```
/* Program that converts a binary number to decimal */
            .text                   // executable code follows
            .global _start
_start:
            MOV     R4, #N
            ADD     R5, R4, #4      // R5 points to the decimal digits storage location
            LDR     R4, [R4]        // R4 holds N
            MOV     R0, R4          // dividend for DIVIDE goes in R0
            MOV     R1, #1000       // Get the thousands digit
            BL      DIVIDE
            STRB    R1, [R5, #3]    // Store the thousands digit
            MOV     R1, #100        // Get the hundreds digit
            BL      DIVIDE
            STRB    R1, [R5, #2]    // Store the hundreds digit
            MOV     R1, #10         // Get the tens digit
            BL      DIVIDE
            STRB    R1, [R5, #1]    // Store the tens digit
            STRB    R0, [R5]        // Ones digit is in R0 (remainder)
END:        B       END

/* Subroutine to perform the integer division R0 / R1.
 * Parameters: dividend in R0, divisor in R1
 * Returns: quotient in R1, and remainder in R0
*/
DIVIDE:     MOV     R2, #0
CONT:       CMP     R0, R1
            BLT     DIV_END
            SUB     R0, R1
            ADD     R2, #1
            B       CONT
DIV_END:    MOV     R1, R2          // quotient in R1 (remainder in R0)
            MOV     PC, LR

N:          .word   9876              // the decimal number to be converted
Digits:     .space  4               // storage space for the decimal digits

            .end

```