

EECE.2160: ECE Application Programming

Spring 2019

Lectures 32-34: Key Questions
April 24, 26, & 29, 2019

QUESTIONS:

1. Explain the use of the `fopen()` function.
2. Explain the use of the `fclose()` function.
3. Explain how `fscanf()` and `fprintf()` are used for formatted file I/O.
4. Explain how `fread()` and `fwrite()` are used for unformatted I/O.
5. Describe the standard input and output streams.
6. Describe how to test that a program has reached the end of a file or encountered an error.
7. Explain the functions used for character input.
8. Explain the `fgets()` function for line input.

EXAMPLES:

Complete the below program to:

- Read three integers from file `myinput.txt`
- Determine the sum and average of those values
- Write the original values, sum, and average to file `myoutput.txt`.

```
int main() {
    int v1, v2, v3, sum;    // Input values and their sum
    double avg;            // Average of input values
    FILE *fpIn, *fpOut;    // File pointers

    // Open input file and exit if error

    // Open output file and exit if error

    // Read input data, find sum & average, and print results

    // Close files
}
```


Show the output of each of the following short program.

a. Input: **Test Input** **1** **23 4 5**

```
void main() {
    char c;
    char buffer[50];
    int i, n;
    i = 0;
    while ((c = fgetc(stdin)) != '\n') {
        if (c != ' ') {
            buffer[i++] = c;
        }
    }
    buffer[i] = '\0';
    printf(buffer);
}
```

b. Input:

Test1

Test 2

abcdefghijklmnopqrstuvwxy

This is a test of the fgets() function

```
void main() {
    char str[25];
    int i;
    for (i = 0; i < 5; i++) {
        fgets(str, 24, stdin);
        strcat(str, "\n");
        printf(str);
    }
}
```

c. Input:

1024Some other stuff

```
void main() {
    char c;
    char buffer[50];
    int n = 0;

    // isdigit in <ctype.h>
    while (isdigit(c = getchar())) {
        n = n * 10 + (c - 48);    // Hint: '0' = 48    }
        // (ASCII value)
        ungetc(c, stdin);
        fgets(buffer, 50, stdin);

        printf("n = %d, n * 2 = %d\n", n, n * 2);
        printf("buffer = %s\n", buffer);
    }
}
```