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**SRN : PES1UG20CS153**

**SECTION : C**



**Department of Computer Science & Engineering**

**Microprocessor & Computer Architecture**

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

**UE20CS252**

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| **Sl. No** | **Programs** |
| **Week cNo.3** | 3. Write a program in ARM7TDMI-ISA to find the sum of N data items at alternate [ odd or even positions] locations in the memory. Store the result in the memory location.  a. Use Pre-indexing addressing mode  **;Preindexing Mode - Sum of number at odd position**  **.DATA**  **A:.WORD 10,20,30,40,50**  **SUM\_ALT:.WORD 0**      **.TEXT**  **MOV R1,#0 ; sum of alternate numbers**  **MOV R4,#0 ; temporary register**  **MOV R6,#0 ; loop count**    **LDR R2,=A**  **LDR R3,=SUM\_ALT**  **SUB R2,R2,#8**  **LOOP:**  **LDR R4,[R2,#8]**  **ADD R2,R2,#8**  **ADD R1,R1,R4**  **ADD R6,R6,#1**  **CMP R6,#3**  **BNE LOOP**    **STR R1,[R3]**  **.END**  b. Use Post- Indexing addressing mode  **;Postindexing Mode - Sum of number at odd position**  **.DATA**  **A:.WORD 10,20,30,40,50**  **SUM\_ALT:.WORD 0**      **.TEXT**  **MOV R1,#0 ; sum of alternate numbers**  **MOV R4,#0 ; temporary register**  **MOV R6,#0 ; loop count**    **LDR R2,=A**  **LDR R3,=SUM\_ALT**  **LOOP:**  **LDR R4,[R2],#8**  **ADD R1,R1,R4**  **ADD R6,R6,#1**  **CMP R6,#3**  **BNE LOOP**    **STR R1,[R3]**  **.END**  c. Use Auto-indexing addressing mode  **;Autoindexing Mode - Sum of number at odd position**  **.DATA**  **A:.WORD 10,20,30,40,50**  **SUM\_ALT:.WORD 0**      **.TEXT**  **MOV R1,#0 ; sum of alternate numbers**  **MOV R4,#0 ; temporary register**  **MOV R6,#0 ; loop count**    **LDR R2,=A**  **LDR R3,=SUM\_ALT**  **SUB R2,R2,#8**  **LOOP:**  **LDR R4,[R2,#8]!**  **ADD R1,R1,R4**  **ADD R6,R6,#1**  **CMP R6,#3**  **BNE LOOP**    **STR R1,[R3]**  **.END** |