

Quiz #5

Wednesday, October 25th

Translate the following two functions into ARM assembly:

// Use IT instructions

```
// Function prototype declarations:  
int32_t Greatest(void) ;  
  
// Function to be implemented:  
int32_t Pick(int32_t s32,  
             int32_t a, int32_t b)  
{  
    if (s32 < Greatest()) return b - a ;  
    else return a - b ;  
}
```

// Use conditional branch instructions

```
// Function prototype declarations:  
uint32_t Min(void), Max(void) ;  
  
// Function to be implemented:  
uint32_t Limit(uint32_t u32)  
{  
    if (u32 < Min() || u32 > Max()) return 0 ;  
    else return u32 ;  
}
```

Pick:	PUSH {R4,R5,R6,LR}
	MOV R4,R0 // s32
	MOV R5,R1 // a
	MOV R6,R2 // b
	BL Greatest
	CMP R4,R0
	ITE LT
	SUBLT R0,R6,R5 // b-a
	SUBGE R0,R5,R6 // a-b
	POP {R4,R5,R6,PC}

Limit:	PUSH {R4,LR}
	MOV R4,R0
	BL Min
	CMP R4,R0
	BLO Then
	BL Max
	CMP R4,R0
	BLS Else
Then:	LDR R0,=0
	B EndIf
Else:	MOV R0,R4
EndIf:	POP {R4,PC}