15t solution

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who	umount	find undefined symbols
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II. SYSTEM CALLS

break cemt chdir chmod chown close creat exec exit fork fstat getuid gtty ilgins intr link mkdir mount open quit read rele seek setuid smdate stat stime stty tell time umount unlink wait write	catch EMT traps change working directory change mode of file change owner of file close open file create file execute program file terminate execution create new process status of open file get user ID get typewriter mode catch illegal instruction trap catch or inhibit interrupts link to file create directory mount file system open file catch or inhibit quits read file release processor move read or write pointer set user ID set date modified of file get file status set system time set mode of typewriter find read or write pointer get time of year dismount file system remove (delete) file wait for process write file
MTTCC 1111111111111111111111111111111111	

III. SUBROUTINES

atof	convert ASCII to floating
atoi	convert ASCII to integer
ctime	convert time to ASCII
exp	exponential function

fptrap ftoa get itoa log mesg ptime putc sin switch	floating-point simulator convert floating to ASCII get character convert integer to ASCII logarithm base e print string on typewriter print time write character or word sine, cosine transfer depending on value
IV. SPECIAL FILES	
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a.out archive bppt core directory file system passwd uids utmp	assembler and loader output archive file binary paper tape format core image file directory format file system format password file map names to user ID's logged-in user information
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f1,f2,f3,f4	
glob	
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kbd	
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libb	standard B library
libf	standard Fortran library
	logging on and logging off the system
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suftab	roff's suffix table
tabs	set tab stops on typewriter

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```
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                              access mode of files
                   sdate(I): adjust date and time
       mail(I): send mail to another user
          write(I): write to another user
                              a.out(V): assembler and loader output
                              archive (combine) files
                      ar(I):
                 archive(V): archive file
                              archive(V): archive file
                  glob(VII):
                              argument expander
                              ar(I): archive (combine) files
                              ASCII paper tapes
           dpt(VI): read DEC
             bcd(I): convert
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                              ASCII to integer
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                               as(I): assembler
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                     ba(VII): B assembler
                     bc(VII): B compiler
                  bilib(VII): B interpreter library
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                      bas(I):
                               BASIC dialect
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                               BASIC
                               basic(VI): DEC supplied BASIC
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     bcd(I): convert ASCII to
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                               become super-user
                               b(I): compile B program
                               bilib(VII): B interpreter library
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            dli(VI): load DEC
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```

```
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                           cal(VI): print calendar
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              ilgins(II):
                           catch illegal instruction trap
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                           catch or inhibit guits
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                           cat(I): concatenate (or print) files
                           cemt(II): catch EMT traps
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                           change access mode of files
               chmod(II):
                           change mode of file
               chown(II):
                           change owner of file
                chown(I): change owner of files
                chdir(I): change working directory
               chdir(II):
                           change working directory
        putc(III): write
                           character or word
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                           check(I): check consistency of file system
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                           chess(VI): the game of chess
                           chmod(I): change access mode of files
                           chmod(II): change mode of file
                           chown(I): change owner of files
                           chown(II): change owner of file
                           close open file
               close(II):
                           close(II): close open file
                           cmp(I): compare file contents
           ar(I): archive
                           (combine) files
                   sh(I):
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                  cmp(I):
                           compare file contents
                    b(I):
                           compile B program
                  for(I):
                           compile Fortran program
f1.f2.f3.f4(VII): Fortran
                           compiler passes
               bc(VII): B
                           compiler
                  cat(I):
                           concatenate (or print) files
          check(I): check
                           consistency of file system
                 tty(IV):
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              ls(I): list contents of directory
     cmp(I): compare file contents
                  bcd(I): convert ASCII to BCD
               atof(III): convert ASCII to floating
               atoi(III): convert ASCII to integer
               ftoa(III): convert floating to ASCII
               itoa(III): convert integer to ASCII
```

