CS100 Computational Problem Solving
Fall 2019-20
Section 1
Saturday, 21 September 2019

Lab 03: Exercise

Lab Guidelines

1. Make sure you get your work graded before the lab time ends.
2. You put all your work into the folder **Lab3_YourRollNo_TAname** and submit it on LMS (Assignment>Lab3) before the time the lab ends.
3. Talking to each other is NOT permitted. If you have a question, ask the lab assistants.
4. The object is not simply to get the job done, but to get it done in the way that is asked for in the lab.
5. Phone is NOT allowed. Put it in bag or at instructor desk.
6. Any cheating case will be reported to Disciplinary Committee without any delay.

Coding Conventions:

1. Constants are ALL_CAPS.
2. Variables are all_small.
3. All curly brackets defining a block must be vertically aligned.

Learning Objective:

1. PO-02 Develop proficiency in the practice of computing.
2. CO-02 To help students analyze and solve programming problems
3. LO-02 Critical Thinking and Analysis
4. LO-03 Problem Solving
5. LO-05 Responsibility

Marks: Name: _____ Roll #: _____

Task1									Total
									20

Task2	Q1	Q2							Total
	7	13							20

Task 3									Total
									30

Task 4									Total
									30

Total Marks Obtained

/100

TA: _____

Let’s Begin

Task 1: [20 marks]

Write a program to swap 3 characters taken as user input. Swap the first variable with the second, then swap the second with the third.
For example if initially r, m and d were stored in var1, var2 and var3 respectively then after swapping, the variables should have the values as below:
var1 = m
var2= d
var3 = r

Task 2: [20 marks]

Part A: [7 marks]

Write a program that takes a whole number from the user and stores it in a variable. The program should then store the number 187 in another variable and find the remainder when 187 is divided by the input number.

Part B: [13 marks]

Write a program that takes 2 decimal numbers from the user and stores them in variables. Multiply the two numbers together and then subtract 5 from the product. Print the answer.

1. you cannot make more than 2 variables [1]
2. you can not use constants in the calculation [1]
3. the data type of your variables should not be able to hold more than 4 bytes of storage size in memory [1]

Task 3: [30 marks]

Implement a program that calculates the bill of a hotdog stand. The program should ask the user to enter the quantity of each of the items. Then compute 13% GST on the total amount and generate a bill with items, their quantity along with price of each item and the total (inclusive GST). Since the prices should remain fixed so store them wisely.

The stand has the following items:

- Hotdog for $2.50
- Drink for $1.25
- Extra Sauce for $0.50
- Extra Meat for $1.25

Task 4: [30 marks]

Implement a program that directs a cashier how to give change. The program has two inputs: the amount due and the amount received from the customer.
Display the dollars, quarters, dimes, nickels, and pennies that the customer should receive in return.

- A dollar is worth 100 cents
- A quarter is worth 25 cents
- A dime is worth 10 cents
- A nickel is worth 5 cents
- A penny is worth 1 cent

Hint: Use the remainder operator.
