

## CMSC 216 Quiz 1 Worksheet

The first quiz for the course will be on Wed, Feb 8. The following list provides additional information about the quiz:

- The quiz will be a written quiz (no computer).
- The quiz will be in lab session.
- Closed book, closed notes quiz.
- Answers must be neat and legible.
- You must use a pencil.
- Quiz instructions can be found at <http://www.cs.umd.edu/~nelson/classes/utilities/examRules.html>
- Make sure you know your section number and your TA's name.
- You must take your quiz in your assigned lab/discussion section and not show up to a random discussion section. We will not grade quizzes taken in the incorrect section.
- **Regarding Piazza** - Feel free to post questions in Piazza regarding the worksheet and possible solutions to problems, but for coding questions please do not post code. You can post suggestions on how to solve coding problems, but your classmates will benefit more if they themselves actually solve the problems. Pretend you are a TA while addressing or providing help in Piazza ☺

**The following exercises cover the material to be included in this quiz.** Solutions to these exercises will not be provided, but you are welcome to discuss your solutions with the TAs or instructors during office hours. It is recommended that you try these exercises on paper first (without using a computer).

### Exercises

1. Write a Unix command that will take you to your home directory.
2. Write a Unix command that will copy the folder Week1 present in the lecture\_examples folder of the ~/216public directory to your ~/216 directory of your home directory.
3. Write a Unix command that will copy the folder **commands\_info** present in the **lecture\_examples** folder of the ~/216public directory to your ~/216 directory of your home directory. The command should work when executed from any directory (e.g., you cannot assume your current directory is ~/216).

4. What is the size (in bytes) of a char type?
5. What is the output of the following program?

```
#include <stdio.h>

int main() {
    int x;

    printf("%d\n", x);

    return 0;
}
```

6. Suppose you write a C program and it has an infinite loop; how do you stop the program?
7. What possible problem(s) are associated with the following code fragment?  

```
int x;
scanf("%d", x);
```
8. For this quiz, you will need to provide examples of academic integrity violations. The following is the list you need to know:
  - a. Hardcoding of results in a project assignment. Hardcoding refers to attempting to make a program appear as if it works correctly (e.g., printing expected results for a test).
  - b. Using any code available on the internet/web or any other source.
  - c. Hiring any online service to complete an assignment for you.
  - d. Sharing your code or your student tests with any student.
  - e. Using online forums (other than Piazza) in order to ask for help regarding our assignments.

9. Does the following code compile? Briefly explain.

```
#include <stdio.h>

void p1(int x) {
    printf("%d", x);
}

void p1(float x) {
    printf("%d", x);
}

int main() {
    p1(2);
    return 0;
}
```

10. Define a function named **read\_and\_compute\_prod** that has the prototype below. For this problem:

- The function computes and returns the product of integer values provided by the user.
- Use scanf to read the values.
- You don't need to display any prompt or message as each value is read.
- The program will stop reading values once the value provided by the user is 0 or if it corresponds to the parameter value (stop). Notice the parameter does not represent the number of values to read; it represents when to stop.
- The stop value is not part of the product.

For example, calling **read\_and\_compute\_prod(-1)** will return 54 if we enter the values **2 3 9 0** or the values **2 3 9 -1**

```
int read_and_compute_prod(int stop);
```

11. Define a function named **sum\_of\_divisibles\_by** that has the prototype below. For this problem:

- The function reads two integer values (lower limit and upper limit) that represent a range. For this problem you can assume the first value will always be lower than or equal to the second.
- The function computes the sum of values in the range that are divisible by the specified parameter value. Notice that the range includes the lower and upper limit values.
- The function will display the message "Enter lower and upper limit: " while reading the range values.
- The following driver and associated output illustrates the functionality expected from the function you need to write. Keep in mind this is just an example (your function must work for different sets of values and not just the ones presented in the example). In the example underlined text is input the user provides and % is the Unix prompt.

#### Driver

```
int main() {
    printf("Sum of divisible by 2: %d\n", sum_of_divisibles_by(2));
    printf("Sum of divisible by 3: %d\n", sum_of_divisibles_by(3));

    return 0;
}
```

#### Output

```
% a.out
Enter lower and upper limit: 2 7
Sum of divisible by 2: 12
Enter lower and upper limit: 2 9
Sum of divisible by 3: 18
%
int sum_of_divisibles_by(int divisible_by);
```

12. Define a function called **print\_table** that has the prototype below. For this problem:

- The function reads two integer values and prints the square of each value in the range. For each value in the range the function will print the value, followed by the word **even** if the value is **even** and **odd** otherwise, followed by the square.
- Use scanf to read the values.
- Use the prompt "Enter range values: " to read the two integer values.
- If the print\_header parameter is true the function will print the header "Squares Table" before any value in the range is processed.
- You can assume the first integer value is less than or equal to the second one.
- **The function will return the number of values in the range.**

```
int print_table(int print_header);
```

The following is an example of calling the function you are expected to write. The user entered the values 4 and 10 (values that are underlined). The % represents the Unix prompt. Remember your function must work for values other than 4 and 10. Do not provide a main() function; only the print\_table function.

### **Driver**

```
int main() {  
    print_table(5);  
  
    return 0;  
}
```

### **Output**

```
% a.out  
Enter range values: 4 10  
Squares Table  
4 even 16  
5 odd 25  
6 even 36  
7 odd 49  
8 even 64  
9 odd 81  
10 even 100  
%
```