Data Structures and Algorithms Lab

01. Building the Basics

Lab Code: 17ECSP201 **Lab No:** 01 **Semester:** III
Date: 08 Aug, 2017 **Batch:** C2

Theme: DSA Marathon – Catch Me if You Can

Objective: Operating and Enhancing knowledge on Foundational Concepts of C

Below listed are tasks which you will carry out in a team of three. The end time will be decided by the professor (Yayy). Look out! Your scores are getting updated on the spreadsheet scoreboard.

Task 01:

You are given with a code to find sum of array elements. The code has some errors and warnings. Debug all the errors and warnings.
The code can be found in the file name "array_sum.c" **[Marks: 10]**

Task 02:

Write a code which will generate the following warning message:
warning: return type of 'main' is not 'int' **[Marks: 10]**

Task 03:

Yes or No?
Call any one of the DSA Lab team Faculty and answer with Yes or No for below statement:
"_____, I have copied all the code and I will!" **[Marks: 10]**

Task 04:

Give one real time example of do-while **[Marks: 10]**

Task 05:

Write a program which would generate the output as in 5.exe **[Marks: 20]**

Task 06:

Write a program which would generate the output as in 6.exe **[Marks: 20]**

Task 07:

Write a program which would generate the output as in 7.exe **[Marks: 30]**

Task 08:

Identify three keywords in the maze below: **[Marks: 30]**

a	p	p	l	e	g	g	o	a	t	i	p	o	t	e
s	i	n	g	a	p	o	r	e	c	h	a	r	c	t
n	n	t	o	t	a	l	e	t	t	e	r	e	s	t
a	n	a	a	d	a	m	a	n	a	g	p	u	r	s
t	e	o	d	d	m	a	n	o	u	t	b	a	l	l
u	m	l	m	h	k	d	o	u	b	l	e	a	r	d
r	r	f	i	l	e	p	o	i	n	t	e	r	i	s
a	c	r	i	c	k	e	t	m	a	t	c	h	f	i
l	s	d	g	h	j	k	y	t	i	w	e	r	t	y
o	a	w	e	d	r	f	t	g	h	n	t	y	u	j
g	o	o	g	l	e	a	s	t	e	r	t	e	s	t

Task 09:

Write a program to display Multiplication Table using for(), while() and do while( ).
Accept a number from the user within the range 1 to 100 and display its multiplication table from:

- 1 to 10 using for(),
- 11 to 20 using while() and
- 21 to 30 using do while()

Example: If input number is 3, output format should be like:
3 X 1 = 3
3 X 2 = 6
3 X 3 = 9
3 X 4 = 12 etc **[Marks: 40]**

Task 10:

Write a program which will convert the user entered numeric's into words. For example if the input is 399 the output has to be the string "Three Nine Nine".
The maximum value user can enter is 999. **[Marks: 50]**

Task 11:

There is an array which holds the 'C' subject marks of 5 students. Students have roll numbers from 1 to 5. Marks of student with roll number 1 is indexed to array marks[1] and so on.

This array is statically initialized, which represents the marks obtained by the students, filled by the faculty.

Now, each of the students is called one by one and asked for his/her expected marks. They are all stored in another array. Give an appropriate name for this array which goes well with the context.

The idea is now to calculate the error between the obtained and the expected marks. The error in percentage can be calculated for each of the student using the formula:

((Obtained – Expected) / Expected * 100)

Display the following results:

- Error in percentage of each student
- Student with largest variation
- Student with least variation **[Marks: 50]**

Task 12:

Write a C program to find the missing number from 0 to 9. In the main(), statically initialize the integer array with numbers from 0 to 9, by missing out a number.

Write a function called number_check(), which accepts array as input and finds out which is the missing number from 0 to 9. Print the number in the function itself.
Handle all the required conditions appropriately. **[Marks: 50]**

**** May The Force Be With You ****