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| **Course Name:** | **Microprocessors and Peripherals (2UXC404)** | **Semester:** | **IV** |
| **Date of Performance:** |  | **Batch No:** |  |
| **Faculty Name:** | XYZ | **Roll No:** |  |
| **Faculty Sign & Date:** |  | **Grade/Marks:** | \_\_\_/25 |

**Experiment No: 6**

**Title:** Palindrome Check

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| **Aim and Objective of the Experiment:** |
| **Aim:** Write an 8086 based ALP to   1. Check whether a given string is a palindrome or not..Indicate the same with the messages”Yes it’s a palindrome”, “Sorry, not a palindrome”   **Objectives:**   1. To study string instructions 2. To study DOS interrupts   This experiment covers   * + - 1. String instructions       2. DOS interrupts for taking input from keyboard and displaying strings on screen. |

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| **COs to be achieved:** |
| **CO 2.** Develop 8086 based assembly language programs for various applications. |

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| **Useful links** |
| NASM Assembler  <https://www.tutorialspoint.com/compile_assembly_online.php>  Simulator/Emulator:  <https://emu8086-microprocessor-emulator.en.softonic.com/download>  DOSBox x86 emulator  <https://sourceforge.net/projects/dosbox/>  MASM/TASM assembler  data segment  msg1 db "Enter the string",10,13,'$'  msg2 db 10,13,"Yes it's a palindrome",10,13,'$'  msg3 db 10,13,"Sorry, not a Palindrome",10,13,'$'  msg4 db 10,13,"Reverse of string is",10,13,'$'  str db 10H dup('$')  revstr db 10H dup('$')  data ends  code segment  assume cs:code,ds:data,ss:stack  start:mov ax,data  mov ds,ax  mov es,ax    mov ah,09  lea dx,msg1  int 21h    mov ah,0Ah  lea dx,str  int 21h    lea si,str  inc si  mov cl,[si]  mov bl,cl  mov ch,0  inc si    lea di,revstr  add di,cx  dec di    back:cld  lodsb  std  stosb  loop back    mov ah,09  lea dx,msg4  int 21h    mov ah,09  lea dx,revstr  int 21h    lea si,str  inc si  inc si  lea di,revstr  mov cl,bl  mov ch,0    cld  repe  cmpsb  jnz no    mov ah,09  lea dx, msg2  int 21h  jmp skip    no:mov ah,09  lea dx,msg3  int 21h    skip:mov ah,4ch  int 21h  code ends  end start  end |

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| **Work to be done** |
| 1. Upload image of handwritten algorithm/flowchart and lst file of the program and output screenshots . Also upload results for post lab questions. |

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| **Post Lab Subjective/Objective type Questions:** |
| Q1.Write short note on REP prefix  REP is a prefix written before one of the string instructions. It is used for repeating an instruction count number of times, where count is stored in the CX register. After every operation the CX register is decremented and the zero flag is tested; the process continues till CX = 0.  Usage: REP <String-Instruction>  Flags: Depend on String instruction used  Examples:  Repeat while equal: Copy the 8-bit byte from the DS:[(E)SI] to the ES:[(E)DI] register.  rep; movsb  Repeat while not zero: Compare the memory byte double-word addressed in the destination register EDL, relative to the ES segment, with the contents of the EAX register.  repnz; scasl  Repeat while zero:Transfer the contents of the EAX register to the memory double-word addressed in the destination register EDL, relative to the ES segment.  repz; stosl |

**Signature of faculty in-charge with Date:**

**Conclusion: We wrote 8086 program to identify whether given user inputted string is a palindrome or not using emulator 8086.**