Peter Moldenhauer
1/4/17
CS 261: Data Structures in CS

Assignment 0

Part 1:

Hello, my name is Peter Moldenhauer. I am originally from Milwaukee, WI. I currently live in San Antonio, TX. Over the past two years my wife and I have been traveling the country every 6 months due to my wife's job. Over the last couple years we have moved from Wisconsin to Raleigh, NC then to Austin, TX, then Phoenix, AZ, then Rockford, IL and now currently San Antonio, TX. I would like to move back to Austin, TX when I finish school because of the number of tech jobs available in that area.

I decided to attend OSU based on my own research of some of the top rated "online computer science degree programs" available. Due to the high ratings of this program, overall cost and ability to complete the program at my own pace, the decision to attend OSU was fairly easy.

Prior to attending OSU, I graduated with a bachelor's degree in 2008 in Criminal Justice. After this degree I jumped around from working in law enforcement, firefighting, youth corrections and to adult corrections. I soon realized that I was not happy in the career field of criminal justice and needed to seek out a new career path. This was around the time in which my wife accepted a job in which we would be relocated every 6 months. I decided to resign from my current position as a correctional officer at a max prison so that my wife and I could travel the country and I could do some soul searching and decide upon a new career path to take. Throughout our travels I decided on a career change into the field of technology – specifically computer science.

Despite not having any prior experience in computer science or programming at all, I took the plunge to start the program through OSU. So far I have taken 161, 225, 271, 162 and 352. Even though there have been MANY times throughout the classes so far that I felt completely overwhelmed and/or lost, I am glad I made the decision to get into this field and get the degree through OSU.

Outside of school, I am interested in all of the new technology that comes out each year (phones, game systems, self-driving cars, robots, etc.). I am also interested in current events (world news), traveling and learning about new programming languages. With how new I am in this world of computer science, it seems like there is an endless potential to learn all of the different CS concepts, structures and languages. Also, some of my hobbies include weight lifting, traveling, firearms, gaming, table tennis, hiking and church.

I feel like it is still too early into the schooling to tell what exactly I will be interested most in doing after I graduate but I would be happy with finding a job in

automation/robotics, web/app development or game development. I think it would be really cool to help develop a game and then to see my name listed in the credits at the end of the game as one of the developers.

To make the intro classes at OSU more interesting and engaging I think it would be a good idea to shed some light on some of the many job possibilities that someone can get with a degree in computer science. Pointing out the general computer science concepts and languages used in particular job positions would be helpful as well. All of this would help to motivate and inspire new students to keep going through the intense coursework to achieve the final goal of potentially landing one of these job possibilities.

