

# FTP Client Server – ECE L371 Final Project

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# Objective

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- ⇒ Create a program that can send and receive files over COM1
- ⇒ Program must be able to send an arbitrary file
  - ❑ **REQ.(80%)** *PUSH* a user-specified file to rem. comp.
  - ❑ **REQ.(85%)** Send both ASCII and BINARY files
  - ❑ **OPT.(+10%)** *PULL* a user-specified file from rem. comp.
  - ❑ **OPT.(+5%)** Save TX'ed files in user-specified locations

# Procedure

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- Start with your LAB 5 (8250) code
- Modify – TX and RX of files, not STDIO
- File I/O
  - ❑ Open/close files
  - ❑ Write/read to/from files

# Useful Functions

```
FILE *fopen(const char *filename, const char *mode);
    Returns a pointer to the newly open stream if
    successful; otherwise it returns NULL.
int fread(void *ptr, int size, int n, FILE *stream);
    Reads n items of size bytes each. Returns the
    number of items (not bytes) actually read.
int fwrite(const void *ptr, int size, int n,
    FILE *stream);
    Writes n items of size bytes each. Returns the
    number of items (not bytes) actually written.
int feof(FILE *stream);
    Macro that returns one if EOF has been
    reached on a stream.
int fclose(FILE *stream);
    Returns 0 on success; it returns EOF if any
    errors are detected.
```

# Useful Functions

```
int fseek(FILE *stream, long offset, int whence);
    Positions the file pointer of a stream.
    "offset" is the new position relative to the
    position specified by "whence".
long ftell(FILE *stream);
    Returns the current file pointer
void rewind(FILE *stream);
    Repositions file pointer to stream's beginning
void clearerr(FILE *stream);
    Resets the error and end-of-file indicators
    for stream.
```

# Resources

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- Turbo C help files
- ECE 371 lab manual, pp. 30-32, 122, 123
- Hints
  - ❑ File I/O function semantics
  - ❑ Reading/Writing 'chars' (ASCII) vs. 'bytes' (BINARY)

# Basic Structure - Pseudo-code

```
while(choice != quit)
    while(!kbhit) { check for RX }
    get choice from user
    if(TX)
        open(file)
        /* Could send file name here */
        while(!EOF)
            read one byte
            delay(x) /* Artificial flow control */
            send one byte
        elihw
    fi
    elihw
elihw
```