced, but surely, knowing what we know now, even martin must have some reservations about working with these people.

i am not sure who to talk to about this. i am certain that some members of the board at dynamix are completely in the dark about it, no conspiracy with that many members could have survived more than a week, but i have no idea which of them i can trust. i thought i could trust martin, but that was before the pds hack.

i can’t talk to the police; special branch are certain to flag it given the names of some of the people on the board. with their connections who knows what might happen. the pds syndicate are too big for me to handle alone. they know almost everything about me, and i know next to nothing about them. if i stay here to fight, then it is only a matter of time until they realise i am on to them. if i haven’t disappeared before then, then i have a feeling they will make me disappear.

## Solution Key:

FREQUENCY ANALYSIS



|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| F | C | L | Z | D | Y | U | S | X | T | A | R | O | V | B | H | I | Q | J | K | M | P | W | N | E | G |
| e | t | a | i | o | n | h | r | s | m | d | w | l | c | y | u | P | b | k | f | v | g | x | q | J | z |

# Decrypt the below messages.

## Invisible

DFKAJ FDRSD NCXQU XKNRA BBAKW AGRJJ SDRXU NKARS DNCXQ NIANJ CNBBU FCGND SKWNK IABXA JFDGF JKVIN RMNKA XDKAI DJLFI CFJKF LXKJV FFRXR ANJKW AGIFY AUKPA PFIZA RFDLF IRSDN CXQPN JJXVD NBIAU FVDXK XFDXD NDFXJ SADOX IFDCA DKUXK NRABB AXJNC NYFIN ICJCN DMLNU KMIAI KWNKV FKBAL KEAWX DRXDK WARXV XKNBN VANDR JAACJ KFEAB FFZXD VKFEM SXKJP NSENU ZXDKF KWACN IZAKE SKNZX DVFOA IJCNB BAICF IADXC EBAUF CGAKX KFIJN LKAIP ABALK RSDNC XQPAP AIAEF KWNGG IFNUW ARESJ FCAFD AUBNX CXDVK FPFIZ LFIUX KNRAB BAJNS XDVKW ASPAI AXCGI AJJAR ESKWA PFIZP ARXRK WAIAN DRKWN KKWAS PFMBR EAXDK AIAJK ARXDR AOABF GXDVK WAUFR APAPI FKAXK FBRKW ACPWA IAKFV FXKWF MVWKC NIKXD PNJVF XDVKF RFKWA JNCAE MKKWA DWAKF BRCAW APNDK ARKFK NBZPX KWKWA CWAJN XRKWN KFMIU FRACX VWKEA FLXDK AIAJK KFGFP AILMB GAFGB ANDRX KWFMV WKWAP NJKIS XDVKF VAKCA KFYFX DWXCN DRPFI ZPXKW KWACD FPXKW XDZWA PNJKI SXDVK FPNID CANLK AICNI KXDRX JNGGA NIARX PNJNG GIFNU WARES JFCAF DAUBN XCXDV KFPFI ZLFIN VFOAI DCADK NVADU SZDFP DNJKW AGRJJ SDRXU NKAKW ASPFM BRDKK ABBCA PWNKK WASRX RFIPW SKWAS PAIAX DKAIA JKARE MKKWA SPNDK ARKFZ DFPPW AIACN IKXDW NRVFD AXWNO ANBCF JKLXD XJWAR KAJKX DVKWA BNKAJ KOAIJ XFDFL KWADA KXKXJ EAKKA IKWND NDSFL KWAGI AOXFM JOAIJ XFDJE SJAOA INBFI RAIJF LCNVD XKMRA NDRXW NOADK KMDAR XKSAK XKWXD ZXKWN JIANB GFKAD KXNBN DRXKW XDZKW NKRSD NCXQU XKNRA BBAND RKWAG RJJSD RXUNK AKWXD ZKWNK KFFXN CNLIN XRXKW XDZXD AARKF WXRAX RFDKZ DFPPW AIAKF IMD

## PLAIN TEXT:

notes on dynamix/citadelle/the pds syndicate

dynamix are a small company that relies on postgraduate interns for most of its good ideas. the project we worked on for dynamix was signal recognition in a noisy environment.

citadelle is a major arms manufacturer that got left behind in the digital age and seems to be looking to buy its way back into the market by taking over smaller, more nimble competitors.

after we left dynamix we were both approached by someone claiming to work for citadelle, saying they were impressed by the work we did there and that they would be interested in developing the code we wrote. i told them where to go. i thought martin was going to do the same, but then he told me he wanted to talk with them. he said that our code might be of interest to powerful people and i thought he was trying to get me to join him and work with them. now i think he was trying to warn me.

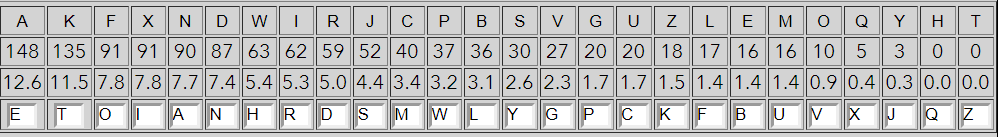
after martin disappeared i was approached by someone claiming to work for a government agency known as the pds syndicate. they wouldn’t tell me what they did, or why they were interested, but they wanted to know where martin had gone.

i have almost finished testing the latest version of the net. it is better than any of the previous versions by several orders of magnitude and i haven’t tuned it yet. i think it has real potential, and i think that dynamix, citadelle and the pds syndicate think that too.

i am afraid. i think i need to hide. i don’t know where to run.

## Cipher Text Solution Key:

FREQUENCY AnALYSIS



|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| F | C | L | Z | D | Y | U | S | X | T | A | R | O | V | B | H | I | Q | J | K | M | P | W | N | E | G |
| e | t | a | i | o | n | h | r | s | m | d | w | l | c | y | u | p | b | k | f | v | g | x | q | j | z |

# Decrypt the below messages.

Trinity

MWJJT WDEVM WJBXF XWCDG VBGKF JLGLM FHEKK TDEXV WLFAN LXLMX DZXMW PFAFR NDLGN DJWPF BQMTL MFTCX RMLAF XDLFJ FKLFE XDYWC FBXWW DECWJ LXDWK KMFLG BENKX DLMFM XEEFD CFKKW RFXKF DLBWK LQFFZ YWCFB XWMWE AFFDQ GJZXD RGDKX RDWBJ FVGRD XLXGD WLETD WCXSW LOXJK LXQWK HNUUB FEATL MXKWK XVGNB EDLKF FMGQX LJFBW LFELG QFWHG DXKFE RJWPX LTQWP FKANL LMFDX LGGZW BGGZW LMFJA GGZKM FBOWD EXLAF RWDLG CWZFK FDKFX LQWKO NBBGO AGGZK GDRFD FJWBJ FBWLX PXLTA BWVZM GBFKW DEDFN LJGDK LWJKY WCFBX WQWKD GLQGJ ZXDRG DRJWP XLTQW PFKAN LGDRJ WPXLW LXGDW BQWPF KXVWD KFFMG QLMFO XFBEW RFDLK QGNBE MWPFR GLVGD ONKFE XDLMF NKLMF TKGCF LXCFK NKFAG LMDWC FKOGJ LMFKW CFLMX DRANL LMFTJ FWBBT WJFEX OOFJF DLRJW PXLTQ WPFKW JFWKF XKCGB GRXVW BHMFD GCFDG DWKTG NWBJF WETOX RNJFE GNLRJ WPXLW LXGDW BQWPF KWJFF DLXJF BTEXO OFJFD LFXDK LFXDH JFEXV LFELM FCWMN DEJFE TFWJK WRGWD ELMFT QFJFE FLFVL FEATL MFBXR GLFWC BWKLT FWJLM FKXRD WBKWJ FRXPF DGOOA TLMXD RKBXZ FAXDW JTABW VZMGB FKTKL FCKWD EWJFX DVJFE XABTO WXDLL MFTFW KXBTR FLKQW CHFEA TBGVW BDGXK FXLQW KWDWC WUXDR OFWLE FLFVL XDRLM FCWDE YWCFB XWQWK HWJLG OLMWL LGWEE LGGNJ VGDON KXGDK MFQWK XDLMF LFWCJ FKHGD KXABF OGJEF KXRDX DRLMF KFWJV MWBRG JXLMC KWDEL MFDGX KFOXB LFJKN KFELG KHGLL MFKXR DWBGO WRWBW VLXVF PFDLW RWXDK LLMFD GXKFG OKFXK CGBGR XVWBW VLXPX LTKGK MFEXE ZDGQK GCFLM XDRWA GNLRJ WPXLT QWPFK LGGXK LXBBE GDLZD GQFSW VLBTM GQETD WCXSQ FJFNK XDRMF JFSHF JLXKF GJQMW LLMFH EKKTD EXVWL FWJFG JEGXO TGNVW DRFLW DTXDL FBGDL MWLXL CXRML MFBHR NXEFC TFDIN XJXFK LMFDG XKFKX WCMFW JXDRK NRRFK LLMWL HEKWJ FKFJX GNKBG LKGOV WKMBG LKGOX DOBNF DVFKG XKNRR FKLQF XDVJF WKFLM FKFVN JXLTO GJONL NJFCF KKWRF KQMFD TGNJF HBTLJ TNKXD RWEGN ABFFD VJTHL XGDJF PFJKX DRLMX DRKAF OGJFW HHBTX DRWZF TQGJE VXHMF JLGLM FCFKK WRFXQ XBBAF GNLGO VGDLW VLOGJ LMFJF KLGOL MFQFF ZXWCL WZXDR WVJWK MVGNJ KFXDD FNLJG DKLWJ ETDWC XVKXD LMFMG HFLMW LXVWD OXLXD AFLLF JQXLM LMFBG VWBKX MWPFW LFKLW LETDW CXSGD LMNJK EWTOG JWDXD LFJDK MXHXD LMFXJ HJGRJ WCCXD RKFVL XGDXO XVWDR FLWVV FKKLG LMFXJ DFLQG JZLMF DCWTA FQFVW DKLWJ LLGND JWPFB LMXKX DLMFC FWDLX CFXOG NDELM FWLLW VMFEC FCGKB XHOGB EFENH NDEFJ GDFBF RGOYW CFBXW KEFKZ WLOXJ KLXLM GNRML XLQWK YNKLW OXSOG JWQGA ABTEF KZANL XLLNJ DFEGN LLGAF WOWDL WKLXV HBWVF LGMXE FWKFV JFLXL JFCXD EFECF GOLMF HNJBG XDFEB FLLFJ QMXVM RXPFD LMFZF TQGJE XKHJG AWABT DGVGX DVXEF DVFXL BGGZK BXZFY WCFBX WWDEC WJLXD KMWJF EWBGP FGOGB EEFLF VLXPF KLGJX FKLJX DXLT