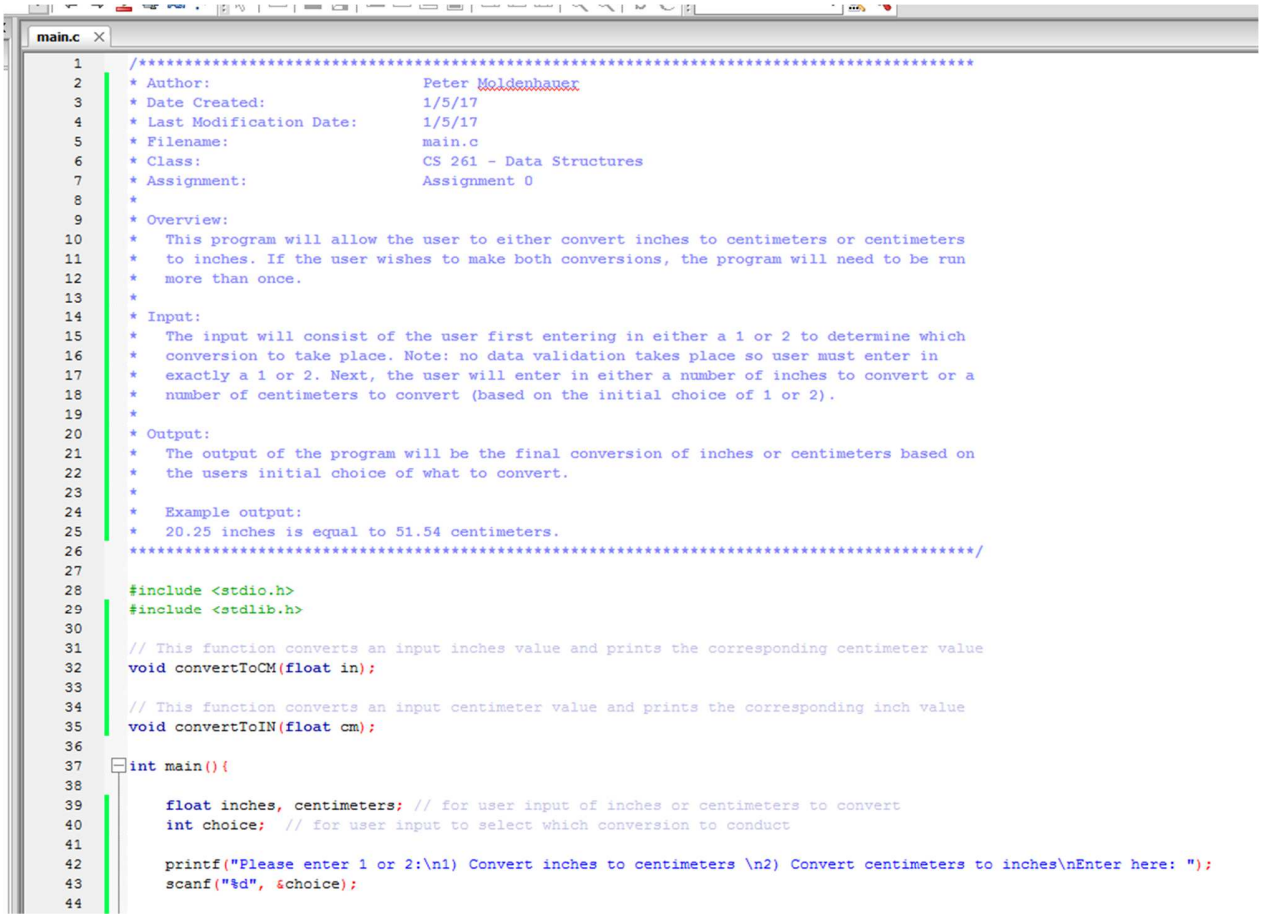
Programming Experience

As mentioned above in the introduction, I have completed the following courses at OSU: 161, 225, 271, 162 and 352. Outside of these courses, I have no programming experience. I am familiar with C++ (used in 161 and 162) and Assembly (271) but that is about it. With C++ I have used the command line and Vim on the OSU school server and Code::Blocks which is my IDE of choice on my personal computer. I have also used MS visual studio to type up Assembly code in 271. In my free time I like to watch YouTube videos about new languages and to further my knowledge base on the languages that I do know.

Due to my limited math experience I struggle at times to understand various computer science concepts that deal a lot with math (recursion, algorithm complexity, etc.). Similar to watching videos on YouTube to learn new languages, in my free time I like to watch tutorial videos to increase my knowledge and comfort level in math.

Part 2:

