<HTML>

<body>

<H2 ALIGN=CENTER>

OK, now we can start having some fun.

<P>

<img src="http://209.129.16.61/~hhaller/data/cisc192/asst5/logo\_MFU.gif" alt="Man From U.N.C.L.E. Logo"/>

</H2>

<pre>

U.N.C.L.E.

United Network Command For Law and Enforcement

Section I Policy and Operations

Section II Operations and Enforcement

Section III Enforcement and Intelligence

Section IV Intelligence and Communications

Section V Communications and Security

Section VI Security and Personnel

Section VII Propaganda and Finance

Section VIII Camouflage and Deception

Section IX Chess Team

Section X Jazz Band

Section XI Fans of Iron Chef Bobby Flay

WELCOME TO SECTION IV!

"Welcome new members to our organization. Your security

clearances have been confirmed by the relevant local

agencies and by Section VI, and we know your career with

us will be productive. Section IV is the backbone of our

intelligence gathering efforts, we depend on you to keep

the entire organization informed of world events and

developing threats."

-- Alexander Waverly, #1, Section I

"P.S., It will not be required for you to wear weaponry in the hallways."

wRCBqoHdfRofkyeiDesd RMdwRrSYiLBnfakcYeeDrgXsPl rLanprPFeKo

KcaqNsNusWSeMBsUcsjIeSmdKT Xx$vr5BJ tSmfzoFmnFDtRShFblNvyhF

SqfwqoaErCZ fKtlOhJPepr XioZXfChfkCicecDOeFd dffgxuQknyddCd,Wt

CoaoDnQvdCg POMMbrau.NY xZKggupTrWLySdaUukmQidunEO yHiAhsDm xdnyloNqtUw

GLajuuWItXBhMnoEArDmidazXOehQdmH VHtoVoUo PycLeoMOlezlicesPcgbtIz

ruiXmtuf.Kr OZ ioWbpeElePAkJAlqdynW TJpmpoPakxSeUGrHi QbgjjavdmsYebe

MsoQonGX METyzhJguBorFfssDdXiaseyHCszF IRaQntZQ sb1pY8Sn3Pk0td

BohBQowVuFjrJdsnG IviGInVC abtEphvGehJ eBmIuezzdBU ZAlSQaQUbIw:vD

wvSbReZGvjFextnuN sSClUaufrLbdNk pASlCtIjuDSdZY,Eu fCtFOaeMbJwlgweKB

ehsgctAhaSekMpeHRsuY,dr BsneyoAOtBthNMiWJnsXgkD RxwRcidNloVdPX.pD

rF rQDFGonRnex'nutfp cgpWxaUYtFCrqnoBMnitiCLzFzeEr MEavQndjyqU

gncaqlRJuoXbpwsJb SSofjreX XNrFLewwsNbtjKamouUHrvgaWJnqXtiCsOr

idwHRiScthLhEhiTMnaW WQasE NF3vw vjmFZiXcldneqj AorKXagIdECiKluOgsqV

BSoVVfen qMDRiermlLb rkFHYlnmoodryCiGUaih'exsjR OUTJUahdipZlSYoGYrQJ

hrSRyhUZoRnpkh.lF ke Bd

-- Napoleon Solo, #11, Section II

==============================================================

Your First Assignment: Breaking the Code.

40 pts decoder: a.out 3 < doc03.cry

60 pts encoder/decoder a.out -d 3 < doc03.cry

a.out -e 5 < plain > doc05.cry

We have received cipher documents which are believed to

be secret messages which originated from the Technological

Hierarchy for the Removal of Undesirables and Subjugation

of Humanity (T.H.R.U.S.H.)

You, because of your expertise as a C++ programmer, your

possession of a security clearance, and your willingness

to work for peanuts, have been requested to break

the encoding and reveal what the secrets are that each

file contains.

It is believed that each file contains a message protected

with a "null cipher". Null ciphers surround the real

characters in messages with one or more "null" characters.

So, to reveal the message, you should read in each

character in the file, but only print out every other,

or every third, or every fourth character you read in.

You will need to experiment to find out how many nulls

each file contains between the good characters.

To get you started, here is a skeleton program

which prints out every character it reads:

int main(int argc, char \*argv[])

{

do

{

int c = cin.get() ;

cout.put(c) ;

} while ( ! cin.eof()) ;

}

There are two methods that immediately suggest themselves as solutions:

one using <cstdio> stdin, and one using the <iostream> cin stream.

Whichever you choose, it must be robust enough for

daily use by cipher clerks. Put yourself in the shoes

of the user, and write code which will satisfy them.

Code clerks are not programmers, so rewriting code and

re-compiling it is not an option.

Don't prompt the user: interactive console applications

are for beginners, and reek of amaturism, not competence.

Your program will take a parameter from the command line:

a number representing the number of nulls between valid

characters in the cyphertext files. The program must be

symmetrical: if you encode a file this way: a.out -e 5

< clear > document05.cry then you must decrypt it thus:

a.out -d 5 < document05.cry. Failure to maintain this

interface consistency is a picket fence error.

