

HW #4: C Expressions & Control Flow

Due dates:

Part I: Monday Feb 8th, at the beginning of the class. Make sure to write your name and msunetid on your paper.

Part II: Sunday Feb 7th, 11:59 pm through Handin (<https://secure.cse.msu.edu/handin>)

Part I: Comprehension Questions

1. Write an expression that evaluates to: (2pts)
 - a. 1 if three integers a and b and c are equal and 0 otherwise
 - b. 0 if integer t is between integers x and y

2. What is the output of the following program fragment? (3pts)
 - a. Program 1
int one = 1, two = 2, three = 3;
one *= two += three;
printf("%d %d %d\n", one, two, three);

 - b. Program 2
int alpha = 4;
float beta = 11/2;
int theta = 2*beta;
printf("%d", alpha++ + --theta);

 - c. Program 3
int x = 7;
int y = --x << 3;
printf("x = %d, y = %d", x, y);

3. Write a C program that reads a number from the user and outputs one of the following four statements according to the divisibility of the number by 13 and 7. (3 pts)
X is divisible by 13 and 7
X is divisible by 13
X is divisible by 7
X is not divisible by 13 or 7
(X should actually be replaced by the number read)

4. Convert the following if statement to a case statement: (2 pts)
Assume that areaCode is an integer variable.

```

if (areaCode == 517) {
    printf("Go White! Go Green\n");
} else if (areaCode == 212) {
    printf("I love New York\n");
} else if (areaCode == 415) {
    printf("Hello San Francisco!\n");
} else {
    printf("I've never been there.\n");
}

```

Part II: Lab Assignment

Getting started

Change into the cse220 directory

Create a new directory called lab04

Change into the new directory

Implement the program below in your lab04 directory

Project Description

Write a program that asks the user to enter their birthdate in mm/dd/yyyy format and reads the user input. Call your program FindTheDay.c

Your program should first check if the date is valid:

The month is between 1 and 12.

The day is between 1 and 31.

The day does not exceed the number of days of the month (e.g Jan 31 is valid, April 31 is not).

You do not have to check if the year is a leap year.

If the date is not valid, your program should output an error message and exit.

If the date is valid, your program should output the following:

You were born on a day-of-week

Compute the day-of week as follows:

1. Compute the month coefficient, mc, for each month according to the following table:

Month	mc	Month	mc
Jan	0	Jul	5
Feb	3	Aug	1
Mar	2	Sep	4
Apr	5	Oct	6
May	0	Nov	2
Jun	3	Dec	4

2. Decrement the year by 1 if the month is Jan or Feb, otherwise keep it the same
3. Compute the rank as follows:
 - a. Compute the following value: $\text{year} + \text{year}/4 - \text{year}/100 + \text{year}/400 + \text{mc} + \text{day}$

- b. Find the remainder of the previous value when divided by 7. You will get an integer between 0 and 6.
- c. Find the day according to the following schedule:

Remainder	Day
0	Sunday
1	Monday
2	Tuesday
3	Wednesday
4	Thursday
5	Friday
6	Saturday

Compile your program and generate an executable file called findTheDay.

Handin

Submit through the handin system the following files: FindTheDay.c and findTheDay.

The “handin” system has options to allow you to review your files online and to download them. You Should always verify that you submitted the correct files and they were received by the handin system. You can submit files as many times as you like for a particular assignment. Handin will only keep the last version of each file. Remember to submit your files prior to the deadline as you won’t be able to use handin if the deadline has passed.