ctime(III): convert time to ASCII

```
copy file
                       cp(I):
                     core(V):
                               core image file
                               core memory as file '
                     mem(IV):
                               core(V): core image file
                               cosine
              sin(III): sine.
    wc(I): get (English) word
                               count
                               cp(I): copy file
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                               create directory
                              create file
                   creat(II);
                               create new process
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                               das(VI): disassembler
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                 date(I): get
                               date and time
             sdate(I): adjust
                               date modified of file
              smdate(II): set
                               date(I): get date and time of day
date(I): get date and time of
                               day
                               db(I): symbolic debugger
                               dbppt(I): write binary paper tape
                               dc(I): desk calculator
                               debugger
              db(I): symbolic
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                dpt(VI): read
                dli(VI): load
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           tap0,...,tap7(IV):
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               dtf(I): format
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               rew(I): rewind DECtape
           tap(I): manipulate DECtape
             rmdir(I): remove (delete) directory
                rm(I): remove (delete) file
           dsw(I): delete files interactively unlink(II): remove (delete) file
           mesg(I): permit or deny messages
        switch(III): transfer
                               depending on value
                       dc(I):
                               desk calculator
                               detachable file system
              mount(I): mount
                               df(I): find free disk space
                bas(I): BASIC dialect
                directory(V):
                               directory format
     chdir(I): change working directory
    chdir(II): change working
                               directory
      ls(I): list contents of
                               directory
             mkdir(I): create
                               directory
            mkdir(II): create
                               directory
    rmdir(I): remove (delete)
                                directory
                               directory(V): directory format
                     das(VI):
                                disassembler
                                disk file
                  rfO(IV): RF
                  rkO(IV): RK disk file
                 rkl(I): load disk from tape
             df(I): find free
                                disk space
                                disk to tape
                 rkd(I): dump
                  du(I): find
                                disk vsage
```

disk

rkf(I): format RK

```
umount(II):
                               dismount file system
                  umount(I):
                               dismount removable file system
                               dli(VI): load DEC binary paper tapes
                               dpt(VI): read DEC ASCII paper tapes
                               dsw(I): delete files interactively
                               dtf(I): format DECtape
                               du(I): find disk usage
                     rkd(I):
                               dump disk to tape
                 od(I): octal
                               dump of file
                               ed(I): text editor
                               editor (loader)
                  ld(I): link
                 ed(I): text
                               editor
    log(III): logarithm base
              cemt(II): catch
                               EMT traps
                  wc(I): get
                               (English) word count
                               exec(II): execute program file
                               execute program file
                    exec(II):
         exit(II): terminate
                               execution
                               exit(II): terminate execution
         glob(VII): argument
                               expander
                               exp(III): exponential function
                    exp(III):
                               exponential function
              cmp(I): compare
                               file contents
               type(I): print
                               file on IBM 2741
                 stat(I): get
                               file status
                               file status
                stat(II): get
              file system(V):
                               file system format
                               file system...check(I):
         check consistency of
         mkfs(I): initialize
                               file system
  mount(I): mount detachable file system
            mount(II): mount file system
umount(I): dismount removable
                               file system
        umount(II): dismount file system
                               file system(V): file system format
                find(I): find
                               file with given name
                 pr(I): print
                               file with headings
          archive(V): archive
                               file
    chmod(II): change mode of
                               file
   chown(II): change owner of
                               file
        close(II): close open
                               file
          core(V): core image file
                  cp(I): copy file
            creat(II): create file
    exec(II): execute program file
   fstat(II): status of open file
    link(II): link to file
               ln(I): link to file
     mem(IV): core memory as file
       mv(I): move or rename
                               file
         od(I): octal dump of
                               file
               open(II): open file
          passwd(V): password file
               read(II): read file
             rfO(IV): RF disk file
             rkO(IV): RK disk file
