

**Department of Computer Science & Engineering**

**Microprocessor & Computer Architecture - UE20CS252**

***NAME : VISHWAS M SEC : F***

***SRN : PES2UG20CS390 DATE: 26/03/2022***

***WEEK 6***

|  |  |
| --- | --- |
| **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.  a)for odd parity:  b)for even parity:  **Student exercises:**  1. Write a program in ARM7TDMI-ISA to find the sum of all the digits in an  32bit number.  .data  A: .WORD 2312  B: .WORD 0xCCCCCCCD  .text  mov r0,#0  LDR r1,=A  LDR r2,[r1]  ldr r4,=B  LDR r5,[r4]  l1:  CMP r2,#10  BLT L4  MOV r3,r2  B L2  L2:  CMP r3,#10  BLT L3  SUB r3,r3,#10  B L2  L3:  ADD r0,r0,r3  UMULL r6,r2,r2,r5  MOV r2,r2,LSR #3  B l1  L4:  ADD r0,r0,r2  .end  //SUM IS STORED IN R0  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.  ;R7 HOLDS THE NUMBER OF OCCURENCES  .DATA  A: .asciz "MY NAME IS BOND"  B: .asciz "N"  .TEXT  LDR R1, =A  LDR R2, =B  MOV R7,#0  L1: LDRB R3, [R1]  LDRB R4, [R2]  CMP R3,R4  BEQ L2  ADD R1, R1,#1  CMP R3, #0  BNE L1  SWI 0X11  L2: ADD R7,R7,#1  ADD R1, R1,#1  B L1       * Step 1: Get number by user * Step 2: Get the modulus/remainder of the number * Step 3: sum the remainder of the number * Step 4: Divide the number by 10 * Step 5: Repeat the step 2 while number is greater than 0.   udiv r0, r6, r7 @ no, div to get quotient  *operand1* **MOD** *operand2* |

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