National University of Computer and Emerging Sciences

Lab Manual

Computer Organization and Assembly Language

Lab 09

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Class	CS3
Semester	Fall 2022

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Objectives

- Subroutines
- Display Memory
- String Instructions

Contents

Note for all questions: You can make as many memory variables, subroutines as you need. Must read all the manual before starting.

ACTIVITY 1: [20 Marks]

Write a subroutine which copies contents of string1 into another string but without spaces and punctuation marks. For example, if it is provided the following string

String1 DB "Mr. Ali, Usman, & Anwar! Doing what???? want to travel????", '0'

It should return

String2 DB "MrAliUsmanAnwarDoingwhatwanttotravel", '0'

Note: Your subroutine should be capable of eliminating spaces and punctuation marks from the string of any size.

ACTIVITY 2: [20 Marks]

Write a subroutine reverses the contents of a given string. For example, if it is provided the following string

String1 DB "I am Mr X", '0'

It should return

String2 DB "X rM ma I", '0'

Note: Your subroutine should be capable to reverse the string of any size.

ACTIVITY 3: [20 Marks]

Write a program which

1. First removes punctuation from **String1** and produces **String2**
2. The reverses the **String2** and produces **String3**
3. Compare both Strings (**String2** and **String3)** for equality
4. If both strings are equal, print("The given string is palindrome") otherwise print("The given string is not a palindrome")

*String1 DB "*A man, a plan, a canal, Panama!!!*", '0'*

*String2 DB "*AmanaplanacanalPanama*", '0'*

*String3 DB "*amanaPlanacanalPanamA*", '0'*

ACTIVITY 4: [20 Marks]

Write a program which prints a moving counter as shown in the attached video file[1].

ACTIVITY 5: [20 Marks]

Write a subroutine **RANDOMPOS** which (on each call) receives a number as **SEED** and based on that **SEED** generates random position (**X**, **Y** of the DOSBox Screen).

Write a program which displays Counter from **Activity4** on random locations Using the **RANDOMPOS**.

REFERENCES

[1] https://www.youtube.com/watch?v=ylmCcDf3Oek
[2] http://www.dosbox.com/download.php?main=1
[3] http://sourceforge.net/projects/nasm
[4] http://www.nasm.us/
[5] http://www.programmersheaven.com/download/21643/download.aspx (AFD)