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**Department of Computer Science & Engineering**

**Microprocessor & Computer Architecture - UE20CS252**

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| **Sl. No** | **Programs** |
| **Week No.6** | 1. Write a program in ARM7TDMI-ISA to generate a diagonal matrix.  Note: do not read the matrix elements.  2. Write a program in ARM7TDMI-ISA to find the sum of all the positive  numbers in the array. Use subroutine SUMPOSITIVE for the same.  3. Write a program in ARM7TDMI-ISA to check the parity of given 32 bit  number using function subprogram PARITYCHECK. Display appropriate  messages as ODD PARITY or EVEN PARITY number.  **Student exercises:**  1. Write a program in ARM7TDMI-ISA to find the sum of all the digits in an  32bit number.  *.DATA*  *A: .WORD 6666*  *SUM:.WORD 0*  *.TEXT*  *LDR R5,=A*  *LDR R0,[R5]*  *MOV R2,#0 ;final answer*  *MOV R3,#0*  *MOV R4,#0*  *LOOP:*  *MOV R4,#0*  *DI:*  *CMP RO,#10*  *BMI FINISH*  *SUB R0,R0,#10*  *ADD R4,R4,#1*  *B DI*  *FINISH:*  *MOV R3,R0*  *ADD R2,R2,R3*  *MOV R0,R4*  *CMP R0,#0*  *BNE LOOP*  *B EXIT*  *EXIT:*  *LDR R9,=SUM*  *STR R2,[R9]*  *SWI 0X011*  2. Write a program in ARM7TDMI-ISA to find the number of occurrences of a  given character in a string.  Example: Given string : My name is Bond.  Character : ‘n’.  Expected Output : Display 2 in a register.  ***.DATA***  ***A: .ASCIZ "My name is Bond"***  ***B: .BYTE 'n'***  ***.TEXT***  ***LDR R5,=A***  ***LDR R6,=B***  ***MOV R3,#15***  ***MOV R4,#0***  ***LDRB R2,[R6]***  ***LOOP:***  ***LDRB R1,[R5]***  ***CMP R1,R2***  ***ADDEQ R4,R4,#1***  ***SUB R3,R3,#1***  ***CMP R3,#0***  ***ADD R5,R5,#1***  ***BNE LOOP***  ***.END*** |

**MPCA-Laboratory/Assignment/Hands-on/Project**