LAB1

```
        AREA PROGRAM1,CODE,READONLY
        ENTRY
START
                LDR R6,=OPERAND1
                LDRH R1,[R6]
                LDR R6,=OPERAND2
                LDRH R2,[R6]
                MUL R3,R1,R2
                LDR R6,=PRODUCT
                STR R3,[R6]

                AREA SOURCE,DATA,READONLY
OPERAND1  DCW 0X1111
OPERAND2  DCW 0X2222
                AREA DEST,DATA,READWRITE
PRODUCT   DCD 0X0
END
```

LAB 2

```
                AREA SUM,CODE,READONLY
                ENTRY
START
                MOV R6,#0
                MOV R5,#10
                MOV R0,#0
                MOV R1,#1
LOOP1       ADD R0,R0,R1
                ADD R1,R1,#1
                SUB R5,R5,#1
                CMP R5,R6
                BNE LOOP1
                LDR R4,=RESULT
                STR R0,[R4]
                AREA DATA1,DATA,READWRITE
RESULT DCD 0X0
                END
```

LAB 3

```
                AREA FACT,CODE,READONLY
                ENTRY
START       LDR R4,=N
                LDRH R0,[R4]
                CMP R0,#1
                BEQ STOP
                CMP R0,#2
                BEQ STOP
                MOV R1,R0
LOOP1       SUBS R1,R1,#1
                CMP R1,#1
```

```
                BEQ STOP
                MUL R3,R0,R1
                MOV R0,R3
                B LOOP1
STOP
                LDR R4,=FACT1
                STR R0,[R4]

        AREA DATA1,DATA,READONLY
N       DCW             0X0004
        AREA DATA2,DATA,READWRITE
FACT1           DCD   0X0
        END
```

LAB 4

```
                AREA PGM4A,CODE,READONLY
                ENTRY
START           MOV   R6,#0
                MOV R5,#6
                MOV R0,#0
                LDR R1,=VALUE1
LOOP1           LDR R2,[R1],#2
                LDR R3,=MASK
                LDR    R4,[R3]
                AND   R2,R2,R4
                ADD   R0,R0,R2
                SUBS  R5,R5,#1
                CMP   R5,R6
                BNE   LOOP1
                LDR    R4,=RESULT
                STR    R0,[R4]
                AREA DATA1,DATA,READONLY
VALUE1          DCW   0X1111,0X2222,0X3333,0X4444
                DCW   0X5555,0X6666
MASKDCW   0X0000FFFF
        AREA DATA2,DATA,READWRITE
RESULT          DCD   0X0
                END
```

LAB 5

```
        AREA SQUARE,CODE,READONLY
        ENTRY
START
        LDR R0,=TABLE1
        MOV   R1,#3
        MOV   R1,R1,LSL#0X2
        ADD R0,R0,R1
        LDR R3,[R0]
        LDR R4,=RESULT
        STR R3,[R4]
        AREA DATA1,DATA,READONLY
```

```
TABLE1      DCD 0X00000000
            DCD 0X00000001
            DCD 0X00000004
            DCD 0X00000009
            DCD 0X00000010
            DCD 0X00000019
            DCD 0X00000024
            DCD 0X00000031
            DCD 0X00000051
            DCD 0X00000064
        AREA DATA2,DATA,READWRITE
RESULT      DCD 0X0
            END
```

LAB 6

```
        AREA LARGEST,CODE,READONLY
   ENTRY
START
   MOV R5,#5
   LDR R1,=VALUE1
   LDR R2,[R1],#4
LOOP LDR R4,[R1],#4
   CMP R2,R4
   BHI DOWN
   MOV R2,R4
DOWN SUB R5,R5,#1
   CMP R5,#0
   BNE LOOP
   LDR R1,=RESULT
   STR R2,[R1]
   AREA DATA1,DATA,READONLY
VALUE1      DCD 0X44444444
            DCD 0X11111111
            DCD 0X22222222
            DCD 0XAAAAAAAA
            DCD 0X33333333
            DCD 0X55555555
   AREA DATA2,DATA,READWRITE
RESULT DCD 0X0
   END
```

LAB 7

```
   AREA DECSENDING,CODE,READONLY
   ENTRY
START MOV R3,#0X05
   LDR R0,=ARRAY1
   LDR R1,=ARRAY2
UP LDR R2,[R0],#4
   STR R2,[R1],#4
   SUBS R3,R3,#1
```

```
   BNE UP
   MOV R3,#5
   SUBS R3,R3,#1
ABOVE MOV R4,R3
   LDR R0,=ARRAY2
LOOP1 LDR R1,[R0],#4
   LDR R2,[R0]
   CMP R1,R2
   BGE DOWN
   STR R1,[R0],#-4
   STR R2,[R0]
   ADD R0,R0,#4
DOWN SUBS R4,R4,#1
   CMP R4,#0
   BNE LOOP1
   SUBS R3,R3,#1
   CMP R3,#0
   BNE ABOVE
STOP B STOP
   AREA SOURCE,DATA,READONLY
ARRAY1 DCD 1,2,3,4,5
   AREA DEST,DATA,READWRITE
ARRAY2 DCD 0X0
   END
```

LAB 8

```
        AREA ZEROSONES,CODE,READONLY
                ENTRY
START
                MOV R4,#0
                MOV R2,#0
                MOV R3,#0
                MOV R7,#2
                LDR R6,=VALUE
LOOP
                MOV R1,#32
                LDR R0,[R6],#4
LOOP0           MOVS R0,R0,ROR#1
                BHI ONES1
ZEROS1  ADD R3,R3,#1
                B LOOP1
ONES1           ADD R2,R2,#1
LOOP1           SUBS R1,R1,#1
                BNE LOOP0
                SUBS R7,R7,#1
                CMP R7,R4
                BNE LOOP
                LDR R8,=ZEROS
                STR R3,[R8]
                LDR R8,=ONES
                STR R2,[R8]
        AREA DATA1,DATA,READONLY
```

```
VALUE       DCD 0X3,0X4
        AREA DATA2,DATA,READWRITE
ZEROS       DCD 0X0
ONES DCD 0X0
   END
```