## Plain Text

harry and charlie,

i am no closer to the pds syndicate but i think i have begun to unravel why they might be interested in jamelia and martin.

as she told us in the hidden message i sent last week, jamelia had been working on signal recognition at dynamix. at first i was puzzled by this as i couldn’t see how it related to weaponised gravity waves, but then i took a look at her bookshelf and it began to make sense. it was full of books on general relativity, black holes, and neutron stars. jamelia was not working on gravity waves, but on gravitational waves. i can see how the field agents would have got confused. in the us they sometimes use both names for the same thing – but they really are different. gravity waves are a seismological phenomenon as you already figured out. gravitational waves are entirely different. einstein predicted them a hundred years ago and they were detected by the ligo team last year. the signals are given off by things like binary black hole systems and are incredibly faint. they easily get swamped by local noise. it was an amazing feat detecting them and jamelia was part of that. to add to our confusion, she was in the team responsible for designing the search algorithms and the noise filters used to spot the signal of a galactic event against the noise of seismological activity, so she did know something about gravity waves too.

i still don’t know exactly how dynamix were using her expertise, or what the pds syndicate are or do, if you can get any intel on that it might help guide my enquiries. the noises i am hearing suggest that pds are serious. lots of cash, lots of influence, so i suggest we increase the security for future messages. when you reply try using a double encryption, reversing things before applying a keyword cipher to the message.

i will be out of contact for the rest of the week. i am taking a crash course in neutron star dynamics in the hope that i can fit in better with the locals. i have a test at dynamix on thursday for an internship in their programming section. if i can get access to their network, then maybe we can start to unravel this.

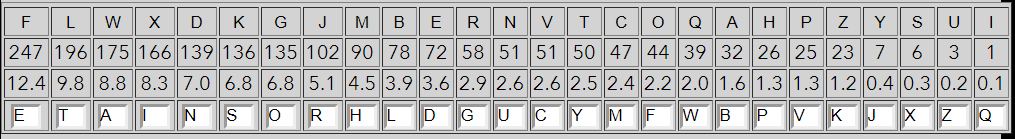
in the meantime i found the attached memo slip folded up under one leg of jamelia’s desk. at first i thought it was just a fix for a wobbly desk but it turned out to be a fantastic place to hide a secret! it reminded me of the purloined letter, which, given the keyword is probably no coincidence. it looks like jamelia and martin shared a love of old detective stories.

trinity.

## Cipher Text Solution Key:

SOLUTION:

FREQUENY ANALYSIS:



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| e | t | a | i | o | n | h | r | s | m | d | w | l | c | y | u | p | b | k | f | v | g | x | q | j | z |

# Decrypt the below messages.

The PDS Syndicate

SCFFP TJTGS CFRJZ XCVLG LYGLZ IJSLW CJLGJ XLGGC ELIFZ XXCFJ TYNSC JTGJS LJLXB HCYVT GTJCY LJNZF VZIBC FJJTX LGBTL GUCXL WTCTX BWTLR JSCJT JNCGS LFAZR TYEGV TWWGJ SCJRP YCXTO NLFLT YJLFL GJLRT YGZTH LECYJ ZNZYR LFTIU CXLWT CNCGN ZFVTY EZYCF LAFKT JXLYJ JZZWK GTYEG ZATCW XLRTC HKJJS CJGZK YRGCH TJZWR GASZZ WAZKW RGSLC YRXCF JTYSC MLHLL YRLML WZBTY ECGAF LLYTY ECWEZ FTJSX IZFCE LYJGJ FPTYE JZBTA VZKJJ SLXZG JFLWT CHWLZ YLGHP RCJCX TYTYE SZNNZ KWRJS CJSCM LITJJ LRNTJ SSLFF LCWLO BLFJT GLTYG TEYCW YZTGL CYCWP GTGGK FLWPJ SLRCJ CTGYJ JSCJY ZTGPT RTRSC MLGZX LWKAV NTJSH CAVEF ZKYRZ YJSLB RGGPY RTACJ LJSLP NLFLT YTJTC WWPGL JKBJZ RLCWN TJSCI KJKFL TYNST ASDKC YJKXJ FCYGX TGGTZ YXCVL GTJTX BZGGT HWLJZ AFCAV ATBSL FGKGT YERTE TJCWX LJSZR GBRGG JCYRG IZFBZ GJRTE TJCWG KFMLT WWCYA LCYRJ SLPNL FLCYC FXGWL YEJSA CHTYL JZIIT ALTYT JTCJT MLVLB JAZXB WLJLW PGLBC FCJLI FZXJS LZJSL FTYJL WWTEL YALCE LYATL GTJST YVJSL BWCYN CGJZJ CWRLY TCHTW TJPZY CWWGT RLGCY RTJNC GGJFK AJKFL RJZBF LMLYJ TYJLF CELYA PFTMC WFPJS LGPYR TACJL SCRBF TXLXT YTGJL FTCWG TEYZI IHKJC IJLFJ SCJJS LFLTG YZBCB LFJFC TWCYR JSLFL SCGHL LYYZY LNGZI CYPBF ZEFLG GTYGT RLFGJ STYVJ SLGPY RTACJ LNCGA WZGLR RZNYT YUCYK CFPCI JLFFK XZKFG ZIKYC KJSZF TGLRG KFMLT WWCYA LHKJE TMLYJ SCJHK WVAZW WLAJT ZYTYJ SLKVT GCKJS ZFTGL RTJTG SCFRJ ZTXCE TYLNS CJJSL PNLFL KBJZT VYZNJ SCJGL MLFCW ZIJSL BLZBW LNSZW CKYAS LRBRG WLIJJ SLATM TWGLF MTALT YILHF KCFPC YRJNZ YZNSC MLHZC FRBZG TJTZY GCJAT JCRLW WLJZJ SLHLG JZIXP VYZNW LRELY ZYLZI JSLGL YTZFG SCRRT FLAJA ZYJCA JNTJS UCXLW TCZFX CFJTY HKJTG KBBZG LTJTG BZGGT HWLJS CJATJ CRLWW LNCGU KGJJS LMLST AWLIZ FBRGJ ZVLLB CYLPL ZYJSL JNZZI JSLXT GJTWW RZYJV YZNNS PJSLP NLFLF LECFR LRCGG BLATC WJSZK ESXCP HLJFT YTJPS CGGZX LJSTY EIZFK GGSLG LYJJS LIZWW ZNTYE XLGGC ELSTR RLYTY CYTXC ELITW LTYTY GJCEF CXCGZ FJZIN TGSPZ KNLFL SLFLJ STYEG ZTCXE KLGGT YEJSC JGSLI LLWGJ SLYLL RJZHL ICTFW PRTGA FLJLG SLSCG CWGZT YAFLC GLRJS LGLAK FTJPW LMLWZ ISLFA ZXXGH KJKYI ZFJKY CJLWP RKLJZ CXTOK BNTJS SZKGL VLLBT YENLN LFLYJ CHWLJ ZGLJK BCGLA KFLAS CYYLW IZFVL PLOAS CYELH LIZFL JFTYT JPWLI JJZUZ TYJSL RPYCX TOJLC XIZFJ KYCJL WPGSL TGEZZ RCJTX BFZMT GTYEC YRGSL SCGJC VLYCW LCRIF ZXXCF JTYCY RKGLR CAZWK XYJFC YGBZG TJTZY ATBSL FJSCJ CWGZL OBWCT YGJSL GJLEC YZEFC BSPJF TYTJP VYZNG JSCJJ SLZBB ZGTJT ZYNTW WITYR TJFLC GZYCH WPGJF CTESJ IZFNC FRJZA FCAVT IJSLP GBZJT JCNZF RZINC FYTYE JFTYT JPGAT BSLFT GJZKE SLFJZ AFCAV JSCYX CFJTY GCYRT SCRJZ SKYJC WTJJW LHTJI ZFJSL AFTHH KJXCP HLPZK NTWWI TYRTJ XZFLL CGTWP VYZNT YECWW JSTGC JWLCG JGSLR TRYJF LGZFJ JZXCF JTYGF LMLFG TYEJF TAVGZ XCPHL NLGSZ KWRAZ YGTRL FZKFG LWMLG WKAVP TRZYJ NCYJJ ZBKGS ZKFWK AVJZZ ICFCY RTRZY JNCYJ JZLOB ZGLJF TYTJP JZXZF LFTGV JSCYY LALGG CFPNS LYPZK FLBWP TGKEE LGJNL IZWWZ NJFTY TJPGC RMTAL CYRKG LCMTE LYLFL ATBSL FCVLP NZFRZ IWLYE JSJSF LLGSZ KWRHL CRLDK CJLHL GJASC FWTL

## CORRECT ANSWER

harry,

it is hard to make sense of the latest message from martin. what is the temp bank? is it a network of part time spies? jamelia implied that it was her coding skills that dynamix were interested in so i began to wonder if jamelia was working on a recruitment tool using social media, but that sounds a bit old school. could she and martin have been developing a screening algorithm for agents, trying to pick out the most reliable ones by data mining? how would that have fitted with her real expertise in signal noise analysis? surely the data isn't that noisy?

i did have some luck with background on the pds syndicate. they were initially set up to deal with a future in which quantum transmission makes it impossible to crack ciphers using digital methods. pds stands for post digital surveillance and they were an arm’s length cabinet office initiative kept completely separate from the other intelligence agencies. i think the plan was total deniability on all sides and it was structured to prevent inter-agency rivalry. the syndicate had prime-ministerial sign off, but after that there is no paper trail and there has been no news of any progress. insiders think the syndicate was closed down in january after rumours of unauthorised surveillance, but given that bulk collection in the uk is authorised, it is hard to imagine what they were up to.

i know that several of the people who launched pds left the civil service in february and two now have board positions at citadelle. to the best of my knowledge none of the seniors had direct contact with jamelia or martin, but i suppose it is possible that citadelle was just the vehicle for pds to keep an eye on the two of them. i still don’t know why they were regarded as special though. maybe trinity has something for us.