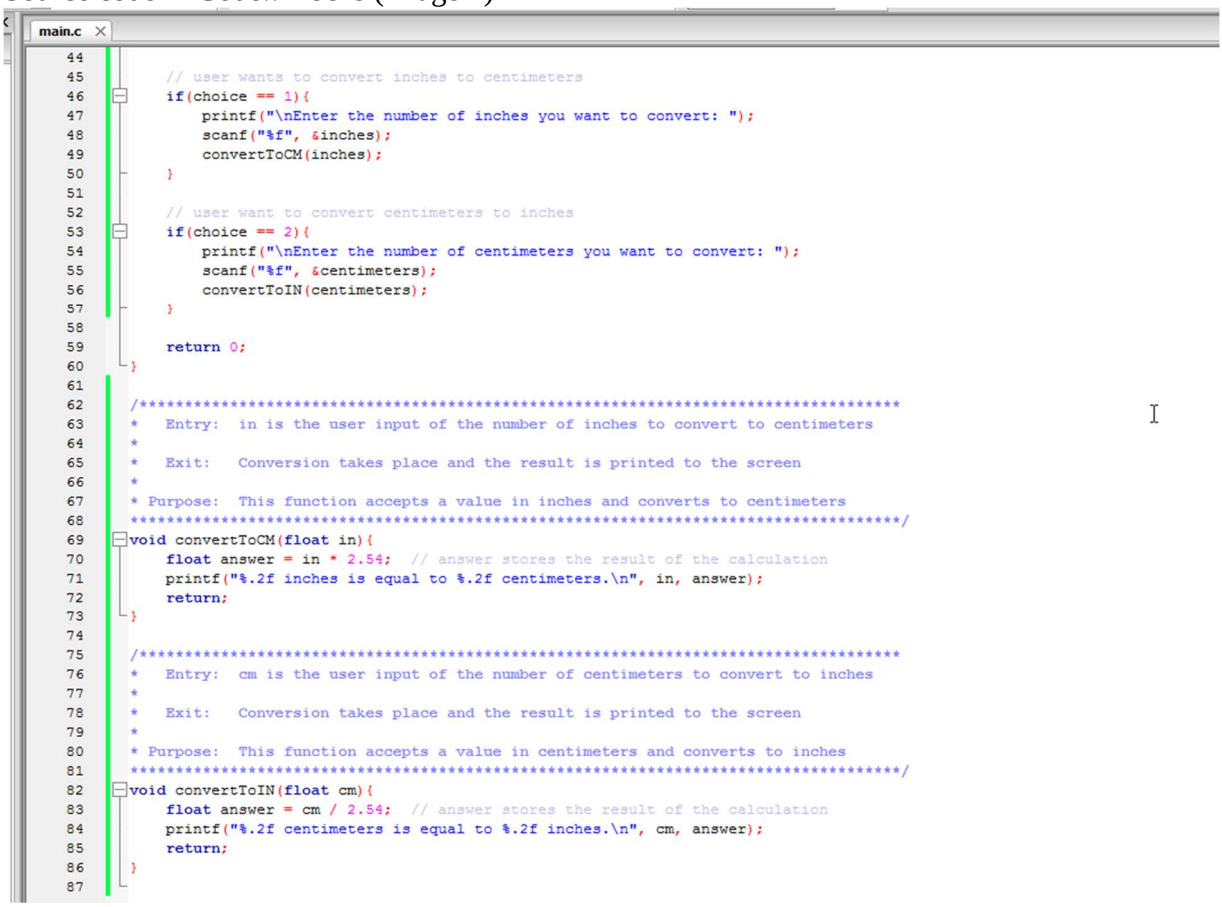
Source code in Code::Blocks (image 1)



main.c

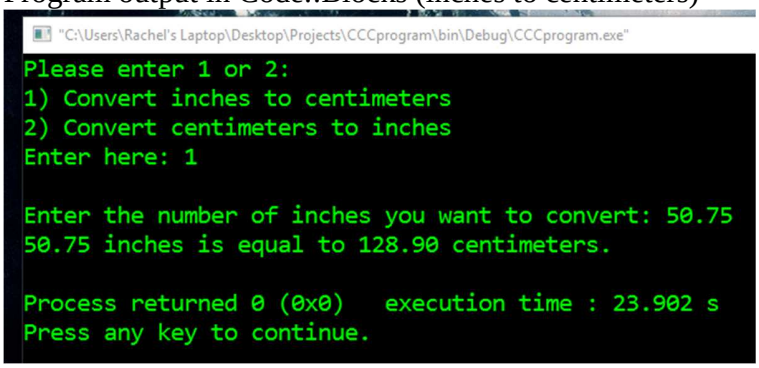
```
/*******************************************************************************************
* Author:                       Peter Moldenhauer
* Date Created:                 1/5/17
* Last Modification Date:       1/5/17
* Filename:                     main.c
* Class:                        CS 261 - Data Structures
* Assignment:                   Assignment 0
*
* Overview:
*   This program will allow the user to either convert inches to centimeters or centimeters
*   to inches. If the user wishes to make both conversions, the program will need to be run
*   more than once.
*
* Input:
*   The input will consist of the user first entering in either a 1 or 2 to determine which
*   conversion to take place. Note: no data validation takes place so user must enter in
*   exactly a 1 or 2. Next, the user will enter in either a number of inches to convert or a
*   number of centimeters to convert (based on the initial choice of 1 or 2).
*
* Output:
*   The output of the program will be the final conversion of inches or centimeters based on
*   the users initial choice of what to convert.
*
*   Example output:
*   20.25 inches is equal to 51.54 centimeters.
*******************************************************************************************/

#include <stdio.h>
#include <stdlib.h>

// This function converts an input inches value and prints the corresponding centimeter value
void convertToCM(float in);

// This function converts an input centimeter value and prints the corresponding inch value
void convertToIN(float cm);

int main(){

    float inches, centimeters; // for user input of inches or centimeters to convert
    int choice;  // for user input to select which conversion to conduct

    printf("Please enter 1 or 2:\n1) Convert inches to centimeters \n2) Convert centimeters to inches\nEnter here: ");
    scanf("%d", &choice);

