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Lab D

TESTING:

After I got my program together and working I wanted to make sure that my program could handle most types of file contents that I could think of. This meant testing for white space, special characters, and making sure that all memory was cleared from the heap upon exit.

In order to test each function I used an excerpt from my notes on the chapter 11 readings. I saved the notes as "testFile.txt" and tested it by passing its contents through the Copy, Encryption, ToUpper, and OrderedOutput classes.

Contents of testFile.txt:

```
Chapter 11

        this Pointer and Constant Member Functions: Compilers provide
each member
function of a class with an implicit parameter that points to the
object
through which the member function is called. This parameter is called
this.
A constant member function is one that does not modify the object
through which
its called.
Instances: The different objects of a class type
Instance Members: Each instance of a class has its own copy of the
data members
of that class, these are called instance members because the belong to
an
instance of a class.  By default a compiler will provide each member
function
of every class with an implicit parameter pointer to an object of that
class.
Thus in a function call like,
    myList.addItem(Item x);
The implicit parameter passed to addItem is the address of myList,
denoted as
&myList
```

Contents of copyTest.txt:
Chapter 11

        this Pointer and Constant Member Functions: Compilers provide
each member
function of a class with an implicit parameter that points to the
object
through which the member function is called. This parameter is called
this.
A constant member function is one that does not modify the object
through which
its called.
Instances: The different objects of a class type
Instance Members: Each instance of a class has its own copy of the
data members
of that class, these are called instance members because the belong to
an
instance of a class. By default a compiler will provide each member
function
of every class with an implicit parameter pointer to an object of that
class.
Thus in a function call like,
     myList.addItem(Item x);
The implicit parameter passed to addItem is the address of myList,
denoted as
&myList

Contents of encryptionTest.txt:
Qbujnyl 00

          nbcm Dichnyl uhx Qihmnuhn Aygvyl Tohwncihm= Qigjcfylm jlipcxy yuwb gygvyl
zohwncih iz u wfumm qcnb uh cgjfcwcn julugynyl nbun jichnm ni nby ivdywn
nblioab qbcwb nby gygvyl zohwncih cm wuffyx" Hbcm julugynyl cm wuffyx nbcm"
O wihmnuhn gygvyl zohwncih cm ihy nbun xiym hin gixczs nby ivdywn nblioab qbcwb
cnm wuffyx"
Whmnuhwym= Hby xczzylyhn ivdywnm iz u wfumm nsjy
Whmnuhwy Aygvylm= Suwb chmnuhwy iz u wfumm bum cnm iqh wijs iz nby xunu gygvylm
iz nbun wfumm nbymy uly wuffyx chmnuhwy gygvylm vywuomy nby vyfiha ni uh
chmnuhwy iz u wfumm" Ps xyzuofn u wigjcfyl qcff jlipcxy yuwb gygvyl zohwncih
iz ypyls wfumm qcnb uh cgjfcwcn julugynyl jichnyl ni uh ivdywn iz nbun wfumm"
Hbom ch u zohwncih wuff fcey
      gsZcmn"uxxWnyg+Wnyg r,>
Hby cgjfcwcn julugynyl jummyx ni uxxWnyg cm nby uxxlymm iz gsZcmn xyhinyx um
)gsZcmn

Contents of ToUpperTest.txt:

```
CHAPTERTHISPOINTERANDCONS
TANTMEMBERFUNCTIONSCOMPIL
ERSPROVIDEEACHMEMBERFUNCT
IONOFACLASSWITHANIMPLICIT
PARAMETERTHATPOINTSTOTHEO
BJECTTHROUGHWHICHTHEMEMBE
RFUNCTIONISCALLEDTHISPARA
METERISCALLEDTHISACONSTAN
TMEMBERFUNCTIONISONETHATD
OESNOTMODIFYTHEOBJECTTHRO
UGHWHICHITSCALLEDINSTANCE
STHEDIFFERENTOBJECTSOFACL
ASSTYPEINSTANCEMEMBERSEAC
HINSTANCEOFACLASSHASITSOW
NCOPYOFTHEDATAMEMBERSOFTH
ATCLASSTHESEARECALLEDINST
ANCEMEMBERSBECAUSETHEBELO
NGTOANINSTANCEOFACLASSBYD
EFAULTACOMPILERWILLPROVID
EEACHMEMBERFUNCTIONOFEVER
YCLASSWITHANIMPLICITPARAM
ETERPOINTERTOANOBJECTOFTH
ATCLASSTHUSINAFUNCTIONCAL
LLIKEMYLISTADDITEMITEMXTH
EIMPLICITPARAMETERPASSEDT
OADDITEMISTHEADDRESSOFMYL
ISTDENOTEDASMYLIST
```

Contents of OrderedOutput.txt:

```
QBUJN YLNBC MDICH NYLUH XQIHM NUHNA
YGVYL TOHWN CIHMQ IGJCF YLMJL IPCXY
YUWBG YGVYL ZOHWN CIHIZ UWFUM MQCNB
UHCGJ FCWCN JULUG YNYLN BUNJI CHNMN
INBYI VDYWN NBLIO ABQBC WBNBY GYGVY
LZOHW NCIHC MWUFF YXHBC MJULU GYNYL
CMWUF FYXNB CMOWI HMNUH NGYGV YLZOH
WNCIH CMIHY NBUNX IYMHI NGIXC ZSNBY
IVDYW NNBLI OABQB CWBCN MWUFF YXWHM
NUHWY MHBYX CZZYL YHNIV DYWNM IZUWF
UMMNS JYWHM NUHWY AYGVY LMSUW BCHMN
UHWYI ZUWFU MMBUM CNMIQ HWIJS IZNBY
XUNUG YGVYL MIZNB UNWFU MMNBY MYULY
WUFFY XCHMN UHWYG YGVYL MVYWU OMYNB
YVYFI HANIU HCHMN UHWYI ZUWFU MMPSX
YZUOF NUWIG JCFYL QCFFJ LIPCX YYUWB
GYGVY LZOHW NCIHI ZYPYL SWFUM MQCNB
UHCGJ FCWCN JULUG YNYLJ ICHNY LNIUH
IVDYW NIZNB UNWFU MMHBO MCHUZ OHWNC
IHWUF FFCEY GSZCM NUXXW NYGWN YGRHB
YCGJF CWCNJ ULUGY NYLJU MMYXN IUXXW
NYGCM NBYUX XLYMM IZGSZ CMNXY HINYX
UMGSZ CMN
```