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********************************************************************************
================================================================================
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;////////////////////////////////////////////////////////////////;
;//    Code developer : Mr. Vaibhav Sugandhi                     //
;//                         01FE16BEC437                         //
;//                         4TH SEM ( A DIVISION )               //
;//                    KLE TECHNOLOGICAL UNIVERSITY - HUBLI      //
;//                                                              //
;//                                                              //
;// This code is developed for LPC2148 ARM processor using keil v4   //
;////////////////////////////////////////////////////////////////;
 AREA ADD_BYTES,code,readonly               ;Declaration of code area
ENTRY                                       ;Begining of the program
    MOV R0,#0X05                            ;Counter for repeating the loop
    LDR R1,=DATA                            ;Loads the address of the data field
Again                                       ;Lable for branching
    LDRB R2,[R1],#01                        ;Loads the first data in R2 and increments
    the value of R1 for next data
    ADDS R3,R3,R2                           ;Adds R3 with R2 and store the result in R3
    SUBS R0,R0,#01                          ;Decrement the counter by one
    BNE Again                               ;Branch/repeats the itaration till R0
    becomes ZERO
STOP                                        ;Lable for branching
    B STOP                                  ;Loops infinite times
DATA DCB 0X01,0X01,0X01,0X01,0X04           ;Datas on which we are computing
 END                                        ;End of the ARM code

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;//                                                              //
;//                                                              //
;// This code is developed for LPC2148 ARM processor using keil v4   //
;////////////////////////////////////////////////////////////////;
 AREA ADD_HALF_WORDS,code,readonly          ;Declaration of code area
ENTRY                                       ;Begining of the program
    MOV R0,#0X05                            ;Counter for repeating the loop
    LDR R1,=DATA                            ;Loads the address of the data field
Again                                       ;Lable for branching
    LDRH R2,[R1],#02                        ;Loads the first data in R2 and increments
    the value of R1 for next data
    ADDS R3,R3,R2                           ;Adds R3 with R2 and store the result in R3
    SUBS R0,R0,#01                          ;Decrement the counter by one
    BNE Again                               ;Repeart the process till Counter become ZERO
STOP                                        ;Lable for branching
    B STOP                                  ;Loops infinite times
DATA DCW 0X1234,0X1111,0X3333,0X4444,0X6655 ;Datas on which we are computing
 END                                        ;End of the ARM code

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;//                                                              //
;//                                                              //
;// This code is developed for LPC2148 ARM processor using keil v4   //
;////////////////////////////////////////////////////////////////;
 AREA ADD_WORDS,code,readonly               ;Declaration of code area
```

```
ENTRY                                          ;Begining of the program
    MOV R0,#0X05                               ;Used as a counter
    LDR R1,=DATA                               ;Loads the address of the value 1 or
    starting adress of the datas
Again                                          ;Lable for looping
    LDR R2,[R1],#04                            ;Loads the first value in array
    ADDS R3,R3,R2                              ;Successive addition with status update
    SUBS R0,R0,#01                             ;Counter for iteration
    BNE Again                                  ;Repeate the execution if condition is true
STOP                                           ;Lable for looping
    B STOP                                     ;Infinite loop
DATA DCD 0X12345678,0X11112222,0X22223333,0X33334444,0X88556655  ;List of data on which
we are computing
 END                                           ;End of the ARM code

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;//                                                              //
;//                                                              //
;// This code is developed for LPC2148 ARM processor using keil v4   //
;////////////////////////////////////////////////////////////////
 AREA Subtraction,code,readonly
 ;Declaration of code area
ENTRY
;Begining of the program
    MOV R0,#0X05
    ;Counter for repeating the loop
    LDR R1,=DATA
    ;Loads the address of the data field
Again
;Lable for branching
    LDR R2,[R1],#04
    ;Loads the first data in R2 and increments the value of R1 for next data
    SUBS R3,R3,R2
    ;Subtracts R2 from R3 and store the result in R3
    SUBS R0,R0,#01
    ;Decrement the counter by one
    BNE Again
    ;repeats loop untill counter become ZERO
STOP
;Lable for branching
    B STOP
    ;Loops infinite times
DATA DCD 0X10000000,0X00000001,0X00000001,0X00000001,0X00000001
;Datas on which we are computing
 END
 ;End of the ARM code

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;//                                                              //
;//                                                              //
;// This code is developed for LPC2148 ARM processor using keil v4   //
;////////////////////////////////////////////////////////////////
 AREA MULTIPLICATION,CODE,READONLY
 ;Declaration of code area
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```
ENTRY
;Begining of the program
    MOV R0,#04
    ;Used as a counter
    LDR R1,=DATA1
    ;Loads the address of the value 1 or starting adress of the datas
    LDR R5,=RESULT
    ;Loads the address of the result memory
    LDR R2,[R1],#4
    ;Loads the first data in R2 and increments the value of R1 for next data
LOOP
;Lable for looping
    LDR R3,[R1],#4
    ;Loads the first data in R3 and increments the value of R1 for next data
    MUL R4,R3,R2
    ;Multiplies the R3 with R2 and store result in R4
    MOV R2,R4
    ;Successive multiplication pupose coping the result into R2
    SUBS R0,R0,#01
    ;Decrementing the value of counter
    BNE LOOP
    ;Repeats till Counter become ZERO
    STR R2,[R5]
    ;Stores the result in result_memory
STOP
;Lable for looping
    B STOP
    ;Loops infinite times
DATA1 DCD 0x00000002,0x00000002,0x00000002,0x00000002,0x00000002
;Datas on which we are computing
 AREA RESULT_MEMORY,DATA,READWRITE
 ;Declaration of Result_Memory area
RESULT DCD 0x00
;Result initially 00
    END
    ;End of the ARM code

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;//                                                              //
;//                                                              //
;// This code is developed for LPC2148 ARM processor using keil v4   //
;////////////////////////////////////////////////////////////////
 AREA Dividation,code,readonly           ;Declaration of code area
ENTRY                                    ;Begining of the program
    MOV R4,#00                           ;Result is held in this register after
    computation
    MOV R0,#0x40                         ;Put your numerator here
    MOV R1,#0x02                         ;Put your denominator here
LOOP                                     ;Lable for looping
    SUB R0,R0,R1                         ;successive subtraction for multiplication
    ADD R4,R4,#01                        ;Result is count value
    CMP R0,R1                            ;Comparing to take decision
    BPL LOOP                             ;Branch or repeat utill condition is true
STOP                                     ;Lable for looping
    B STOP                               ;infinite loop
    END                                  ;End of the ARM code

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