National University of Computer and Emerging Sciences

Lab # 11
For

Programming Fundamentals Lab

Lab Instructor(s)	Mr. Mughees Ismail
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FAST School of Computing

Instructions:

1. Make a word document with the convention "SECTION_Lab#_ROLLNO" and put all your source code and snapshots of its output in it.
2. Plagiarism is strictly prohibited, do not copy anything from internet, or any of your friend else your assignment will be marked 0.
3. Do not discuss solutions with one another.
4. Write the code with proper dialogues to improve the user interaction with your program.

You asked for strings, here are strings.

Task 01:

Write a C++ program to remove all special characters from a string.

Input: Hello, my name is Ali. I hate to code :(, but I'll love it one day.

Output: Hello my name is Ali I hate to code but Ill love it one day

Task 02:

Write a C++ program to calculate the number of duplicate letters in a string.

Input String:

Total number of unique characters of the said two strings.

Number of duplicate characters in the said string: 36

Task 03:

You have to write a program for Gram-Checker, Gram-Checker checks your sentence and corrects if your text has any issue.

Gram-Checker must do following things:

- If a letter following full stop is lowercase, convert it into uppercase and add a space between them.
- insert a space when a lower character follows an upper character in a given string.

Test your code on following inputs:

- LoremIpsum and the quick fox jumingToSea. and I must eatFood. food isGood for health.
- October 31, cityStreets are crowded, hidden in theChaos is the elementSo, am i. I must choose my targetsCarefully.
- TheyThinkIamHidingInTheShadows. But I amThe shadows.

Task 04:

Write a C++ program that takes a string input from user and reverse it.

Input: Hello world
Output: dlrow olleH

Task 05:

Whatsapp is big part of our life, and the chats on whatsapp are encrypted. Write an encryption program that takes an input from user and prints the encrypted message.

Encryption Algorithm

First your program must check each character is uppercase or lowercase. If character is uppercase check if it's ascii value if even or odd. If the ascii is odd, the character must be changed with offset of +2, or if ascii is even, character must be changed with offset of -4 e.g., if character is A change it to C, or if character is P change it with L.

Now if Character is lowercase, you do not have to check even or odd, just change the character with offset of +3. E.g., if character is z, change it with c.

Every Space must be replaced with $, comma (,) and apostrophe (') will be replaced with # and full stop (.) with %.

Test your encryption program on following inputs:

- When I was just a kid' they said, Kid don't you cry.
- Attack on Base, we're coming for your aid.
- I'm going to make a very beautiful life for myself, no matter what it takes.

Task 06:

Write a decryption program for the same encryption program above and test your decrypted messages on that. Recheck those decrypted messages with given test cases.

Best of lucks