

16.216: ECE Application Programming

Fall 2014

Lecture 28: Key Questions

November 14, 2014

1. (Review) Complete the main function from PE4 (Wednesday's lecture).

```
FILE *openFile(char *mode);    // Used for opening files;

void main() {
    int arr[20];    // Input array for use with binary file
    int test;    // Input/output value for formatted I/O

    FILE *fpArr;    // Pointer to file holding array values
    FILE *fpIn;    // Pointer to file holding test values
    FILE *oFile;    // Pointer to output file
    int i;

    // CALL openFile() TO OPEN FILE WITH ARRAY
    fpArr = openFile("rb");

    // READ CONTENTS OF ARRAY FROM FILE
    fread(arr, sizeof(int), 20, fpArr);

    // CALL openFile() TO OPEN FILE WITH TEST INPUT VALUES

    // CALL openFile() TO OPEN OUTPUT FILE

    // READ FROM TEST INPUT FILE UNTIL EOF
    // FOR EACH ONE, PRINT THE FOLLOWING TO OUTPUT FILE:
    //     <test> + <appropriate array value> = <sum>

    // CLOSE ANY OPEN FILES

}
```

2. Describe how to represent decimal values in binary (base 2) and hexadecimal (base 16) and how to convert between those bases.

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5. **Example:** Evaluate each of the following expressions if you have the following unsigned int variables: $A = 7$, $B = 10$, and $C = 0xFFFFFFFF$
- a. $A \& B$

b. $A \mid \sim B$

c. $A \wedge C$

d. $A \ll 4$

e. $B \gg 5$

f. $A \mid (B \ll 2)$