COSC1436 – FA LAB7

TILLE:

User-defined Functions with reference parameters – Coffee Shop

TIME TO COMPLETE

2 Weeks for class 16 weeks – 1 Week for class 8 weeks

LAB7 - PART1 REQUIREMENT
Use the word document to write the answers of the following questions:

QUESTION 1:
Suppose we have the following small program:

```
#include <iostream>
using namespace std;

//prototype of user-defined function with reference parameters
void find (int& a, int& b, int c);

int main ()
{
        int a, b, c;
        a = 1;
        b = 2;
        c = 3;

    //call function find
        find (a, b, c);
        cout << "first call:  " << a << ", " << b <<  ", " << c << endl;

    //call function find
        find (a, b, c);
        cout << "second call: " <<  a << ", " << b <<  ", " << c << endl;

    //call function find
        find (a, b, c);
        cout << "third call:  " << a << ", " << b <<  ", " << c << endl;

        system("pause");
        return 0;
}

//User defined function with reference parameters
void find(int& a, int& b, int c)
{
        c = a + b;
        b = c – 2;
        a = c + 4;
}
```

QUESTION 2:
Consider the following function::

```cpp
#include <iostream>
#include <string>

using namespace std;

//function with default parameter
void defaultParameterFunction(char ch='A', float fvar=10.21, int ivar=25)  {
        cout << "ch = " << ch << " fvar = " << fvar << " ivar= " << ivar << endl;
}
```

Which of the following 5 function calls is correct? If it is correct, what is the output?

```cpp
int main()  {
    //1.
    defaultParameterFunction('F', 11.45, 11);
    //2.
    defaultParameterFunction('A', 14.36);
    //3.
    defaultParameterFunction();
    //4.
    defaultParameterFunction('L');
    //5.
    DefaultParameterFunction("L", 10.29, 42);

    system("pause");
    return 0;
}
```

HOW TO DO PART 2
Remember to do the lab with the following:
*If you need help about the C++ syntax to write the code, read the instruction in the folder "Skills Required"
*From now and on yourLastName will be changed to your last name
*Your program should change Smith to your last name
*Change James Smith to your full name
*write the file name as the first comment line at the top of program
*After running your program, take the picture of the output window as below from your program with **your name** on and paste the picture at the bottom of the document having pseudo-code to turn in

Step1:
Read the requirement; **write in English the pseudo-code** in a word document by listing the step by step what you suppose to do in main() and then save it with the name as **Lab7_pseudoCode_yourLastName** (store pseudo-code and output pictures of both part 1 and part 2)
Step2:
Start Virtual Studio C++, create the project → write the project name
                For Part 2: FA2021_LAB7PART2_yourLastName
Add .cpp file
                For Part 2: FA2021_CoffeeShopApplication_yourLastName.cpp

After adding the cpp file, you have an empty window coming up, type the following template of a C++ program in:

```cpp
//File name should be written here as comment line
#include <iostream>
using namespace std;
int main()
{
```

```
      //add the code here below this line
      …..
      system("pause"); //This will pause the output to read
      return 0;
}
```
Step3:
Then follow the step by step in the pseudo-code, type the C++ code in after the line "//add the code here below this line"
Step4:
Compile and run the program
Step5:
Debug if there are any errors until compile successfully

LAB 7 - PART2 REQUIREMENT
Provide a C++ application to allow a Coffee Shop to do the following tasks. After finishing one task, redisplay the menu to allow users to select other tasks until users select EXIT to terminate the program.

```
FA2021_CoffeeShopApplication_Smith.cpp
SALE COFFEE – JAMES SMITH
Today            10/15/21
-----------------------------------------------------------------
1.Sale coffee
2.Report total number of cups sold in the day
3.Report total amount of coffee in OZ sold in the day
4.Report total money sold in the day
0.EXIT
```

You must have **4 user-defined functions to perform 4 tasks and apply reference parameters** in at least one user-defined function