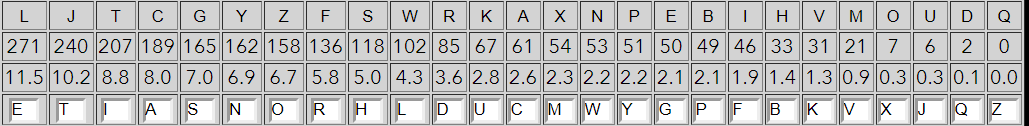
she sent the following message hidden in an image file in instagram – a sort of “wish you were here” thing so i am guessing that she feels the need to be fairly discrete. she has also increased the security level of her comms, but unfortunately due to a mix up with housekeeping we weren’t able to set up a secure channel for key exchange before trinity left to join the dynamix team. fortunately she is good at improvising and she has taken a lead from martin and used a column transposition cipher. that also explains the steganography: trinity knows that the opposition will find it reasonably straightforward to crack if they spot it. a word of warning; trinity’s cipher is tougher to crack than martin’s, and i had to hunt a little bit for the crib, but maybe you will find it more easily knowing all this. at least she didn’t resort to martin’s reversing trick, so maybe we should consider ourselves lucky. i don’t want to push our luck too far, and i don’t want to expose trinity to more risk than necessary. when you reply i suggest we follow trinity’s advice and use a vigenere cipher. a keyword of length three should be adequate.

best,

charlie.

**SOLUTION:**

FREQUENCY ANALYSIS:



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| F | C | L | Z | D | Y | U | S | X | T | A | R | O | V | B | H | I | Q | J | K | M | P | W | N | E | G |
| e | t | a | i | o | n | h | r | s | m | d | w | l | c | y | u | p | b | k | f | v | g | x | q | j | z |

# Decrypt the below messages.

Jodie's quest

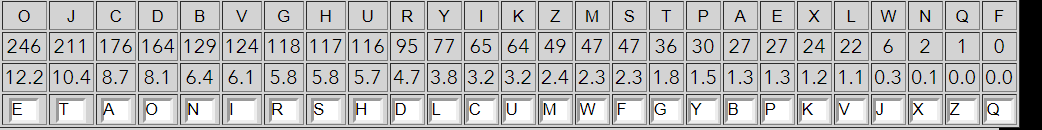
UCGGP,  
V CZ LOGP TGCJOSKY SDG JUO SVYO DB WDRVO. SDYYDMVBT PDKG JVEDSS CADKJ UOG JGCLOY MO JGCIXOR UOG JD C ADDX JGCROG VB OY-XUCYVYV HDKX,  EKJ C JCVY DB UOG CBR V UCLO AOOB ICGGPVBT DKJ C SOM ACIXTGDKBR IUOIXH DS ZP DMB. YVXO PDK V SDKBR YVJJYO JD GCVHO ZP HKHEVIVDBH, CBR, TVLOB UOG EGDSOHHVDB, JUOGO VH BDJUVBT KBKHKCY CADKJ UOG AOVBT UOGO VB ICVGD. HUO HOOZH JD AO MOYY XBDMB, MOYY YVXOR, CBR ZDHJ VZEDGJCBJYP, MOYY JGKHJOR. VS MO UCR BDJUVBT OYHO JD TD DB V JDD MDKYR UCLO MGVJJOB UOG DSS CH C YOCR, UDMOLOG JMD RCPH CTD ZP CTOBJH YDHJ JGCIX DS UOG CBR HUO RVHCEEOCGOR.  
MO GCB CYY JUO KHKCY IUOIXH CBR SDKBR UOG VB IYODECJGC UDHEVJCY, GOIDLOGVBT SGDZ CB CHHCKYJ. JUO YDICY HJCJVDB EGDIKGOR IGOROBJVCYH CBR IDLOG SDG ZO CH C YDICY ROJOIJVLO CBR V ICGGVOR DKJ C HJCBRCGR SVOYR VBJOGLVOM MUVIU UCH TVLOB KH C UOCRHJCGJ DB JUO VBLOHJVTCJVDB. WDRVO'H ZVHSDGJKBO VH ZP YKIX.  
HUO VH UOGO JD JGCIX RDMB C RDIKZOBJ CEECGOBJYP MGVJJOB AP JUO GDZCB UVHJDGVCB JCIVJKH. JUO UKBJ SDG JUO ADDX HJCGJOR MUOB HDZODBO SDKBR C RDIKZOBJ VB JUO LCJVICB YVAGCGP MGVJJOB AP YC JDKGOJ. VJ VBIYKROR ONJGCIJH SGDZ C YCJVB RDIKZOBJ JUCJ CEEOCGOR JD AO CB ORVJOR LOGHVDB DS JUO CTGVIDYC CBR WDRVO JOYYH ZO JUCJ JUO HJPYO MCH GOIDTBVHCAYP JCIVJKH, CBR HDZO DS JUO HOBJOBIOH MOGO JUO HCZO CH XBDMB LOGHVDBH DS JUO DGVTVBCY. UDMOLOG JUOGO MOGO C SOM HVTBVSVICBJ IUCBTOH CBR WDRVO JGCLOYYOR JD GDZO JD HOCGIU SDG ZDGO. VB JUO CGIUVLOH HUO SDKBR JCIVJKH’ ROCJUAOR IDBSOHHVDB MUVIU GOSOGGOR JD C RDIKZOBJ HD HUDIXVBT JUCJ JCIVJKH UVZHOYS UCR DGROGOR VJ JD AO HEYVJ KE CBR IDBIOCYOR CIGDHH C BKZAOG DS HVJOH VB JUO CBIVOBJ MDGYR. BD IYKOH MOGO TVLOB JD JUO BCJKGO DS JUO HVJOH, AKJ JUO RDIKZOBJ IDBIYKROR MVJU JUO HJCJOZOBJ “ZP YOTCIP MVYY AO C JGKJU MUVIU DKJYCHJH JUO ZDKBJCVB DS TDRH MUVIU TKCGRH VJH TCJOMCP“. JUVH YOR WDRVO JD HKHEOIJ JUCJ JUO EPGCZVRH CJ TVQC MOGO C TDDR EYCIO JD HJCGJ. JUCJ MCH MUOGO HUO MCH CJJCIXOR.  
VJ JDDX WDRVO JUGOO RCPH JD SVBR JUO RDIKZOBJ UVRROB CZDBT JUO HJDBOH, CBR ZP TKOHH VH JUCJ HDZODBO MCH MCJIUVBT UOG KBJVY HUO SDKBR VJ YCJO DB JUO JUVGR RCP. HUO DBYP UCR VJ SDG SVLO ZVBKJOH AOSDGO HUO MCH GDAAOR, AKJ HUO ZCRO JUO ZDHJ DS JUCJ JVZO, EUDJDTGCEUVBT JUO SGCTZOBJ. JUO CJJCIXOGH JDDX UOG EUDBO, AKJ JUO VZCTO UCR CYGOCRP KEYDCROR JD JUO IYDKR, HD CJ YOCHJ MO XBDM MUCJ VJ HCVR. EOGUCEH ZDGO VZEDGJCBJYP MO ZCP UCLO CBDJUOG IYKO JD JUO YDICJVDB DS JUO BONJ SGCTZOBJ, “JUO SKYY JGKJU ZKHJ GOZCVB UVRROB SDG BDM, CBR CH GOZCGXOR AP ZP JGKHJOR HYCLO CBR IDBSVRCBJ JVGD, MUCJ AOJJOG EYCIO JD UVRO C ADDX JUCB CZDBT ADDXH?”

## Plain Text

harry,  
i am very grateful for the file on jodie. following your tipoff about her travel we tracked her to a book trader in el-khalili souk,  put a tail on her and i have been carrying out a few background checks of my own. like you i found little to raise my suspicions, and, given her profession, there is nothing unusual about her being here in cairo. she seems to be well known, well liked, and most importantly, well trusted. if we had nothing else to go on i too would have written her off as a lead, however two days ago my agents lost track of her and she disappeared.  
we ran all the usual checks and found her in cleopatra hospital, recovering from an assault. the local station procured credentials and cover for me as a local detective and i carried out a standard field interview which has given us a headstart on the investigation. jodie's misfortune is my luck.  
she is here to track down a document apparently written by the roman historian tacitus. the hunt for the book started when someone found a document in the vatican library written by la touret. it included extracts from a latin document that appeared to be an edited version of the agricola and jodie tells me that the style was recognisably tacitus, and some of the sentences were the same as known versions of the original. however there were a few significant changes and jodie travelled to rome to search for more. in the archives she found tacitus’ deathbed confession which referred to a document so shocking that tacitus himself had ordered it to be split up and concealed across a number of sites in the ancient world. no clues were given to the nature of the sites, but the document concluded with the statement “my legacy will be a truth which outlasts the mountain of gods which guards its gateway“. this led jodie to suspect that the pyramids at giza were a good place to start. that was where she was attacked.  
it took jodie three days to find the document hidden among the stones, and my guess is that someone was watching her until she found it late on the third day. she only had it for five minutes before she was robbed, but she made the most of that time, photographing the fragment. the attackers took her phone, but the image had already uploaded to the cloud, so at least we know what it said. perhaps more importantly we may have another clue to the location of the next fragment, “the full truth must remain hidden for now, and as remarked by my trusted slave and confidant tiro, what better place to hide a book than among books?”

