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CMSC 411

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Project 4

Excel results for C code below:

As seen, the correct output is 0,0,0,0,40,40,0,0

MIPS code is below; I didn’t include the loop for testing.

# Tell assembler to not insert instructions to fill branch delay slots.

# This is necessary when branch delay slots are disabled.

.set noreorder

.global \_start

\_start:

HYST:

ADDI $20,$0, 10

ADDI $1, $0, 5 #Const low\_limit

ADDI $2, $0, 25 #Const high\_limit

ADDI $3, $0, 40 #Const out\_high

ADDI $4, $0, 0 #Const out\_low

ADD $5, $0, $4 #old\_out = out\_low

ADD $6, $0, $4 #out = out\_low

SUB $7, $20,$2 #in - high\_limit

SUB $8, $1, $20 #low\_limit - in

BGEZ $7, HIGH1 #if in - high\_limit > 0

BGEZ $8, LOW1 #if low\_limit - in > 0

J DONE

HIGH1:

BEQ $5, $4, HIGH2 #if old\_out == out\_low, jmp High2

J DONE

HIGH2:

ADD $6, $3, $0 #out = out\_high + 0

J DONE

LOW1:

BEQ $5, $3, LOW2 #if old\_out == outhigh, jmp High2

J DONE

LOW2:

ADD $6, $4, $0 #out = out\_low + 0

J DONE

DONE:

ADD $5, $6, $0 #old\_out = out + 0

NOP