       rm(I): remove (delete)
                               file
```

```
dsw(I): delete files interactively
   ar(I): archive (combine) files
     concatenate (or print) files...cat(I):
      change access mode of files...chmod(I):
  chown(I): change owner of files
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           sort(VI): sort a file
                sum(I): sum file
tap0,...,tap7(IV): DECtape file
unlink(II): remove (delete) file
                     du(I): find disk usage
                   find(I): find file with given name
                     df(I): find free disk space
                    tty(I): find name of terminal
                  tell(II): find read or write pointer
                     un(I): find undefined symbols
                             find(I): find file with given name
brt1.brt2(VII): B start and finish
                             floating to ASCII
         ftoa(III): convert
atof(III): convert ASCII to floating
                             floating-point simulator
               fptrap(III):
                             for(I): compile Fortran program
                             fork(II): create new process
          form(I): generate form letter
                    dtf(I):
                             format DECtape
                    rkf(I):
                             format RK disk
           roff(I): run off (format) text
 bppt(V): binary paper tape format
    directory (V): directory format
file system(V): file system format
                             form(I): generate form letter
                             Fortran compiler passes
          f1,f2,f3,f4(VII):
                             Fortran library
        libf(VII): standard
            for(I): compile
                             Fortran program
                             fptrap(III): floating-point simulator
                              free disk space
                df(I): find
                             from tape
          rkl(I): load disk
                              fstat(II): status of open file
                              ftoa(III): convert floating to ASCII
                              function
      exp(III): exponential
                              f1.f2.f3.f4(VII): Fortran compiler passes
                             game of black jack
                bj(VI): the
             chess(VI): the game of chesmoo(VI): the game of MOO
                             game of chess
                ttt(VI): the game of tic-tac-toe
                    form(I): generate form letter
                   get(III): get character
                    date(I): get date and time of day
                      wc(I): get (English) word count
                    stat(I): get file status
                   stat(II): get file status
                      tm(I): get time information
                              get time of year
                   time(II):
                              get typewriter mode
                   gtty(II):
                 getuid(II):
                              get user ID
                              get(III): get character
```

```
getuid(II): get user ID
    find(I): find file with
                             given name
                             glob(VII): argument expander
                             gtty(II): get typewriter mode
                    hup(I):
                            hang up typewriter
    pr(I): print file with
                             headings
                             hup(I): hang up typewriter
     type(I): print file on
                             IBM 2741
      getuid(II): get user
                             ID
       setuid(II): set user
                             TD
                             ID's
uids(V): map names to user
                             ilgins(II): catch illegal instruction trap
          ilgins(II): catch
                             illegal instruction trap
              core(V): core image file
            tm(I): get time information
   utmp(V): logged-in user
                             information
         intr(II): catch or
                             inhibit interrupts
         quit(II): catch or
                             inhibit quits
                  mkfs(I):
                             initialize file system
                 init(VII):
                             initializer process
                             init(VII): initializer process
  ilgins(II): catch illegal instruction trap
         itoa(III): convert integer to ASCII
atoi(III): convert ASCII to integer
       dsw(I): delete files
                             interactively
              bilib(VII): B interpreter library
             sh(I): command
                             interpreter
 intr(II): catch or inhibit
                             interrupts
                             intr(II): catch or inhibit interrupts
                             itoa(III): convert integer to ASCII
  bj(VI): the game of black
                             iack
                             kbd(VII): map of TTY 37 keyboard
    kbd(VII): map of TTY 37
                             keyboard
                             lbppt(I): read binary paper tape
                             ld(I): link editor (loader)
     form(I): generate form
                             letter
                 library...
                             liba(VII): standard assembly-language
                             libb(VII): standard B library
                             libf(VII): standard Fortran library
  bilib(VII): B interpreter
                             library
 standard assembly-language
                             library...liba(VII):
      libb(VII): standard B
                             library
libf(VII): standard Fortran
                             library
                     ld(I):
                             link editor (loader)
                  link(II):
                             link to file
                             link to file
                     ln(I):
                             link(II): link to file
                     ls(I):
                             list contents of directory
                             ln(I): link to file
                   dli(VI):
                             load DEC binary paper tapes
                    rkl(I):
                             load disk from tape
    a.out(V): assembler and loader output
         ld(I): link editor
                             (loader)
                  log(III):
                             logarithm base e
                   utmp(V):
                             logged-in user information
```