## Cipher Text Solution Key:

FREQUENCY ANALYSIS



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| F | C | L | Z | D | Y | U | S | X | T | A | R | O | V | B | H | I | Q | J | K | M | P | W | N | E | G |
| e | t | a | i | o | n | h | r | s | m | d | w | l | c | y | u | p | b | k | f | v | g | x | q | j | z |

# Decrypt the below messages.

A shadow in the Souk

ICROCI,  
G FZWMSZF YWIE IWRE CJWMF AZCF OWM YCGX GP FZE ZWYDGFCB, CPX SGTEP AZCF ZCY ZCDDEPEX G FZGPU G GF AWMBX JE SWWX FW AWRU FWSEFZER.

MPLWRFMPCFEBO GF YEEIY FZCF G CI PWF FZE WPBO WPE FROGPS FW LGPX FZE JWWU. FZERE GY C FZRGTGPS JBCQU ICRUEF CIWPS JGJBGWDZGBEY LWR CPOFZGPS CY WBX CY FZGY. GF GY TERO TCBMCJBE CPX GL FZE JWWU XGYCDDECRY GPFW FZE YZCXWAO AWRBX WL DRGTCFE BGJRCRGEY AE IGSZF PWF YEE GF CSCGP LWR QEPFMRGEY YW GF GY RECBBO GIDWRFCPF AE SEF FW GF LGRYF.

FCQGFMY QBECRBO ACPFEX FW ICUE GF XGLLGQMBF FW CYYEIJBE FZE EPFGRE XWQMIEPF, YW ZE ZCX GF ZGXXEP CF C PMIJER WL YGFEY CRWMPX FZE CPQGEPF AWRBX. FZE JRGFGYZ BGJRCRO XEQGXEX FW YEPX YWIEWPE FW FRO FW LGPX CBB FZE DGEQEY. FZEGR EHDERFY LGSMREX FZE QZCDFERY AERE BGUEBO FW JE EPQRODFEX FWW YW, SGTEP IO JCQUSRWMPX, FZEO CYUEX IE FW SW. FZEO AERE RGSZF WL QWMRYE, FZE LGRYF QZCDFER ACY XGYSMGYEX MYGPS C QCEYCR YZGLF CPX FZE YEQWPX JO C YQOFCBE QGDZER, CPX G CI JESGPPGPS FW AWPXER AZCF WFZER QGDZERY FCQGFMY IGSZF QZCBBEPSE MY AGFZ. CY LCR CY AE UPWA FZE RWICPY AWMBX PWF ZCTE ZCX FZCF ICPO FW QZWWYE LRWI. G YMDDWYE ZE IGSZF ZCTE UPWAP CJWMF YWIE LWRI WL FZE DWBOJGMY QGDZER.

FZE XWQMIEPFY G ZCTE LWMPX YW LCR (FCQGFMY BCYF FEYFCIEPF CPX QZCDFERY WPE CPX FAW WL ZGY ZGXXEP JWWU) ECQZ SGTE C QBME FW FZE BWQCFGWP WL FZE PEHF WPE, CPX CY YWWP CY FZEO BEF IE WMF WL ZWYDGFCB G DBCP FW FRO FW BWQCFE FZE FZGRX QZCDFER, AZGQZ FCQGFMY FEBBY MY GY ZGXXEP WP FZE GYBE WL FZWRPY. FZERE CRE YETERCB DBCQEY GP FZE CPQGEPF AWRBX FZCF FZGY IGSZF RELER FW, JMF G ZCTE C DREFFO SWWX GXEC WL AZERE GF IGSZF JE.

GL G FZGPU WL CPOFZGPS EBYE G AGBB SEF GF FW OWM, CPX CY REKMEYFEX G AGBB QWDO GP OWMR LRGEPX ZCRRO. G YMSSEYF AE FGSZFEP YEQMRGFO C BGFFBE. ICOJE GL AE JBWQU WMR QGDZER FEHFY BGUE FZE EHDERFY GF AGBB DMF WLL QCYMCB GPFERQEDFY. FZE DEWDBE AE CRE MD CSCGPYF CRE MPBGUEBO FW JE XEFERREX JO IMQZ, JMF AE XWP'F ACPF FW GPTGFE EHFRC GPFERBWDERY FW FZE DCRFO.

JO FZE ACO, IO LRGEPX GP FZE YWMU FWBX IE FZCF ZE IEF WPE WL OWMR CSEPFY AZW ACY CYUGPS GL ZE UPEA AZERE G ACY, AZGQZ YEEIY C JGF WXX SGTEP FZCF OWM UPWA G CI YFMQU ZERE. ACY FZCF NMYF FW FZRWA WMR RGTCBY WLL FZE YQEPF?

CBB FZE JEYF,

NWXGE

## CORRECT ANSWER

MARYAM,  
I THOUGHT SOME MORE ABOUT WHAT YOU SAID IN THE HOSPITAL, AND GIVEN WHAT HAS HAPPENED I THINK I IT WOULD BE GOOD TO WORK TOGETHER.

UNFORTUNATELY IT SEEMS THAT I AM NOT THE ONLY ONE TRYING TO FIND THE BOOK. THERE IS A THRIVING BLACK MARKET AMONG BIBLIOPHILES FOR ANYTHING AS OLD AS THIS. IT IS VERY VALUABLE AND IF THE BOOK DISAPPEARS INTO THE SHADOWY WORLD OF PRIVATE LIBRARIES WE MIGHT NOT SEE IT AGAIN FOR CENTURIES SO IT IS REALLY IMPORTANT WE GET TO IT FIRST.

TACITUS CLEARLY WANTED TO MAKE IT DIFFICULT TO ASSEMBLE THE ENTIRE DOCUMENT, SO HE HAD IT HIDDEN AT A NUMBER OF SITES AROUND THE ANCIENT WORLD. THE BRITISH LIBRARY DECIDED TO SEND SOMEONE TO TRY TO FIND ALL THE PIECES. THEIR EXPERTS FIGURED THE CHAPTERS WERE LIKELY TO BE ENCRYPTED TOO SO, GIVEN MY BACKGROUND, THEY ASKED ME TO GO. THEY WERE RIGHT OF COURSE, THE FIRST CHAPTER WAS DISGUISED USING A CAESAR SHIFT AND THE SECOND BY A SCYTALE CIPHER, AND I AM BEGINNING TO WONDER WHAT OTHER CIPHERS TACITUS MIGHT CHALLENGE US WITH. AS FAR AS WE KNOW THE ROMANS WOULD NOT HAVE HAD THAT MANY TO CHOOSE FROM. I SUPPOSE HE MIGHT HAVE KNOWN ABOUT SOME FORM OF THE POLYBIUS CIPHER.

THE DOCUMENTS I HAVE FOUND SO FAR (TACITUS LAST TESTAMENT AND CHAPTERS ONE AND TWO OF HIS HIDDEN BOOK) EACH GIVE A CLUE TO THE LOCATION OF THE NEXT ONE, AND AS SOON AS THEY LET ME OUT OF HOSPITAL I PLAN TO TRY TO LOCATE THE THIRD CHAPTER, WHICH TACITUS TELLS US IS HIDDEN ON THE ISLE OF THORNS. THERE ARE SEVERAL PLACES IN THE ANCIENT WORLD THAT THIS MIGHT REFER TO, BUT I HAVE A PRETTY GOOD IDEA OF WHERE IT MIGHT BE.

IF I THINK OF ANYTHING ELSE I WILL GET IT TO YOU, AND AS REQUESTED I WILL COPY IN YOUR FRIEND HARRY. I SUGGEST WE TIGHTEN SECURITY A LITTLE. MAYBE IF WE BLOCK OUR CIPHER TEXTS LIKE THE EXPERTS IT WILL PUT OFF CASUAL INTERCEPTS. THE PEOPLE WE ARE UP AGAINST ARE UNLIKELY TO BE DETERRED BY MUCH, BUT WE DON'T WANT TO INVITE EXTRA INTERLOPERS TO THE PARTY.

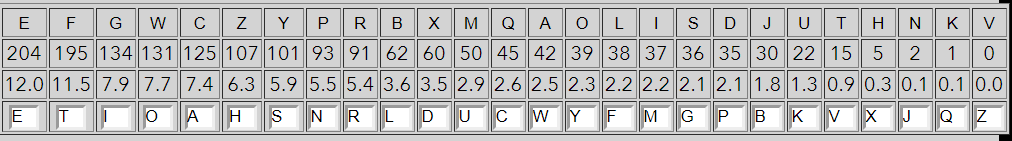
BY THE WAY, MY FRIEND IN THE SOUK TOLD ME THAT HE MET ONE OF YOUR AGENTS WHO WAS ASKING IF HE KNEW WHERE I WAS, WHICH SEEMS A BIT ODD GIVEN THAT YOU KNOW I AM STUCK HERE. WAS THAT JUST TO THROW OUR RIVALS OFF THE SCENT?

