```
        AREA TopLevelSwi, CODE, READONLY                                                    // Name
this block of code.

        EXPORT          SWI_Handler

/* Software Interrupt Handler Subroutine */

/* SWI Instruction = [0000][0000][00000000 00000000 00000000]
                      COND   X      SWI Number (24 bits)

        This subroutine extracts SWI Number and treats it as
        3 x 8 bit values respectively. Subroutine returns
        the sum of the 3 values in R0

 */

SWI_Handler
        STMFD   SP!,{R1-R12,LR}                 // Store registers.

        LDR     R0,[LR,#-4]                     // Calculate address of SWI instruction and load it into r0.
        BIC     R0,R0,#0xFF000000               // Mask off top 8 bits of instruction to give SWI number.

        AND R1, R0, #0x000000FF                 // Extract leftmost 8 bits

        AND R2, R0, #0x0000FF00                 // Extract middle 8 bits
        LSR R2, R2, #8                          // middleBits >> 8

        AND R3, R0, #0x00FF0000                 // Extract rightmost 8 bits
        LSR R3, R3, #16                         // rightBits >> 16

        ADD R0, R1, R2                          // sum = leftBits + middleBits
        ADD R0, R0, R3                          // sum = sum + rightBits

        LDMFD           SP!, {R1-R12,PC}^       // Restore registers and return.

        END
```