**מבוא למדעי המחשב – 150005**

**Homework Assignment #3**

**Enum and Conditional Statements**

**Comments:**

1. Be careful on code readability and appearance (indentation)
2. Make sure to compute exactly what is requested in each question.
3. Whenever an input is illegal or there is an error give a message ERROR.
4. Submit the solution according to the directions for handing in home work, which among them are the following:
   1. Use meaningful variable names
   2. Comment each program . Also, at the end of each program add a comment with a sample run with its output

Note: this is the second assignment that we are submitting for automated checking.

You are responsible for reading all instructions in each question and to follow them carefully! You must make sure you are writing exact output as is shown in homework! Be careful to use correct upper/lower case, commas, etc. in your output.  
In order to simplify things, we have marked all output in green and all user output in yellow.

1. Write a program that receives a positive integer less than 100 (double-digit number), by the following message:  
    enter a number:

The program shall then print a message according to the following :

* If all the digits which make up the number are odd, then print the message odd digits only and then the sum of the digits.
* If all the digits which make up the number are even, then print the message even digits only and then the product of the digits.
* If the number consists of both odd and even digits, then print mixed number.
* If the input number was not legal (e.g., greater than or equal to 100, negative, zero), then print ERROR and end the program.

Sample program runs:

|  |  |  |
| --- | --- | --- |
| enter a number:  16  mixed number | enter a number:  28  even digits only  16 | enter a number:  19  odd digits only  10 |

1. Write a program that checks if a given number falls within a specified range. The program asks the user to enter 3 numbers: and reads the inputted values into the variables first, last, and number respectively. The program checks if number is in the range between first to last (you can assume that first is less than last). If number is within the range(including first and last), the program outputs between. If number is smaller than the range, the program outputs smaller, and if it greater then it outputs bigger. Note, if number is equal to either of the values that define the range, it is still considered within the range.

Sample program runs:

|  |  |  |
| --- | --- | --- |
| enter 3 numbers:  3 9 11  bigger | enter 3 numbers:  3 9 1  smaller | enter 3 numbers:  3 9 7  between |

1. Write a program that performs the following:  
   Print a message to the user to enter 2 numbers: ,   
   Read in 2 whole numbers   
   Ask the user to enter an operator:   
   Read in an arithmetic operator as a character (plus, minus, times, divide).  
   The program prints the whole exercise and result using a switch statement.  
    If the requested operation was divide, then the answer should be exact (e.g., a real number). Note, if another operator was given (not one of the 4), then print the message ERROR. (For example, if the input was 10 2 - then the output is 10 -2 = 8)  
     
   Sample program run:

|  |  |  |  |
| --- | --- | --- | --- |
| enter 2 numbers  10 4  enter an operator:  /  10 / 4 = 2.5 | enter 2 numbers:  10 2  enter an operator:  \*  10 \* 2 = 20 | enter 2 numbers:  10 2  enter an operator:  +  10 + 2 = 12 | enter 2 numbers:  10 2  enter an operator:  –  10 – 2 = 8 |

1. The program asks the user to enter 3 numbers:. It reads in 3 numbers which correspond to the sides of a triangle. The program checks whether a triangle can be formed from these 3 sides. The output will be one of the following:
   1. For sides that form an equilateral triangle - equilateral triangle
   2. For sides that form an isosceles triangle - isosceles triangle
   3. For sides that form a scalene triangle - scalene triangle
   4. For sides that cannot form a triangle - cannot form a triangle

Sample program run:

|  |  |  |  |
| --- | --- | --- | --- |
| enter 3 numbers:  5 7 1  cannot form a triangle | enter 3 numbers:  3 4 5  scalene triangle | enter 3 numbers:  5 7 5  isosceles triangle | enter 3 numbers:  5 5 5  equilateral triangle |

1. In the next program, the user is asked to input 3 numbers into variables num1, num2, and num3. Write a program so that the largest of the 3 will be stored in the variable biggest, the second in a variable called middle, and the smallest in a variable called smallest. The program prints the input numbers in non-decreasing order.

You should add the missing code into the following program:

#include <iostream>

using namespace std;

int main(){

int num1, num2, num3, smallest, middle, biggest;

cout << "enter 3 numbers: " << endl;

cin >> num1 >> num2 >> num3;

Enter here the missing code to complete the program

cout << smallest << " " << middle << " " << biggest << endl;

system ("pause");

return 0;

}

Sample program run:

|  |  |
| --- | --- |
| enter 3 numbers:  9 6 1  1 6 9 | enter 3 numbers:  2 9 4  2 4 9 |

1. Write a program that reads a number from 1-12 (including 12) (representing JAN-DEC), using the message:   
   enter a number:  
   The program should print' using a switch statement, the number of days in the month that the number represents. Assume it is not a leap year.use the following message:  
   \_\_ days in the month  
   Define an enum having the name MONTH containing the values

JAN, FEB, MARCH, APRIL, MAY, JUNE, JULY, AUG, SEPT, OCT, NOV, DEC

Sample program run:

|  |  |
| --- | --- |
| enter a number:  6  30 days in the month | enter a number:  3  31 days in the month |

Good luck!