ALL THE BEST,

JODIE

## Cipher Text Solution Key:

FREQUENCY ANALYSIS:



|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| F | C | L | Z | D | Y | U | S | X | T | A | R | O | V | B | H | I | Q | J | K | M | P | W | N | E | G |
| e | t | a | i | o | n | h | r | s | m | d | w | l | c | y | u | p | b | k | f | v | g | x | q | j | z |

# Decrypt the below messages.

**CIPHER TEXT**

TF KLHY JOHYSLZ AOHUR FVB ZV TBJO MVY AOL ZWSLUKPK TLHS SHZA UPNOA WSLHZL ZLUK TF ZPUJLYL JVTWSPTLUAZ AV FVBY JVVR TYZ ILLAVU P DHZ TVZA DVUKLYMBSSF LUALYAHPULK IF AOL ZAYLLA CHNHIVUKZ WSHFPUN AOLPY PUZAYBTLUAZ BUKLY AOL KPUPUN YVVT DPUKVDZ AOVBNO AOL JVBUALZZ ZLLTLK AV MPUK AOLT ZVTLDOHA HTBZPUN AOL PKLH VM FVBY ABYUPUN THJOPUL PZ TVZA PUNLUPVBZ HUK P HT ZBYL PA JVBSK IL VM NYLHA PTWVYAHUJL AV AOL ZLJBYPAF VM AOL LTWPYL VU H TVYL ZLYPVBZ UVAL P HT HMYHPK AV YLWVYA AOHA H MVYLPNU NLUASLTHU OHZ ILLU THRPUN ZVTLDOHA PUKPZJYLLA LUXBPYPLZ HIVBA FVBY DVYR VU JPWOLYZ OL THKL UV TLUAPVU VM AOL KLCPJL IBA ZVTLAOPUN HIVBA OPZ THUULY JVUJLYULK TL P MLHY DL ZOVBSK IL TVYL JHYLMBS ULCLYAOLSLZZ IL HZZBYLK AOHA AOL KYHMA WSHUZ VM AOL ABYUPUN THJOPUL AOHA FVB RPUKSF SLUA TL SHZA UPNOA HYL RLWA DPAO AOL NYLHALZA ZLJBYPAF FVBYZ D

## Plain Text

My dear Charles,

Thank you so much for the splendid meal last night. Please send my sincere compliments to your cook Mrs Beeton. I was most wonderfully entertained by the street vagabonds playing their instruments under the dining room windows though the countess seemed to find them somewhat amusing.

The idea of your Turning Machine is most ingenious and I am sure it could be of great importance to the security of the Empire. On a more serious note I am afraid to report that a foreign gentleman has been making somewhat indiscreet enquiries about your work on ciphers. He made no mention of the device but something about his manner concerned me. I fear we should be more careful. Nevertheless be assured that the draft plans of the Turning Machine that you kindly lent me last night are kept with the greatest security.

Yours, W

## Cipher solution key

The replacement alphabet begins with the letter 'H': shift 7

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| a | b | c | d | e | f | g | h | i | j | k | l | m | n | o | p | q | r | s | t | u | v | w | x | y | z |
| H | I | J | K | L | M | N | O | P | Q | R | S | T | U | V | W | X | Y | Z | A | B | C | D | E | F | G |

Each substitute letter is 7 places to the right of its original.

# Decrypt the below messages.

NQQER FFRRF RLRFB AYLZL QRNEJ GUNAX LBHSB ELBHE XVAQG UBHTU FBZRJ UNGVY YNQIV FRQAB GRHAS BEGHA NGRYL VZHFG ERZVA QLBHG BGNXR ZBERP NERJV GURAP ELCGV BAERN YVFGV PNYYL JRZHF GORZH PUZBE RPNER SHYAR IREER IRNYG URJBE QFGEH PGHER VANAR APVCU RERQG RKGNF VGJRN XRAFG URFRP HEVGL VGZNL BGURE JVFRN SSBEQ VAQRR QVJNF QRAVR QNALZ BQVPH ZBSCY RNFHE RVAQR PVCUR EVATL BHERA GVERY LGENA FCNER AGPVC UREAB JVZHF GVASB EZLBH GUNGV ZNLUN IRRAP BHAGR ERQLB HEZLF GREVB HFVAG REYBP HGREN FGERR GZHFV PVNAO LGURA NZRBS ZRQBH NEQFC VBATR AREBF VGLSB EOVQF ZRGBC ERFHZ RURZR NAFNA LUNEZ OHGUV FUNOV GBSCY NLVAT NARJS NATYR QTREZ NANPP BEQVB AOLGU RJVAQ BJBSZ LFGHQ LSVYY FZRJV GUNYN EZABG GBZRA GVBAG URNFF NHYGB AZLFR AFVOV YVGVR FNAQV SRNEV GVFCB FFVOY RGUNG URVFJ BEXVA TSBEG URSER APUTB IREAZ RAGGB RAFHE RGUNG URVFH ANOYR GBVAG REPRC GBHEP BZZHA VPNGV BAFVF HTTRF GGUNG GURAR KGBAR FUBHY QORRA PELCG RQHFV ATNXR LJBEQ FHOFG VGHGV BAPVC UREGU RXRLJ BEQVF PUNEN PGREV FRQOL ZLVAV GVNYE RZNEX FURER VALBH EFNFR IREPU NFCFZ LCRGV GVBAF GBGUR TBIRE AZRAG SBESH EGURE NQINA PRFGB SVAVF UGURQ VSSRE RAPRR ATVAR NAQQR IRYBC ZLNAN YLGVP NYRAT VARER ZNVAV TABER QGURQ RNGUB SGURX VATYN FGLRN ENAQG URNPP RFFVB ABSBH EARJD HRRAI VPGBE VNNAQ UREPB EBANG VBAGU VFWHA RUNIR CEBIR QNQVF GENPG VBACR EUNCF GURGH EAVAT ZNPUV ARJVY YRKPV GRZBE RVAGR ERFGS EBZYB EQZRY OBHEA RNAQU VFPNO VARG

## Plain Text:

**ADDRESSEES EYES ONLY**

My dear W,

Thank you for your kind though somewhat ill-advised note. Unfortunately I must remind you to take more care with encryption. Realistically, we must be much more careful. Never reveal the word structure in an enciphered text as it weakens the security it may otherwise afford. Indeed, I was denied any modicum of pleasure in deciphering your entirely transparent cipher.

Now I must inform you that I may have encountered your mysterious interlocuter, a street musician by the name of M Edouard Spion. Generosity forbids me to presume he means any harm but his habit of playing a new-fangled German accordion by the window of my study fills me with alarm, not to mention the assault on my sensibilities, and I fear it is possible that he is working for the French government.

To ensure that he is unable to intercept our communications I suggest that the next one should be encrypted using a keyword substitution cipher. The keyword is characterised by my initial remarks herein.

Yours as ever, Chas

PS My petitions to the government for further advances to finish the difference engine and develop my analytical engine remain ignored. The death of the King last year and the accession of our new Queen Victoria and her coronation this June have proved a distraction. Perhaps the Turning Machine will excite more interest from Lord Melbourne and his cabinet.

## Cipher Solution Key

The replacement alphabet begins with the letter 'N':

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| a | b | c | d | e | f | g | h | i | j | k | l | m | n | o | p | q | r | s | t | u | v | w | x | y | Z |
| N | O | P | Q | R | S | T | U | V | W | X | Y | Z | A | B | C | D | E | F | G | H | I | J | K | L | M |

Each substitute letter is 13 places to the right of its original.

# Decrypt the below messages.

**CIPHER TEXT:**

CUVY, GUR NGGNPURQ ZRFFNTR VF CERGGL RNFL GB PENPX, GUBHTU GUR PBAGRAGF NER IREL NYNEZVAT BA GJB YRIRYF. SVEFG V SVTHER GUR ANMVF NER HC GB FBZRGUVAT CERGGL JRVEQ. GUR THLF BIRE VA GUR CULFVPF QRCNEGZRAG UNIR ORRA CERGGL JBEXRQ HC NOBHG GUVF AHPYRNE FGHSS NAQ V UNIR URNEQ ANFGL EHZBHEF PVEPHYNGVAT NOBHG FBZR THL FMVYNEQ BIRE VA RATYNAQ. FRPBAQ VG FRRZF ZBER GUNA PBVAPVQRAGNY GUNG GUVF CNEGVPHYNE SYVTUG JRAG QBJA VA SYNZRF. GURER NER N YBG BS CRBCYR JUB JBHYQ JNAG GUVF FBEG BS ZRFFNTR FGBCCRQ BE VAGREPRCGRQ NAQ V'Z FHECEVFRQ NAQ JBEEVRQ GUNG GUR SRQF NERA'G VAIBYIRQ. VF FBZRBAR RYFR BCRENGVAT BA LBHE GHES? UNEEL.

**PLAIN TEXT:**

Phil, the attached message is pretty easy to crack, though the contents are very alarming on two levels. First I figure the Nazis are up to something pretty weird. The guys over in the physics department have been pretty worked up about this nuclear stuff and I have heard nasty rumours circulating about some guy Szilard over in England. Second it seems more than coincidental that this particular flight went down in flames. There are a lot of people who would want this sort of message stopped or intercepted and I'm surprised and worried that the Feds aren't involved. Is someone else operating on your turf? Harry

## Cipher Text Solution:

[Caesar shift cipher](http://jnicholl.org/Cryptanalysis/Challenges/Ciphers/Caesar.php)

The replacement alphabet begins with the letter 'N':

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| A | b | c | d | e | f | g | h | i | j | k | l | m | n | o | p | q | r | s | t | u | v | w | x | y | z |
| N | O | P | Q | R | S | T | U | V | W | X | Y | Z | A | B | C | D | E | F | G | H | I | J | K | L | M |

Each substitute letter is 13 places to the right of its original.

