Applied Coding - Language Skill
(Using String)

Solve the following problems using computer with help of Python/C++/Java/C# language as means of communication.

Problem 1: Mystery Length

Create a function *removeMysteryLength* that takes a string of alpha-numeric characters with the length appended to the string, removes the length part of it, returns the remaining string. For example, if input string is "JamesBond00712" where, 12 is length of string JamesBond007 then, return "JamesBond007".

Write a main program to demonstrate your function.

Problem 2: Palindrome Check

A string is a palindrome if it is identical forward and backward. For example "anna", "civic", "level" and "hannah" are all examples of palindromic words. Create a function named *isPalindrome* that takes a string from the user and determines whether or not it is a palindrome.

Write a main program to demonstrate your function.

Problem 3: Reverse Words

Create a function named *reverseWords* that takes a string from the user and returns a string with words reversed. For example, if input string is "India is Best" then the returned string is "Best is India"

Write a main program to demonstrate your function.

Problem 4: Encode & Decode

Create a function *decode* that takes a character as input and returns the ASCII code of that character. Create a function *encode* that takes a ASCII code(number) as input and returns the character associated with it.

Write a main program to demonstrate your function.

Problem 5: Caesar Cipher

One of the first known examples of encryption was used by Julius Caesar. The idea behind Caesar cipher is simple. It starts by taking shift amount and message as input, then each letter in the original message is shifted(with wrap around) by shift amount places. For example, if shift amount=3 and message=*axy* then the result must be *dab*.

Create a function named *encrpytWithCaesar* that takes a string, shift amount as input and returns the encrypted string as suggested by Caesar cipher. Ensure that your program encodes both uppercase and lowercase letters. Non-letter characters are not modified by the cipher.

Write a main program to demonstrate your function.

Problem 6: Does the string represent valid Integer?

Write a function named *isInteger* that determines whether or not the characters in a string represent a valid integer. When determining if a string represents an integer you should ignore any leading or trailing white space. Once this white space is ignored, a string represents an integer if its length is at least 1 and it only contains digits, or if its first character is either + or - and the first character is followed by one or more characters, all of which are digits. Write a main program that reads a string from the user and reports whether or not it represents an integer.