SCHOOL OF
INFORMATION TECHNOLOGY

658 Muralla St., Intramuros, Manila, 1002, Philippines
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Practical Exam 2		Date	
Name		**Course Code / Section**	

Summative Assessment 2

Instructions:

1. You have a maximum of four (4) hours to answer the practical exam.
2. You are allowed to open lectures and examples available in our BB group. You are not allowed to go to other website aside from BB during the duration of the practical exam.
3. Filename Format: PE2_Surname.cpp (no need to compressed the file)
4. Upload your file in BB
5. Deduction of 10 points for not following instructions.

Create C++ program for the following (In implementing your program, use any function declaration for each problem and combine them in one program).

MENU OPTION
[1] Drag Force
[2] Figure
[3] Highest and Lowest Odd and Even Random Numbers
Enter your choice:

1.) (Sequential) Drag force is the force exerted on a moving vehicle that's caused by air resistance. The formula for this force is as follows:

$$F_d = \frac{C_d\, A\, \rho\, V^2}{2}$$

Where: F_d is the drag force in (lbs) ρ is the air density (0.0077 lb/ft^3)
         C_d is the coefficient of drag (0.26) V^2 is the vehicle's velocity (ft/sec)
         A is the vehicle's front area (ft^2)

     Create a UDF that will input vehicle's front area and velocity and compute and output the drag force. Declare the coefficient of drag and air density as constant.

Sample Output:
     Input vehicle's front area: 30
     Input Velocity: 88

     Drag Force (Fd) in lbs = 232.552

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2.) Create a UDF that will prompt the user to input the size of the figure (5-15) odd numbers only and display the figure like this:

Sample Output:
Input size of figure to generate (5 – 15) odd numbers only: 5

```
        #   #   #
        #       #
  #   #   #   #   #
  #       #
  #   #   #
```

3.) Create a UDF that prompts the user to input how many random number to generate in the range of 1 to 100. Valid input is from 1-100. Output how many even numbers generate and the highest among the even numbers. Output also how many odd numbers generated and the highest among the odd numbers.

Sample Output:
How many random numbers to generate (1-100 only)?   10

The 10 random numbers in the range of 1 to 100 are:
1   10   8   55   10   78   6   33   28   100

There is/are 7 EVEN numbers:
The HIGHEST EVEN number is 100
The LOWEST EVEN number is 6

There is/are 3 ODD numbers:
The HIGHEST ODD number is 55
The LOWEST odd number is 1

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1	Intelligent and descriptive naming of variables	3	
2	Use of comment (Name, Course Code/Section, and Date)	3	
3	Organized Output Design Layout	4	
4	Correct Logic for number 1	10	
5	Correct Output for number 1	10	
6	Validation of Input for number 2	5	
7	Correct Logic for number 2	15	
8	Correct Output for number 2	10	
9	Validation of Input for number 3	5	
10	Correct Logic for number 3	15	
11	Correct Output for number 3	10	
12	Loop to try again for the main menu	10	
	Total Points	**100**	

Engr. Cristina A. Pascua
            Instructor

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                                                        Date