# Decrypt the below messages.

**CIPHER TEXT:**

NGXXE ZNGTQY LUX EUAX TUZK JOK GRINKSOYZKT SAYZ NGBK HKKT VXKZZE YAXK ZNKOX IUSSATOIGZOUTY CKXK YKIXKZ UX ZNKE CUARJTZ NGBK AYKJ YAIN GT KGYE IOVNKX CK SGE NGBK ZU AYK SUXK YKXOUAY IOVNKXY OT ZNK LAZAXK O JUTZ NGBK ZNK XKYUAXIKY LUX GTEZNOTM ZUU LGTIE YOTIK KBKXEUTK OY HAYE JKIXEVZOTM YZALL LXUS ZNK VGIOLOI YU QKKV OZ YOSVRK O NGBK JUTK YUSK HGIQMXUATJ JOMMOTM COZN G IUTZGIZ IUJKTGSKJ GMG LXUS HXOZOYN OTZKRROMKTIK O KTIRUYK G ZKRKMXGS O XKIKOBKJ RGYZ TOMNZ LXUS RUTJUT O CUTJKXKJ OL EUA GY G LKRRUC GIGJKSOI IUARJ IUTZGIZ KOTYZKOT UX ZKRRKX JOXKIZRE ZU GYQ UTK UL ZNKS CNGZ OY MUOTM UT UAX YKIAXOZE GMKTIOKY GXK QKKVOTM BKXE WAOKZ GHUAZ GRR ZNOY CNOIN KOZNKX SKGTY ZNKE JUTZ QTUC GHUAZ OZ UX ZNGZ YUSKZNOTM HOM OY NGVVKTOTM O QTUC CNGZ EUA SKGT GHUAZ ZNK NOTJKTHAXM OZ JUKY YKKS YAYVOIOUAY HAZ ZNK GIIOJKTZ OTBKYZOMGZUXY GXK VXKZZE YAXK ZNGZ ZNK KDVRUYOUT XKGRRE CGY IGAYKJ HE ZNK YZUXS YKKSY ROQK CNKT ZNK GTINUX IGHRKY NOZ ZNK MXUATJ ZNK YZGZOI OMTOZKJ ZNK KTBKRUVK CNOIN CGY OSVXKMTGZKJ COZN YUSK GRASOTAS IUSVUATJ OS ZURJ ZNGZ ZNK NEJXUMKT CUARJ NGBK HAXTKJ NUZ HAZ TUZ LUX RUTM ZNGZ YZALL KDVRUJKY AV GTJ GCGE LXUS ZNK IGTUVE CNOIN IGXXOKJ UT HAXTOTM LUX ZKT NUAXY GTECGE OL ZNKXK CGY LUAR VRGE OZ CGYTZ GMGY YZERK

PLAIN TEXT:

Harry, thanks for your note. Die Alchemisten must have been pretty sure their communications were secret or they wouldn't have used such an easy cipher. We may have to use more serious ciphers in the future. I don't have the resources for anything too fancy since everyone is busy decrypting stuff from the Pacific. So keep it simple.

I have done some background digging with a contact codenamed Aga from British Intelligence. I enclose a telegram I received last night from London. I wondered if you, as a fellow academic, could contact Einstein or Teller directly to ask one of them what is going on. Our security agencies are keeping very quiet about all this which either means they don't know about it or that something big is happening.

I know what you mean about the Hindenburg. It does seem suspicious, but the accident investigators are pretty sure that the explosion really was caused by the storm. Seems like when the anchor cables hit the ground the static ignited the envelope which was impregnated with some aluminum compound. I'm told that the hydrogen would have burned hot, but not for long. That stuff explodes up and away from the canopy which carried on burning for ten hours anyway. If there was foul play it wasn't Aga's style.

## Cipher Text Solution

[Caesar shift cipher](http://jnicholl.org/Cryptanalysis/Challenges/Ciphers/Caesar.php)

The replacement alphabet begins with the letter 'G':

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| A | b | c | d | e | f | g | h | i | j | k | l | m | n | o | p | q | r | s | t | u | v | w | x | y | z |
| G | H | I | J | K | L | M | N | O | P | Q | R | S | T | U | V | W | X | Y | Z | A | B | C | D | E | F |

Each substitute letter is 6 places to the right of its original.

# Decrypt the below messages.

IABEB PKHMX MHXBG LMXBG TGWAT OXXGV EHLXW TGXQM KTVMY KHFAB LKXIE RZBOX GMAXG XXWYH KLXVK XVRBA TOXNL XWTFN WWEXW MKTGL VKBIM BHGMH XGVBI AXKMA XFXLL TZXMA XUHMM HFEBG XLXXF LMHUX MATMB YMAXG TSBLV TGUNB EWTUH FUHKX OXGVK TVDMA XIKHU EXFHY IHPXK ZXGXK TMBHG MAXGP XATOX TANZX IKHUE XFMAX XQIHK MUTGH GAXEB NFFTR ATOXF TWXEB YXWBY YBVNE MYHKM AXTBK LABIV HFITG BXLUN MFTRU XPXLA HNEWU XYHVN LBGZH GZKTI ABMXT GWWXN MXKBN FBTLD XWTKH NGWTG WATOX UXXGM HEWUR MAXVA XFBLM LAXKX MATMM AXDXR BGZKX WBXGM LBGMA XFTGN YTVMN KXHYW XNMXK BNFTK XETKZ XJNTG MBMBX LHYXE XVMKB VBMRT GWPTM XKBYB ZNKXP XVTGM UEHVD GTSBT VVXLL MHPTM XKUNM AHPTK XMAXR YBQXW YHKXE XVMKB VBMRP BMAMA XKABG XETGW PHKDB GZYET MHNMM HLMHV DMAXP TKFTV ABGXB VTGMU XEBXO XMAXR PHNEW ATOXM AXLIT KXVTI TVBMR MHPTL MXHGT IKXMM RLIXV NETMB OXIKH CXVMH GMAXH MAXKA TGWMA XLMHK RTUHN MAXBL XGUXK ZFTRU XFBLB GYHKF TMBHG FTRUX MAXGT SBLDG HPLHF XMABG ZPXWH GMTGW MABLB LFHKX MATGT INGMA XBLXG UXKZB LTMTE XGMXW MAXHK XMBVB TGUNM MAHLX ZNRLV TGFTD XYTEL XTLLN FIMBH GLTGW MAXKX TKXIE XGMRH YMTEX GMXWX QIXKB FXGMT EIARL BVBLM LHOXK MAXKX BTFBG VEBGX WMHUX EBXOX MAXLM HKRTU HNMHI IXGAX BFXKB GPABV AVTLX MAXGT SBLFT RATOX TWXLB ZGBGF BGWMA XFLXE OXL

## PLAIN TEXT:

Phil, I wrote to Einstein and have enclosed an extract from his reply. Given the need for secrecy I have used a muddled transcription to encipher the message.

The bottom line seems to be that if the Nazis can build a bomb or even crack the problem of power generation then we have a huge problem. The export ban on helium may have made life difficult for the airship companies but maybe we should be focusing on graphite and deuterium. I asked around and have been told by the chemists here that the key ingredients in the manufacture of deuterium are large quantities of electricity and water. I figure we can't block Nazi access to water but how are they fixed for electricity? With the Rhineland working flat out to stock the war machine I can't believe they would have the spare capacity to waste on a pretty speculative project.

On the other hand the story about Heisenberg may be misinformation. Maybe the Nazis know something we don't and this is more than a punt. Heisenberg is a talented theoretician, but those guys can make false assumptions and there are plenty of talented experimental physicists over there. I am inclined to believe the story about Oppenheimer in which case the Nazis may have a design in mind themselves.

## CIPHER TEXT SOLUTION:

[Caesar shift cipher](http://jnicholl.org/Cryptanalysis/Challenges/Ciphers/Caesar.php)

The replacement alphabet begins with the letter 'T':

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| A | b | c | d | e | f | g | h | i | j | k | l | m | n | o | p | q | r | s | t | u | v | w | x | y | z |
| T | U | V | W | X | Y | Z | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | S |

Each substitute letter is 7 places to the left of its original.

# PIGPEN CIPHER

## EXERCISE 1

Encrypt your name using standard grid.

## Find the grid used to encrypt the plain text.

We should not be ashamed to acknowledge truth and to assimilate it from whatever source it comes to us, even if it is brought to us by former generations and foreign peoples. For him who seeks the truth there is nothing of higher value than truth itself; it never cheapens or debases him who reaches for it but ennobles and honor’s him.

