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# Homework 2

This assignment is a combination of fill-in-the-blank problem and programming problems. For the fill-in-the-blank problems, answer on this Word document by clicking on the appropriate answer areas. Be sure to fill out your name and ID number above. After completing the assignment, follow the submission instructions on the last page.

1. (15 pts) Using contextual clues in the code and output, fill in the five blanks:

You can click on the blanks to fill in your answers.

#include <stdio.h>

int main**(**void**)**

**Output:**

5 < 7.3

My name is Chris!

{

int a = 5;

char b = ‘!’;

double c = 7.3;

printf("%d < %f\n", a, c);

printf("My name is Chris%c\n", b);

return 0;

}

1. (15 pts) What variable type (enter the C keyword in the blank) would make sense to:
2. Store the number of grades we have in the class? “int” if it’s a whole number or “double” if any real number.
3. Use for calculating an average? double
4. Store the first letter of your name? char = ‘T’;
5. Log the number of test hours, assuming it is always rounded to the closest hour: int
6. Log the number of test hours, assuming we allow fractional hours: double
7. (10 pts) What will the following code print?

#include <stdio.h>

int main(void)

{

printf("%d\n", 5+7);

printf("%s\n", "5+7");

return 0;

}

12  
5+7

1. (12 pts) What will the following code print?

#include <stdio.h>

int main(void)

{

int a = 5;

int b = 8;

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

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

b = a+b;

a = 2\*b - a;

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

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

return 0;

}

5  
8  
21  
13

1. (12 points) Mr. Bugs Problem

#include <stdio.h>

int main(void)

{

double square\_area = side\_length \* side\_length;

double side\_length = 12.0

printf("%f\n", square\_area);

return 0;

}

Mr. Bugs has written a program that is supposed to print that, if the length of the side of a square is 12, then the area of the square in 122, which is 144. When he tries to compile the code, it doesn’t work. Rewrite the program so that it works, and save it as **problem5.c**. Also, in the answer area provided below, explain what the error(s) are that prevent it from compiling and why, if the compilation error(s) are fixed, it would not provide the desired output. Note that there may be multiple errors. You will submit your code on Canvas. See the instructions at the end of the assignment.

When you fix the code, your program output should look **exactly** like this:

144.00

After just looking at the code, I can see that Mr. Bugs has declared the double square\_area = side\_length \* side\_length before declaring double side\_length = 12.0 without a semicolon. He needs to flip the positions of these statements and add a semicolon to make it works, and I prefer using %.2lf instead of %f in case it requires more bit and limit the decimal to 2 places since the result should look 144.00 not 144.0000000.

1. (18 pts) The area of a triangle with height H and base B is B\*H/2. The following code is an incorrect attempt to write a program that computes the area of a triangle. The code attempts to calculate the area of the triangle, but there is something wrong.

#include <stdio.h>

int main(void)

{

int base = 3;

int height = 5;

int area = height \* base / 2;

printf("%.1f\n", area);

return 0;

}

When you run it, it does not print the expected answer. In the area provided below, explain why this code gives the wrong result. Write a corrected version of the program and save it as **problem6.c**. You will submit this file on Canvas. When you fix the code, the output should look exactly like this:

7.5

The following code declared int without considering the result’s type which in this case is 15/2 =7.5. The area variable should’ve been declared as double since we are dealing with decimal so every variable should be double.

1. (18 pts) The area *A* of a rectangle can be calculated by multiplying the length and the width: *A* = *l* × *w*, where *l* is the length and *w* is the width. The perimeter P of a rectangle can be calculated with *P* = 2(*l* + *w)*. Write a program that:

* Defines a variable called *length* and asks the user for its value.
* Defines a variable called *width* and asks the user for its value.
* Computes the area of the rectangle and stores it in a variable called *area*.
* Computes the perimeter of the rectangle and stores it in a variable called *perimeter*.
* Prints out he perimeter and area.

Save your program as **problem7.c**. You will submit this file on Canvas.

Below is example output if the user entered 5.5 for the length and 4 for the width. Be sure to follow the same format for your output.

Sample Output:

Enter the rectangle length: 5.5

Enter the rectangle width: 4

The area is: 22.000

The perimeter is: 19.000

## Submission instructions

Create a zip file called *homework2.zip* containing this word document with your written answers and your program5.c, program6.c, and program7.c source files. If you do not create this zip file or follow the instructions, you will be penalized. If you are unsure of how to create a zip file, contact one of the TAs or me. Upload homework2.zip to Canvas. You may upload multiple times, but we will only grade the last one you upload. If you have issues uploading the file, contact us.