```

Source code in Code::Blocks (image 2)



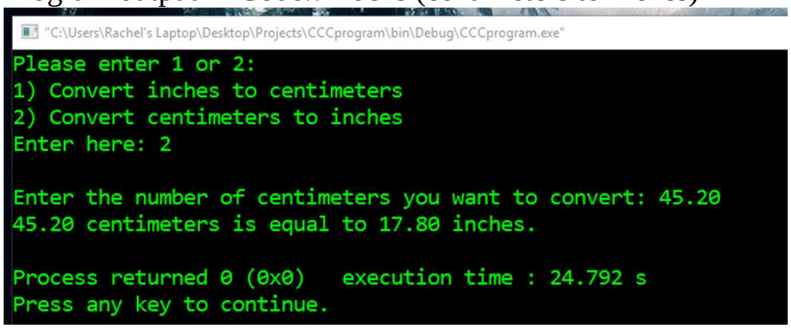
```
main.c
44
45      // user wants to convert inches to centimeters
46      if(choice == 1){
47          printf("\nEnter the number of inches you want to convert: ");
48          scanf("%f", &inches);
49          convertToCM(inches);
50      }
51
52      // user want to convert centimeters to inches
53      if(choice == 2){
54          printf("\nEnter the number of centimeters you want to convert: ");
55          scanf("%f", &centimeters);
56          convertToIN(centimeters);
57      }
58
59      return 0;
60  }
61
62  /*******************************************************************************
63  *   Entry:  in is the user input of the number of inches to convert to centimeters
64  *
65  *   Exit:   Conversion takes place and the result is printed to the screen
66  *
67  * Purpose:  This function accepts a value in inches and converts to centimeters
68  *******************************************************************************/
69  void convertToCM(float in){
70      float answer = in * 2.54;  // answer stores the result of the calculation
71      printf("%.2f inches is equal to %.2f centimeters.\n", in, answer);
72      return;
73  }
74
75  /*******************************************************************************
76  *   Entry:  cm is the user input of the number of centimeters to convert to inches
77  *
78  *   Exit:   Conversion takes place and the result is printed to the screen
79  *
80  * Purpose:  This function accepts a value in centimeters and converts to inches
81  *******************************************************************************/
82  void convertToIN(float cm){
83      float answer = cm / 2.54;  // answer stores the result of the calculation
84      printf("%.2f centimeters is equal to %.2f inches.\n", cm, answer);
85      return;
86  }
87
```

Program output in Code::Blocks (inches to centimeters)

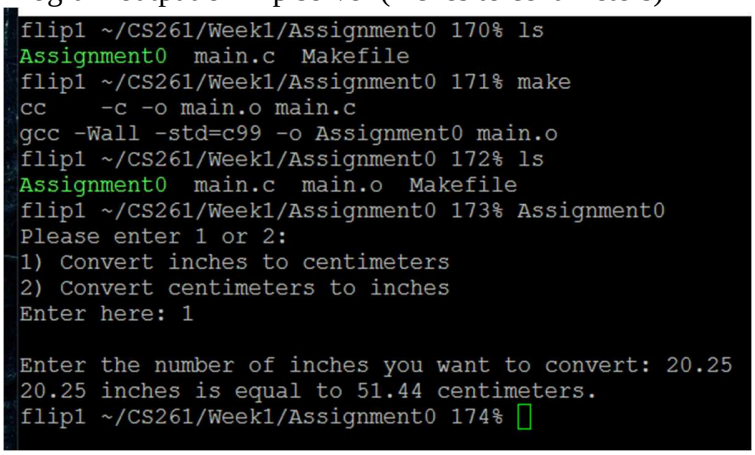


```
"C:\Users\Rachel's Laptop\Desktop\Projects\CCCprogram\bin\Debug\CCCprogram.exe"
Please enter 1 or 2:
1) Convert inches to centimeters
2) Convert centimeters to inches
Enter here: 1

Enter the number of inches you want to convert: 50.75
50.75 inches is equal to 128.90 centimeters.

Process returned 0 (0x0)   execution time : 23.902 s
Press any key to continue.
```

Program output in Code::Blocks (centimeters to inches)



Program output on flip server (inches to centimeters)



Program output on flip server (centimeters to inches)