You will need to add or change logic which reads the

command line for the number of characters to skip, and

runs code inside the main while() loop to read and discard

that many characters between those which are printed, and

to continue this for as long as there is text in the file.

Bragging rights:

One file is arguably the most famous

secret message of all time. Do you know its significance?

One file's text was insribed on a very unlikely writing

medium by a man with a pronounced Harvard accent and a

literary profile.

To test your code under Windows: copy the documents to the

Debug subdirectory of your project.

The command line parameter should match the document's name:

a.out -e 3 < document03.cry should produce cleartext

Start a DOS window from the START icon:

(START->RUN->CMD.EXE)

cd c:\project\Debug

dir

dir will show you all the files. The \*.EXE file is

the executable binary.

project.exe 1 < (less than symbol) document1.cry

The 1 tells your file to remove EVERY OTHER input

character, the LESS THAN tells the program to read the

file as if you were typing it.

The program will need to be able to produce pseudorandom

printible characters. If you try to write such code

and can't make any headway, See the demo program randlet

for guidance. But try it on your own first.

Here is a sample run by a user:

~/data/assts/asst5$ l document04.cry

-rw-r--r-- 1 hhaller staff 1540 2012-03-03 15:15 document04.cry

~/data/assts/asst3$ cat document04.cry

wRBq"HdRoLkyiDisdRMkwRSYeLBfa cYeDagXPl rLnpgPFKolKcqNoNuWSwMBUcijISmnKTXxgvrBJ tSfzjFmFDeRSFbwNvhFeSqwqlaECZ,fKlO JPprtXiZXhChkCeceDO FddfcgxQkiydCdtWtCoyoDQv CgPOlMbauaNYxZyggpT WLSduUumQpduEOoyHAhnDmxd ylNqtUwGLhjuWIeXBMn EADmbdaXOrhQmHeVHoVaUoPysLeMOtezic sPgboIzrufXmuf KrOZtiobphElPAeJAqd

nWTJdmpPaexSUGsHiQbejjvdrsYbetMsQo.GXME yzJgOBoFfnsDXicseHCezFIR QnZQisbpYtSnPk tdBohBQwVaFjJddnGIv GIVCkabEpnvGhJoeBIuwzzBUnZASQ QUIwcvDwvhbRZGajFxtnuNsSglUufeLbNk pAlCaIjDSnZYEudfCFO eMJwagwKBlehgctAhSeeMpHRruYdraBseytAOBtiNMWJosXkDnRxRc,dNoV PXpDbrFrQuFGnRtexnu fpcgnWxUYoFCqnwBMit

CLFzTErMEivQdjmqUgneaqRJ oXpwpJbSSafjeXsXNFLswwNbejKmodUHvg WJqXiiCOrtidHR SchLbEhTMyaWWQ.sENF vwvjNFZXcidnqjgAoKXhgIECtKlOg qVBSaVVennqMRidrmLb rkHYdnmodayCGUyihex jROUfJUhdlpZSYeGYQJdhrRy UZRnakhlFckeBdrPfiJoxhncsMcoqsNDmz bNmptHdtshQEEGeuisM rGWrdTaDUepZyNsrajgeOijsrwSnVtRYcJ'LFZXsaaEP

KCZdfTgRSacYnqcCCIlecvMS,DGra ZWwFbfkCkuLhJhtdLNp nGZkiwusenoEpM boMGtqkZuhTVxseQkla zDSosvbXTtQgRArAqLzehzOneOkpetSsOwsHdgf hssMoXtaUfNjjT TKarDuiQSisGlSaQDGTssetdpfbjpajYzxrttZC tOFEigKbVtZgOT gJDAwWNIOaaieNszfdW osVqaKVyJllcxWwqndfaTLSKyjZslsEXhc YVgxaBSMaflIkMtIsfTePjqYrrqwdnqQgQonlIAovwufnNvoV,MiQn

lAfuaONNAnspuodacXw qgyZdTAKMayNqcragaHkyQQMnftqVekimQsVjbOsIZXJ bRNInXyHveNByRvxgdYexXFirAnwl qBEZcizZtaqjaymbjWMeIEFU.lctM"PGrt

sUae TCpp-QoQw-xzkl bWoPTMmpehvuUteuksJ dvJeCFBuDiACNQtTPYEyiwoP tryeaRwfPnQLFsdtiti QEVqtuuBBhpIFleSnSd UCWdShrietiwQpaewXJrNKGCsMAQT uobubjFubycVaA uiInAwOjfreDdKtuSEJhxnvOuHRQnrjUyv LPLsCRULG.OLuy qTzHCGEYElFEJkaIDvlryAxNkjXryedqQo

~/data/assts/asst5$ nullcyph -d 4 document04.cry

"Like a glowing jewel, the city lay upon the breast of the

desert. Once it had known change and alteration, but now

Time passed it by. Night and day fled across the desert's

face, but in the streets of Diaspar it was always afternoon,

and darkness never came."

-- "The City and the Stars" by Arthur C. Clarke

We wish to thank the United Network Command for Law and Enforcement

without whose assistance this program would not be possible.

</body>

</HTML>