logout(VII): logging on and logging off the system...login,

```
logging on and logging off the system
          login, logout(VII):
                               log(III): logarithm base e
                               login, logout(VII): logging on and
   logging off the system...
          the system...login.
                               logout(VII): logging on and logging off
                               ls(I): list contents of directory
                mail(I): send
                               mail to another user
                               mail(I): send mail to another user
                      tap(I):
                               manipulate DECtape
                   uids(V):
                               map names to user ID's
                               map of ASCII
                  ascii(VII):
                    kbd(VII):
                               map of TTY 37 keyboard
                               mem(IV): core memory as file
                mem(IV): core
                               memory as file
                               mesq(\(\bar{I}\)): permit or deny messages
                               mesq(III): print string on typewriter
     mesq(I): permit or deny
                               messages
                    msh(VII):
                               mini Shell
                               mkdir(I): create directory
                               mkdir(II): create directory
                               mkfs(I): initialize file system
            chmod(II): change
                               mode of file
      chmod(I): change access
                               mode of files
                stty(II): set
                               mode of typewriter
    qtty(II): qet typewriter
                               mode
         smdate(II): set date
                               modified of file
        moo(VI): the game of
                               MOO
                               moo(VI): the game of MOO
                    mount(I):
                               mount detachable file system
                   mount(II):
                               mount file system
                               mount(I): mount detachable file system
                               mount(II): mount file system
                       mv(I):
                               move or rename file
                    seek(II):
                               move read or write pointer
                               msh(VII): mini Shell
                               mv(I): move or rename file
                 tty(I): find
                               name of terminal
find(I): find file with given
                               name
                 nm(I): print
                               namelist
                               names to user ID's
                 uids(V): map
             fork(II): create
                               new process
                               nm(I): print namelist.
                       od(I):
                               octal dump of file
                               od(I): octal dump of file
                 roff(I): run
                               off (format) text
             close(II): close
                               open file
         fstat(II): status of
                               open file
                    open(II):
                               open file
                               open(II): open file
          cat(I): concatenate
                               (or print) files
         assembler and loader
                               output...a.out(V):
            chown(II): change
                               owner of file
             chown(I): change
bppt(V): binary
                               owner of files
                               paper tape format
       dbppt(I): write binary
                               paper tape
        lbppt(I): read binary
                               paper tape
             ppt(IV): punched
                               paper tape
```

```
dli(VI): load DEC binary
                              paper tapes
                             paper tapes
     dpt(VI): read DEC ASCII
       as2(VII): assembler's pass 2
                              passes...f1,f2,f3,f4(VII):
            Fortran compiler
                              passwd(V): password file
                             password file
                  passwd(V):
                              permit or deny messages
                    mesq(I):
seek(II): move read or write
                              pointer
tell(II): find read or write
                              pointer
                              ppt(IV): punched paper tape
                              pr(I): print file with headings
                    cal(VI):
                              print calendar
                             print file on IBM 2741
                    type(I):
                      pr(I): print file with headings
     cat(I): concatenate (or
                              print) files
                      nm(I): print namelist
                  mesg(III): print string on typewriter
                              print time
                 ptime(III):
            bproc(VII): boot procedure
        fork(II): create new process
      init(VII): initializer process
           rele(II): release processor
          wait(II): wait for
                              process
              break(II): set program break
                              program file
           exec(II): execute
                              program
             b(I): compile B
     for(I): compile Fortran
                              program
                              ptime(III): print time
                              punched paper tape
                    ppt(IV):
                              putc(III): write character or word
                              quit(II): catch or inhibit quits
                              quits
  quit(II): catch or inhibit
                              read binary paper tape
                   lbppt(I):
                              read DEC ASCII paper tapes
                    dpt(VI):
                              read file
                   read(II):
                              read or write pointer
              seek(II): move
                              read or write pointer
              tell(II): find
                               read(II): read file
                    boot(I):
                              reboot system
                               release processor
                    rele(II):
                               rele(II): release processor
                               relocation bits
   strip(I): remove symbols,
                               remote typewriter
           tty0,...,tty5(IV):
         umount(I): dismount
                               removable file system
                    rmdir(I):
                               remove (delete) directory
                               remove (delete) file
                       rm(I):
                               remove (delete) file
                  unlink(II):
                               remove symbols, relocation bits
                    strip(I):
                               rename file
              mv(I): move or
                               rew(I): rewind DECtape
                               rewind DECtape
                      rew(I):
                               RF disk file
                     rfO(IV):
                               rfO(IV): RF disk file
                               RK disk file
                     rkO(IV):
                               RK disk
               rkf(I): format
```

