Day - 2

Assignment No.2

1. Any integer is input through the keyboard. Write a program to find out whether it is an odd number or even number.

2. A five digit number is input through the keyboard. Write a program to obtain the reversed number and to determine whether the original and reversed number is equal or not.

3. Any character is entered through the keyboard; write a program to determine whether the character entered is a capital letter, a small case letter, digit or a special symbol.

4. A certain grade of steel is graded according to the following conditions :

    a. Hardness must be greater than 50.
    b. Carbon content must be less than 0.7.
    c. Tensile strength must be greater than 5600.

    The grades are as follows:

    Grade is 10 if all three conditions are met.

    Grade is 9 if conditions x and y are met.

    Grade is 8 if conditions y and z are met.

    Grade is 7 if conditions x and z are met.

    Grade is 6 if only one condition is met.

    Grade is 5 if none of the conditions are met.

Write a program which will require the user to give values of hardness, carbon content and tensile strength of the steel under consideration and output the grade of the steel.

5. Accept a character from the input stream determine the case of the letter (upper/lower case). Also determine its position in the alphabet (d is the fourth alphabet). Take care to display an appropriate message if the character is not an alphabet.

6. Accept a year from the user and check for leap year.

Hint: A leap is divisible by 4 and not divisible by 100 or is divisible by 400.

Note: Try the above program using a nested if statement and if statement with a compound condition.

7. Accept three positive integers from the user representing three sides of triangle.

Determine whether they form a valid triangle.

Hint: In a triangle, the sum of any two sides must always be greater than the third side.

8. Write a program using while loop to effectively solve the problem based on an idea given in the Scientific American in January 1984 (article entitled `Hailstones`). It states that any two positive integer n will go to 1 if treated in the following fashion.

"If n is even, it is divided by 2. If odd, it is multiplied by 3 and then incremented by 1. This process continues using the generated number as the new value of n. it ceases only when n finally reaches 1".

Note: No one has yet found an integer that does not go to 1 using this process, but no mathematician in the world has been able to prove that such number does not exist.