EECE.2160: ECE Application Programming

Summer 2016

Lecture 13: Key Questions
June 20, 2016

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. **Example:** Write a 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`.

5. Explain how `fread()` and `fwrite()` are used for unformatted I/O.

6. Explain how to check that the end of a file has been reached, or if an error has occurred.

7. Describe the functions used for character I/O.

8. Describe the functions used for line I/O.

9. Describe the standard I/O streams and explain how the file I/O functions can be used to write to these locations.

10. **Example:** 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';
   fputs(buffer, stdout);
}
```

b. Input:

```
Test1
Test 2
abcdefghijklmnopqrstuvwxyz
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");
      fputs(str, stdout);
   }
}
```

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);
}
```