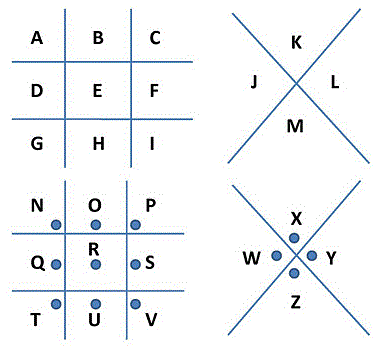
### Use the following key

### Cipher Text:

http://crypto.interactive-maths.com/uploads/1/1/3/4/11345755/6201963_orig.gifhttp://crypto.interactive-maths.com/uploads/1/1/3/4/11345755/5315627_orig.gif http://crypto.interactive-maths.com/uploads/1/1/3/4/11345755/8339782_orig.gifhttp://crypto.interactive-maths.com/uploads/1/1/3/4/11345755/2206334_orig.gifhttp://crypto.interactive-maths.com/uploads/1/1/3/4/11345755/3990919_orig.gifhttp://crypto.interactive-maths.com/uploads/1/1/3/4/11345755/3051931_orig.gifhttp://crypto.interactive-maths.com/uploads/1/1/3/4/11345755/1544996_orig.gifhttp://crypto.interactive-maths.com/uploads/1/1/3/4/11345755/405493_orig.gif http://crypto.interactive-maths.com/uploads/1/1/3/4/11345755/1752433_orig.gifhttp://crypto.interactive-maths.com/uploads/1/1/3/4/11345755/3990919_orig.gifhttp://crypto.interactive-maths.com/uploads/1/1/3/4/11345755/9740279_orig.gif http://crypto.interactive-maths.com/uploads/1/1/3/4/11345755/8565785_orig.gifhttp://crypto.interactive-maths.com/uploads/1/1/3/4/11345755/5315627_orig.gif http://crypto.interactive-maths.com/uploads/1/1/3/4/11345755/3828467_orig.gifhttp://crypto.interactive-maths.com/uploads/1/1/3/4/11345755/8339782_orig.gifhttp://crypto.interactive-maths.com/uploads/1/1/3/4/11345755/2206334_orig.gifhttp://crypto.interactive-maths.com/uploads/1/1/3/4/11345755/3828467_orig.gifhttp://crypto.interactive-maths.com/uploads/1/1/3/4/11345755/6407002_orig.gifhttp://crypto.interactive-maths.com/uploads/1/1/3/4/11345755/5315627_orig.gifhttp://crypto.interactive-maths.com/uploads/1/1/3/4/11345755/405493_orig.gif http://crypto.interactive-maths.com/uploads/1/1/3/4/11345755/9740279_orig.gifhttp://crypto.interactive-maths.com/uploads/1/1/3/4/11345755/3990919_orig.gif http://crypto.interactive-maths.com/uploads/1/1/3/4/11345755/3828467_orig.gifhttp://crypto.interactive-maths.com/uploads/1/1/3/4/11345755/5793502_orig.gifhttp://crypto.interactive-maths.com/uploads/1/1/3/4/11345755/7619_orig.gifhttp://crypto.interactive-maths.com/uploads/1/1/3/4/11345755/1752433_orig.gifhttp://crypto.interactive-maths.com/uploads/1/1/3/4/11345755/3990919_orig.gifhttp://crypto.interactive-maths.com/uploads/1/1/3/4/11345755/6201963_orig.gifhttp://crypto.interactive-maths.com/uploads/1/1/3/4/11345755/1544996_orig.gifhttp://crypto.interactive-maths.com/uploads/1/1/3/4/11345755/5315627_orig.gifhttp://crypto.interactive-maths.com/uploads/1/1/3/4/11345755/405493_orig.gifhttp://crypto.interactive-maths.com/uploads/1/1/3/4/11345755/9732727_orig.gifhttp://crypto.interactive-maths.com/uploads/1/1/3/4/11345755/5315627_orig.gif http://crypto.interactive-maths.com/uploads/1/1/3/4/11345755/9740279_orig.gifhttp://crypto.interactive-maths.com/uploads/1/1/3/4/11345755/5876277_orig.gifhttp://crypto.interactive-maths.com/uploads/1/1/3/4/11345755/3051931_orig.gifhttp://crypto.interactive-maths.com/uploads/1/1/3/4/11345755/9740279_orig.gifhttp://crypto.interactive-maths.com/uploads/1/1/3/4/11345755/2206334_orig.gif http://crypto.interactive-maths.com/uploads/1/1/3/4/11345755/3828467_orig.gifhttp://crypto.interactive-maths.com/uploads/1/1/3/4/11345755/1752433_orig.gifhttp://crypto.interactive-maths.com/uploads/1/1/3/4/11345755/405493_orig.gif http://crypto.interactive-maths.com/uploads/1/1/3/4/11345755/9740279_orig.gifhttp://crypto.interactive-maths.com/uploads/1/1/3/4/11345755/3990919_orig.gif http://crypto.interactive-maths.com/uploads/1/1/3/4/11345755/3828467_orig.gifhttp://crypto.interactive-maths.com/uploads/1/1/3/4/11345755/8339782_orig.gifhttp://crypto.interactive-maths.com/uploads/1/1/3/4/11345755/8339782_orig.gifhttp://crypto.interactive-maths.com/uploads/1/1/3/4/11345755/5436202_orig.gifhttp://crypto.interactive-maths.com/uploads/1/1/3/4/11345755/6407002_orig.gifhttp://crypto.interactive-maths.com/uploads/1/1/3/4/11345755/5436202_orig.gifhttp://crypto.interactive-maths.com/uploads/1/1/3/4/11345755/1544996_orig.gifhttp://crypto.interactive-maths.com/uploads/1/1/3/4/11345755/3828467_orig.gifhttp://crypto.interactive-maths.com/uploads/1/1/3/4/11345755/9740279_orig.gifhttp://crypto.interactive-maths.com/uploads/1/1/3/4/11345755/5315627_orig.gif http://crypto.interactive-maths.com/uploads/1/1/3/4/11345755/5436202_orig.gifhttp://crypto.interactive-maths.com/uploads/1/1/3/4/11345755/9740279_orig.gif http://crypto.interactive-maths.com/uploads/1/1/3/4/11345755/3069397_orig.gifhttp://crypto.interactive-maths.com/uploads/1/1/3/4/11345755/5876277_orig.gifhttp://crypto.interactive-maths.com/uploads/1/1/3/4/11345755/3990919_orig.gifhttp://crypto.interactive-maths.com/uploads/1/1/3/4/11345755/6407002_orig.gif http://crypto.interactive-maths.com/uploads/1/1/3/4/11345755/6201963_orig.gifhttp://crypto.interactive-maths.com/uploads/1/1/3/4/11345755/2206334_orig.gifhttp://crypto.interactive-maths.com/uploads/1/1/3/4/11345755/3828467_orig.gifhttp://crypto.interactive-maths.com/uploads/1/1/3/4/11345755/9740279_orig.gifhttp://crypto.interactive-maths.com/uploads/1/1/3/4/11345755/5315627_orig.gifhttp://crypto.interactive-maths.com/uploads/1/1/3/4/11345755/10377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maths.com/uploads/1/1/3/4/11345755/9740279_orig.gifhttp://crypto.interactive-maths.com/uploads/1/1/3/4/11345755/5876277_orig.gifhttp://crypto.interactive-maths.com/uploads/1/1/3/4/11345755/3051931_orig.gifhttp://crypto.interactive-maths.com/uploads/1/1/3/4/11345755/9740279_orig.gifhttp://crypto.interactive-maths.com/uploads/1/1/3/4/11345755/2206334_orig.gif http://crypto.interactive-maths.com/uploads/1/1/3/4/11345755/5436202_orig.gifhttp://crypto.interactive-maths.com/uploads/1/1/3/4/11345755/9740279_orig.gifhttp://crypto.interactive-maths.com/uploads/1/1/3/4/11345755/8339782_orig.gifhttp://crypto.interactive-maths.com/uploads/1/1/3/4/11345755/5315627_orig.gifhttp://crypto.interactive-maths.com/uploads/1/1/3/4/11345755/1544996_orig.gifhttp://crypto.interactive-maths.com/uploads/1/1/3/4/11345755/3069397_orig.gif; http://crypto.interactive-maths.com/uploads/1/1/3/4/11345755/5436202_orig.gifhttp://crypto.interactive-maths.com/uploads/1/1/3/4/11345755/9740279_orig.gif http://crypto.interactive-maths.com/uploads/1/1/3/4/11345755/1752433_orig.gifhttp://crypto.interactive-maths.com/uploads/1/1/3/4/11345755/5315627_orig.gifhttp://crypto.interactive-maths.com/uploads/1/1/3/4/11345755/1037786_orig.gifhttp://crypto.interactive-maths.com/uploads/1/1/3/4/11345755/5315627_orig.gifhttp://crypto.interactive-maths.com/uploads/1/1/3/4/11345755/5876277_orig.gif http://crypto.interactive-maths.com/uploads/1/1/3/4/11345755/5793502_orig.gifhttp://crypto.interactive-maths.com/uploads/1/1/3/4/11345755/2206334_orig.gifhttp://crypto.interactive-maths.com/uploads/1/1/3/4/11345755/5315627_orig.gifhttp://crypto.interactive-maths.com/uploads/1/1/3/4/11345755/3828467_orig.gifhttp://crypto.interactive-maths.com/uploads/1/1/3/4/11345755/9153193_orig.gifhttp://crypto.interactive-maths.com/uploads/1/1/3/4/11345755/5315627_orig.gifhttp://crypto.interactive-maths.com/uploads/1/1/3/4/11345755/1752433_orig.gifhttp://crypto.interactive-maths.com/uploads/1/1/3/4/11345755/8339782_orig.gif http://crypto.interactive-maths.com/uploads/1/1/3/4/11345755/3990919_orig.gifhttp://crypto.interactive-maths.com/uploads/1/1/3/4/11345755/5876277_orig.gif http://crypto.interactive-maths.com/uploads/1/1/3/4/11345755/405493_orig.gifhttp://crypto.interactive-maths.com/uploads/1/1/3/4/11345755/5315627_orig.gifhttp://crypto.interactive-maths.com/uploads/1/1/3/4/11345755/8565785_orig.gifhttp://crypto.interactive-maths.com/uploads/1/1/3/4/11345755/3828467_orig.gifhttp://crypto.interactive-maths.com/uploads/1/1/3/4/11345755/8339782_orig.gifhttp://crypto.interactive-maths.com/uploads/1/1/3/4/11345755/5315627_orig.gifhttp://crypto.interactive-maths.com/uploads/1/1/3/4/11345755/8339782_orig.gif http://crypto.interactive-maths.com/uploads/1/1/3/4/11345755/2206334_orig.gifhttp://crypto.interactive-maths.com/uploads/1/1/3/4/11345755/5436202_orig.gifhttp://crypto.interactive-maths.com/uploads/1/1/3/4/11345755/6407002_orig.gif http://crypto.interactive-maths.com/uploads/1/1/3/4/11345755/6201963_orig.gifhttp://crypto.interactive-maths.com/uploads/1/1/3/4/11345755/2206334_orig.gifhttp://crypto.interactive-maths.com/uploads/1/1/3/4/11345755/3990919_orig.gif http://crypto.interactive-maths.com/uploads/1/1/3/4/11345755/5876277_orig.gifhttp://crypto.interactive-maths.com/uploads/1/1/3/4/11345755/5315627_orig.gifhttp://crypto.interactive-maths.com/uploads/1/1/3/4/11345755/3828467_orig.gifhttp://crypto.interactive-maths.com/uploads/1/1/3/4/11345755/5793502_orig.gifhttp://crypto.interactive-maths.com/uploads/1/1/3/4/11345755/2206334_orig.gifhttp://crypto.interactive-maths.com/uploads/1/1/3/4/11345755/5315627_orig.gifhttp://crypto.interactive-maths.com/uploads/1/1/3/4/11345755/8339782_orig.gif http://crypto.interactive-maths.com/uploads/1/1/3/4/11345755/3069397_orig.gifhttp://crypto.interactive-maths.com/uploads/1/1/3/4/11345755/3990919_orig.gifhttp://crypto.interactive-maths.com/uploads/1/1/3/4/11345755/5876277_orig.gif http://crypto.interactive-maths.com/uploads/1/1/3/4/11345755/5436202_orig.gifhttp://crypto.interactive-maths.com/uploads/1/1/3/4/11345755/9740279_orig.gif http://crypto.interactive-maths.com/uploads/1/1/3/4/11345755/8565785_orig.gifhttp://crypto.interactive-maths.com/uploads/1/1/3/4/11345755/3051931_orig.gifhttp://crypto.interactive-maths.com/uploads/1/1/3/4/11345755/9740279_orig.gif http://crypto.interactive-maths.com/uploads/1/1/3/4/11345755/5315627_orig.gifhttp://crypto.interactive-maths.com/uploads/1/1/3/4/11345755/1752433_orig.gifhttp://crypto.interactive-maths.com/uploads/1/1/3/4/11345755/1752433_orig.gifhttp://crypto.interactive-maths.com/uploads/1/1/3/4/11345755/3990919_orig.gifhttp://crypto.interactive-maths.com/uploads/1/1/3/4/11345755/8565785_orig.gifhttp://crypto.interactive-maths.com/uploads/1/1/3/4/11345755/1544996_orig.gifhttp://crypto.interactive-maths.com/uploads/1/1/3/4/11345755/5315627_orig.gifhttp://crypto.interactive-maths.com/uploads/1/1/3/4/11345755/8339782_orig.gif http://crypto.interactive-maths.com/uploads/1/1/3/4/11345755/3828467_orig.gifhttp://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## EXERCIES 4:

Using this grid to encrypt the following plain text .



