Lab 1-- Due Friday 08/28, 11:59 pm - (hello.c)

Lecture topics this week: variables, printf, scanf

****Submit source code (hello.c) through BB**

Lab Topic: Simple "Hello World" program.

Print the words "Hello World" onto the screen

Lab 2 - Due Friday -09/04 - 11:59 p.m. (myName.c)

Lecture topics this week: user-defined functions

****Submit source code (myName.c) through BB**

Lab topic: Simple Interactive program –

1. Print "Hello my name is (add your name here)" onto the screen.
2. Ask the user for a number.
3. Scan the number from the user.
4. Subtract 24 from the number
5. Print the number and the difference back onto the screen.
6. Ask the user for a letter.
7. Scan the letter from the user.
8. Print the letter back onto the screen.

Note: The fact that the number and the letter remain on the screen does not count as printing it

****

Lab 3-- Due Friday 09/11, 11:59 pm – (areaCalc.c)

Lecture topics this week: user-defined functions, file I/O, introduce program 1

****Submit source code (areaCalc.c) through BB**

Lab topic: Interactive program using integers and doubles --

Create a small program based on the following (Calculate area of a circle and the area of a rectangle):

//use an integer for the radius, sideLength, sideWidth, and areaRect

// use double for the areaCir

1. Declare variables: radius, sideLength, sideWidth, areaRect, and areaCir.
2. Ask for the radius of the circle.
3. Get the radius from the user.
4. Calculate the area of the circle (use 3.14).
5. Display the radius and area of the circle onto the screen.
6. Ask for the length of a side
7. Get the length from the user
8. Ask for the width of a side
9. Get the width from the user

10. Calculate the area of the rectangle
11. Display the side length, width, and area of the rectangle onto the screen.

Lab 4-- Due Friday 09/18, 11:59 pm – (functions.c)

Lecture topics this week: functions, file processing, conditions

Lab topic: Functions – Break up the program (areas) from last week into one main function and 3 user-defined functions:

****Submit source code (functions.c) through BB**

```
// gets an integer from the user and returns it
// make 3 calls to this function:
// get the radius of the circle from the user and return it to main
// get the length of the rectangle from the user and return it to main
// get the width of the rectangle from the user and return it to main
int GetInt(void);

// takes one arguments, the length of the square returns the area
int CalculateAreaRec(int length, int width);

// takes one argument, the radius of the circle and returns the area
double CalculateAreaCir(int radius);
```

Note: The same output from Lab 3 is required and no calculations for the Areas may be done in the main function

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Programming Assignment 1 - due the week of 09/29

Lab 5-- Due Friday 09/25, 11:59 pm – (conditions.c)

Lab topic: Conditions – Lecture topics this week: conditions / loops

****Submit source code (conditions.c) through BB**

Create a small program based on the following

// (calculates different sales tax based on an item price)

1. Ask the user to enter the price of an item.
2. Get the item price from the user.
3. Calculate the sales tax of the item:
   - Use 7% if the item costs less than $250.
   - Use 6% if the item costs $250 or more.

4. Display the original item price and sales tax amount onto the screen.
5. Calculate new cost of the item with the sales tax.
6. Display the total price of the item onto the screen.

Note: The original price, the sales tax, and the total price must be in dollars and cents. The percentage of the sales tax is not sufficient

****

Exam 1 - the week of 09/29
//AFTER **LAB 5** THERE WILL BE A TEST ON VARIABLES, SCANF, PRINTF, FUNCTIONS, and CONDITIONS
****

Lab 6-- Due Friday 10/09, 11:59 pm – (loops.c)
Lab topic: Loops – (counting loops and sentinel loops) Lecture topics: loops and pointers.

****Submit source code (loops.c) through BB**

Create a program that asks the user to enter a number from 1 to 10.
Print the statement "FAU is awesome" the number of times entered by the user using a for loop.
Print the statement "Programming in C is fun" the same number of times using a while loop.
Print the statement "Florida beaches are beautiful" the same number of times using a do/while loop.

Note: You will be graded on whether or not you used the correct loop as described above, not just on output

Next, ask the user to enter a number until the user enters a -1 to stop,
as long as the number is not -1, add the number to an ongoing sum and print the sum and the number on the screen
When the user enters a -1 print the message "Have a Nice Day :)" and end the program

****

Lab 7-- Due Friday 10/16, 11:59 pm – (pointers.c)
Lab topic: Pointers – Lecture topics: arrays and pointers

****Submit source code (pointers.c) through BB**

Write a small program that calculates the sum and the difference of two integers with three user-defined functions:

//takes two integer arguments and returns the sum of the two arguments

int CalculateSum (int num1, int num2);

//takes two integer arguments and returns the difference of the two arguments
int CalculateDifference(int num1, int num2);

//takes two integer arguments and two integer pointer arguments
//1. calculate the sum and stores the result in sumptr
//2. calculate the difference and store the result in diffPtr
void CalculateBoth(int num1, int num2, int*sumPtr, int *diffPtr);

Call all three functions from main.
Print the results in both the function definitions (value at) and back in main.

****

Programming Assignment 2 - due the week of 10/19

Lab 8-- Due Friday 10/23, 11:59 pm – (arrays.c)
Lab topic: Arrays – Lecture topics: arrays and c-style strings.

****Submit source code (arrays.c) through BB**

Write a small program that fills an array of doubles with user input, prints the doubles on the screen in a column, and adds up all the doubles in the array and prints the sum onto the screen.
You must use at least 3 functions
- Declare an array of doubles of size 20.
- Ask the user how many doubles to enter <= 20.
- Use a loop to read the doubles into the array from the user.
- Use a loop to print the array onto the screen in a column.
- Use a loop to add up all the items in the array and store the sum
- print the sum onto the screen

Exam 2 - the week of 10/26 -

//AFTER LAB 8 THERE WILL BE A TEST FOCUSING ON LOOPS, POINTERS, and ARRAYS (and variables, printf, scanf, and functions, conditions, and loops)

Lab 9 -- Due Friday 11/06, 11:59 pm – (files.c)
Lab Topic: file processing, lecture topics: strings and structs
****Submit source code (files.c) through BB**

Create a file called numInput.txt and put some integers in the file.
Save the file in the same directory as your source code in your project.
Create an interactive program that reads an int from the file called numInput.txt, performs a calculation, and stores the result in a different file called resOut.txt.
1. Ask the user for a double.
2. Open a file called numInput.txt, and use fscanf to read an int from this file.
3. Multiply the double entered by the user by the int from the file, and store the result in a double.
4. Open a file called resOut.txt.
5. Use fprintf to write the result of the multiplication to the file resOut.txt.

****

Programming Assignment 3 - due the week of 11/09 (string assignment)

Lab 10--- Due Friday 11/13 11:59 pm – (structs.c)
Lab topic: User-defined structs – Lecture topics: user-defined structs.

****Submit source code (structs.c) through BB**

- Change the struct card from the attached file to struct song with the following fields:

char array artist
char array songName
int for the length in seconds
double cost

Modify all variable declarations, function prototypes, and functions calls to reflect the changes from card to song
For the array of songs use the variable playlist

****

Programming Assignment 4 - due 11/25

//THERE IS A CUMULATIVE FINAL EXAM ON SUNDAY, DECEMBER 6, 1:15 PM – 3:45 PM