TASK 1: SALE COFFEE
When select 1, display the list of cup sizes and the price as below; then ask users to select a size and enter the number of cups.

```
FA2021_CoffeeShopApplication_Smith.cpp
SELECT CUP SIZE – JAMES SMITH
Today              10/15/21
-------------------------------------
1.Small  ( 8oz) –  $1.79
2.Medium (12oz) –  $2.59
3.Large  (16oz) –  $3.99
0.DONE
```

-Display message and read number of cups on each selected cup size, **then redisplay the menu of SELECT CUP SIZE** to allow users to select other sizes until users select DONE
-Display the receipt with all requested cups of coffee in the following format:

Output as below:

```
FA2021_CoffeeShopApplication_Smith.cpp
SALE RECEIPT – JAMES SMITH
Today            10/15/21
-----------------------------------------
SIZE              NUMBER         MONEY
SMALL  ($1.79)       2            3.58
MEDIUM ($2.59)       1            2.59
LARGE  ($3.99)       1            3.99
-----------------------------------------
Subtotal:                       10.16
Tax (8.25%):                     0.84
Total:                          11.00
```

The output picture is:

TASK 2: Report total number of cups sold in the day
Display the total number of cups sold during the day in the different sizes in the following format:

Output as below:

```
FA2021_CoffeeShopApplication_Smith.cpp
REPORT NUMBER OF CUPS – JAMES SMITH
Today                   10/15/21
----------------------------------------
SMALL  SIZE ( 8oz)     348 cups
MEDIUM SIZE (12oz)     224 cups
LARGE  SIZE (16oz)     325 cups
```

TASK 3: Report total amount of coffee in OZ sold in the day
Calculate and Display the total coffee in oz sold during the day in different size in the following format:

Output as below:

```
FA2021_CoffeeShopApplication_Smith.cpp
REPORT COFFEE SOLD IN OZ DURING THE DAY – JAMES SMITH
Today                              10/15/21
--------------------------------------------------------
SIZE              NUMBER OF CUP   COFFEE AMOUNT
SMALL  ( 8oz):             348           2784
MEDIUM (12oz):             334           4008
LARGE  (16oz):             325           5200
--------------------------------------------------------
TOTAL:                                  11992
```

TASK 4: Report total money sold in the day:
Calculate and Display the total money sold during the day in the following format:

Output as below:

```
FA2021_CoffeeShopApplication_Smith.cpp
REPORT MONEY SOLD DURING THE DAY – JAMES SMITH
Today                             01/15/21
----------------------------------------------------------
SIZE      UNIT PRICE    NUMBER CUP     AMOUNT MONEY
SMALL         1.79          348             622.92
MEDIUM        2.59          334             865.06
LARGE         3.99          325             879.55
----------------------------------------------------------
SUM:                                       2784.73
TAX:                                        229.74
TOTAL:                                     3014.47
```

HOW TO TURN IN THE LAB
You turn in the following files:
File: FA2021_AnswerPart1_yourLastName.docx (part1)

File: Pseudo-code and output pictures (part2)
FA2021_CoffeeShopApplication_yourLastName.cpp (part2)
FA2021_LAB7PART2_yourLastName.exe (part2)

IF YOU GET ANY PROBLEM TO SUBMIT FILE .class, YOU CAN SUBMIT ALL PROJECT   INTO ONE
FILE .zip or .rar

HOW TO GRADE THE LAB

ITEMS	SCORES
TURN IN LAB ON TIME	3
Part1:	
Question1	3
Question2	5
Part2:	
Name of the files and submit all requested files	1
Pseudo-code – output pictures	1
Create the menu – handle redisplay – 2 menus	1
Generate current day correct	1
Switch or IF statement to manage the selected tasks	1
User defined functions with reference parameters TASK1	2
User defined function TASK2, TASK3, TASK4	3
Calculate correct in tasks correct	2
Display the result as required format	3
Compile success with all requirement	3
Comment – file name as a comment line at the top of file	1
Total	30 points