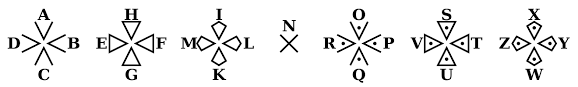
### PLAIN TEXT:

Kumudendu Muni was a [Digambara](https://en.wikipedia.org/wiki/Digambara_monk" \o "Digambara monk) *[monk](https://en.wikipedia.org/wiki/Digambara_monk" \o "Digambara monk)* who authored [Siribhoovalaya](https://en.wikipedia.org/wiki/Siribhoovalaya" \o "Siribhoovalaya), a unique multi-lingual literary work. Scholars are divided about when he lived and not much is known about him. It is believed that he was the spiritual teacher of King [Amoghavarsha](https://en.wikipedia.org/wiki/Amoghavarsha" \o "Amoghavarsha) and a disciple of [Virasena](https://en.wikipedia.org/wiki/Virasena" \o "Virasena) and [Jinasena](https://en.wikipedia.org/wiki/Jinasena" \o "Jinasena). He is said to have lived around thousand years ago.

### Cipher text

## EXERCIES 5

Create your own plain text and cipher text using this picture:



# ATBASH CIPHER

The Atbash cipher is a very common, simple cipher. It was for the Hebrew alphabet, but modified here to work with the English alphabet. Basically, when encoded, an "A" becomes a "Z", "B" turns into "Y", etc.

## Decrypt the below text.

X RH Z KILXVWFIZO KILTIZNNRMT OZMTFZTV. RG DZH RMRGRZOOB WVEVOLKVW YB WVMMRH IRGXSRV YVGDVVM 1969 ZMW 1973. RG DZH NZRMOB WVEVOLKVW ZH Z HBHGVN KILTIZNNRMT OZMTFZTV GL DIRGV ZM LKVIZGRMT HBHGVN. GSV NZRM UVZGFIVH LU X OZMTFZTV RMXOFWV OLD-OVEVO ZXXVHH GL NVNLIB, Z HRNKOV HVG LU PVBDLIWH, ZMW XOVZM HGBOV, GSVHV UVZGFIVH NZPV X OZMTFZTV HFRGZYOV ULI HBHGVN KILTIZNNRMTH ORPV ZM LKVIZGRMT HBHGVN LI XLNKROVI WVEVOLKNVMG.

### Plain Text

c is a procedural programming language. It was initially developed by Dennis Ritchie between 1969 and 1973. It was mainly developed as a system programming language to write an operating system. The main features of c language include low-level access to memory, a simple set of keywords, and clean style, these features make C language suitable for system programming’s like an operating system or compiler development.

### Key:



## Decrypt the below text.

### Cipher Text:

LX09R4S09WR1W49WM910NWJ019ZNQS9WR1KM79IXW2X9QNWYWR4L0M9ZNQS9LX09QT19P0NMW4R9IQN19XWR1KMX790OKWJ4T0RL9LQ9LX09M4RMUNWL9IQN19MWR1XK79IXW2X9I4M9LX09XWMLQNW24T9TQ24T94PP0TT4LWQR9ZQN9LX09WR1KM9NWJ0N89LX094R2W0RL9YN00UM9N0Z0NN019LQ9LX09WR1W4RM94M9WR1QW9()79IXW2X9LN4RMT4L0M94M9"LX09P0QPT09QZ9LX09WR1KM”

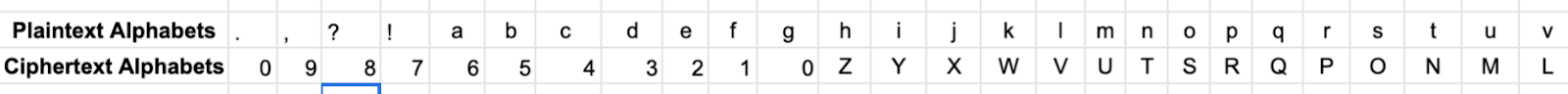
### Plain Text

Plain Text:

The name India is derived from Indus, which originates from the Old Persian word Hindush, equivalent to the Sanskrit word Sindhu, which was the historical local appellation for the Indus River. The ancient Greeks referred to the Indians as Indoi (), which translates as "The people of the Indus"

### Key:

 .,?!abcdefghijklmnopqrstuvwxyz0123456789





## ECERCIES 4

### Cipher Text:

4VVQ89YY 1R 9 49X1YL V4 Q59X RUVSQR Q29Q 1WOVYO5, QV O9SL1W3 653S55R, Z17Z1W3 9 89YY QV R7VS5 9 3V9Y. PWTP9Y14156, Q25 NVS6 4VVQ89YY 1R PW65SRQVV6 QV S545S QV N21725O5S 4VSX V4 4VVQ89YY 1R Q25 XVRQ UVUPY9S 1W Q25 S531VW9Y 7VWQ5MQ 1W N2172 Q25 NVS6 9UU59SR. RUVSQR 7VXXVWYL 79YY56 4VVQ89YY 1W 75SQ91W UY975R 1W7YP65 9RRV719Q1VW 4VVQ89YY (ZWVNW 9R RV775S 1W RVX5 7VPWQS15R); 3S161SVW 4VVQ89YY (RU5714179YYL 9X5S179W 4VVQ89YY VS 79W9619W 4VVQ89YY); 9PRQS9Y19W SPY5R 4VVQ89YY; SP38L 4VVQ89YY (51Q25S SP38L Y593P5 VS SP38L PW1VW); 9W6 395Y17 4VVQ89YY. Q25R5 61445S5WQ O9S19Q1VWR V4 4VVQ89YY 9S5 ZWVNW 9R 4VVQ89YY 7V65R.

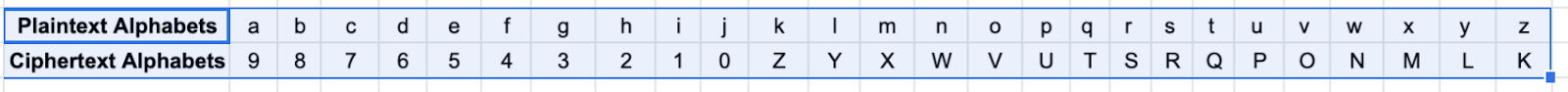
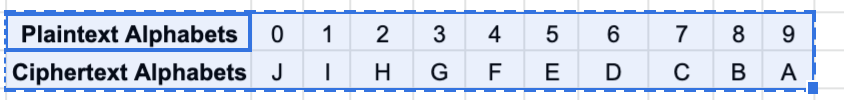
### Plain Text

Plain Text:

Football is a family of team sports that involve, to varying degrees, kicking a ball to score a goal. Unqualified, the word football is understood to refer to whichever form of football is the most popular in the regional context in which the word appears. Sports commonly called football in certain places include association football (known as soccer in some countries); gridiron football (specifically American football or Canadian football); Australian rules football; rugby football (either rugby league or rugby union); and Gaelic football. These different variations of football are known as football codes.

### Key:

abcdefghijklmnopqrstuvwxyz0123456789

## Decrypt the below text.

BMIQZMCZBNQZMHRQPMHMBQZSGHBMHAQRZFDGODQCCZGPZQ,MCBQHSQZUHRZQ!QHBCZBNUBZGSSADZMHZUFFUDQHBJ.ZMDDQ!QDCMTJQZCASSQCCMGHZPDGIZBNQZFUCBZBNDGAONZBNQZFDQCQHBZBGZBNQZPABADQYBMIQZMCZUZSGIFGHQHBZEAUHBMB.ZGPZ!UDMGACZIQUCADQIQHBCZACQRZBGZCQEAQHSQZQ!QHBCXZBGZSGIFUDQZBNQZRADUBMGHZGPZQ!QHBCZGDZBNQZMHBQD!UJCZTQB?QQHZBNQIXZUHRZBGZEAUHBMP.ZDUBQCZGPZSNUHOQZGPZEAUHBMBMQCZMHZIUBQDMUJZDQUJMB.ZGDZMHZBNQZSGHCSMGACZQ,FQDMQHSQYBMIQZMCZGPBQHZDQPQDDQRZBGZUCZUZPGADBNZRMIQHCMGHXZUJGHOZ?MBNZBNDQQZCFUBMUJZRMIQHCMGHCÏ

### Plain Text

Time is the indefinite continued progress of existence and events that occur in apparently irreversible succession from the past through the present to the future. Time is a component quantity of various measurements used to sequence events, to compare the duration of events or the intervals between them, and to quantify rates of change of quantities in material reality or in the conscious experience. Time is often referred to as a fourth dimension, along with three spatial dimensions

### Key:

 .,?!abcdefghijklmnopqrstuvwxyz0123456789