rkd(I): dump disk to tape

```
rkf(I): format RK disk
                             rkl(I): load disk from tape
                             rkO(IV): RK disk file
                             rmdir(I): remove (delete) directory
                             rm(I): remove (delete) file
                             roff(I): run off (format) text
                             roff's suffix table
               suftab(VII):
                   roff(I):
                             run off (format) text
                             sdate(I): adjust date and time
                             seek(II): move read or write pointer
                             send mail to another user
                   mail(I):
                smdate(II):
                             set date modified of file
                  stty(II):
                             set mode of typewriter
                 break(II):
                             set program break
                 stime(II):
                             set system time
                 tabs(VII):
                             set tab stops on typewriter
                setuid(II):
                             set user ID
                             setuid(II): set user ID
             msh(VII): mini
                             Shell
                             sh(I): command interpreter
fptrap(III): floating-point
                             simulator
                  sin(III):
                             sine, cosine
                             sin(III): sine, cosine
                             smdate(II): set date modified of file
                  sort(VI):
                             sort a file
                             sort(VI): sort a file
      df(I): find free disk
                             space
                 liba(VII):
                             standard assembly-language library
                 libb(VII):
                             standard B library
                             standard Fortran library
                 libf(VII):
          brt1.brt2(VII): B
                             start and finish
                             stat(I): get file status
                             stat(II): get file status
                             status of open file
                 fstat(II):
          stat(I): get file
                             status
         stat(II): get file
                             status
                             stime(II): set system time
         tabs(VII): set tab
                             stops on typewriter
           mesq(III): print
                             string on typewriter
                             strip(I): remove symbols, relocation bits
                             stty(II): set mode of typewriter
        suftab(VII): roff's
                             suffix table
                             suftab(VII): roff's suffix table
                             su(I): become super-user
                    sum(I):
                             sum file
                             sum(I): sum file
              su(I): become
                             super-user
             basic(VI): DEC
                             supplied BASIC
                             switch(III): transfer depending on value
                     db(I):
                             symbolic debugger
           strip(I): remove
                             symbols, relocation bits
      un(I): find undefined
                             symbols
       file system(V): file system format
             stime(II): set system time
            boot(I): reboot
                             system
  check consistency of file
                             system...check(I):
```

```
and logging off the
                               system...login. logout(VII): logging on
    mkfs(I): initialize file
                               system
       mount detachable file
                               system...mount(I):
        mount(II): mount file
                               system
      dismount removable file
                               system...umount(I):
    umount(II): dismount file
                               system
                         file
                               system(V): file system format
       who(I): who is on the
                               system
               tabs(VII): set
                               tab stops on typewriter
  suftab(VII): roff's suffix
                               tabs(VII): set tab stops on typewriter
        bppt(V): binary paper
                               tape format
dbppt(I): write binary paper
                               tape
  lbppt(I): read binary paper
                               tape
       ppt(IV): punched paper
                               tape
         rkd(I): dump disk to
                               tape
       rkl(I): load disk from
                               tape
        load DEC binary paper
                               tapes...dli(VI):
dpt(VI): read DEC ASCII paper
                               tapes
                               tap(I): manipulate DECtape
                               tapO,...,tap7(IV): DECtape file
                               tell(II): find read or write pointer
         tty(I): find name of
                               terminal
                    exit(II):
                               terminate execution
                       ed(I):
                               text editor
    roff(I): run off (format)
                               text
         ttt(VI): the game of
                               tic-tac-toe
                   tm(I): get
                               time information
        date(I): get date and
                               time of day
                               time of year
                time(II): get
          ctime(III): convert
                               time to ASCII
                               time(II): get time of year
            ptime(III): print
                               time
    sdate(I): adjust date and
                               time
        stime(II): set system
                               time
                               tm(I): get time information
                               transfer depending on value
                 switch(III):
    catch illegal instruction
                               trap...ilgins(II):
          cemt(II): catch EMT
                               traps
                                ttt(VI): the game of tic-tac-toe
                               TTY 37 keyboard
             kbd(VII): map of
                               tty(I): find name of terminal
                                tty(IV): console typewriter
                                tty0,...,tty5(IV): remote typewriter
                               type(I): print file on IBM 2741
                gtty(II): get
                               typewriter mode
              hup(I): hang up
                               typewriter
   mesg(III): print string on
                               typewriter
        stty(II): set mode of
                               typewriter
  tabs(VII): set tab stops on
                                typewriter
             tty(IV): console
                                typewriter
    tty0....tty5(IV): remote
                                typewriter
                                uids(V): map names to user ID's
                               umount(I): dismount removable file system
                                umount(II): dismount file system
```

un(I): find undefined symbols

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un(I): find undefined symbols
                               unlink(II): remove (delete) file
             du(I): find disk
                               usage
              getuid(II): get
                               user ID
              setuid(II): set
                               user ID
       uids(V): map names to user ID's
           utmp(V): logged-in
                               user information
mail(I): send mail to another
                               user
   write(I): write to another
                               user
                               utmp(V): logged-in user information
        transfer depending on
                               value...switch(III):
                    wait(II):
                               wait for process
                               wait(II): wait for process
                               wc(I): get (English) word count
                      who(I):
                               who is on the system
                               who(I): who is on the system
           find(I): find file
                               with given name
            pr(I): print file
                               with headings
         wc(I): get (English)
                               word count
putc(III): write character or
                               word
             chdir(I): change working directory
            chdir(II): change
                               working directory
                               write binary paper tape
                    dbppt(I):
                   putc(III):
                               write character or word
       seek(II): move read or
                               write pointer
       tell(II): find read or
                               write pointer
                               write to another user
                    write(I):
                               write(I): write to another user
        time(II): get time of
                               year
   as2(VII): assembler's pass
                              2
   type(I): print file on IBM
                               2741
         kbd(VII): map of TTY
                               37 keyboard
```