nam	somebodies name goes	440SP13_PROJECT_v01
total	0	ARM-POWERED AUDIOMETER ('eh?M3')
		You are to write software for the P24 microprocessor board which permits operation of the board as the 'eh?M3' audiometer (hearing tester).
		The eh?M3 will:
	10	1) display frequency: turn on LED1 and display the test frequency (125Hz to 8000Hz) on the four 7-segment displays when the 'FREQUENCY' mode switch (SW9) has been pressed. Test frequency will default to 125 Hz at power-on, and will otherwise resume at its most recent setting for other adjustments.
	10	2) adjust frequency: test frequency is to be adjusted using switches 1-8, with each switch pair 1/2, ..,7/8 acting to adjust the digit above the switch pair up/down in single steps at each switch press.
	5	3) display intensity: turn on LED2 and display the test intensity (-10db to 110db) on the four 7-segment displays during a test when the 'TEST' mode switch (SW10) has been pressed. Test intensity will default to -10db at power-on and whenever the test frequency is changed..
	10	4) adjust intensity: while in TEST mode, intensity is to be adjusted up/down in 5db steps for every 2 CW/CCW detent-stops (8 phase-steps) of the rotary encoder.
	20	5) generate tones: use DMA with the onboard CS43L22 audio DAC to play a stored sinusoid wave.
	5	6) present tones: while in TEST mode, test tones will be switched on/off by successive presses of the TEST switch. LED6 will blink at 3 Hz while the test tone is 'on'.
	10	7) record responses: while in TEST mode, the "RECORD" switch (SW12) will be monitored for patient-input and the frequency and intensity at the time of switch-press will be recorded .
	10	8) erase current response: while in TEST mode, the most recently recorded sample may be erased by pressing "REVIEW" (SW11) for less than 1 second.
	10	9) playback test results: turn on LED3 to indicate REVIEW mode when SW11 is pressed for more than 1 second but less than 5 seconds. In REVIEW mode, pressing the RECORD switch (SW12) repeatedly will step the displays through the record of frequency/intensity accumulated while in TEST mode. The value displayed will default to intensity, but the frequency value in the record will be displayed whenever FREQUENCY (SW9) is held down.
	10	10) erase tests/reset system: at any stage of device operation, if REVIEW (SW11) is pressed and held for 5 seconds, then turn on 'ERASE WARNING' (LED5) and blink it at 'w' Hz, where w= number of seconds since SW11 was pressed.. If SW11 continues to be held down for 10 seconds, turn LED4 ('RESET') on for 2 seconds and erase the recorded patient history, then return to the power-on reset state. Otherwise, return/remain in REVIEW mode.
		additional requirements:
	10	11) Interrupt-driven display refresh: use an interrupt to provide a 1 kHz display refresh.
	10	12) Interrupt-driven timekeeping: use a separate interrupt to provide fractional second timekeeping.
		extra credit:
	15	13) Communicate test-protocol scripts from the PC: Send a text file containing a test-protocol script of your own devising from the PC to the P24 over USB.
	15	14) Record test results on the PC: Send the result record previously displayed for requirement 9 (above) to the PC over USB for storage in a text file on the PC.

									Submissions:
									Your project-report should be submitted in a .zip file and will consist of:
					15				-a PDF containing a written overview of the system design concept along with figures (flow charts, state diagrams, data diagrams, schematics) documenting the design and how it works;
					10				-a PDF containing the User's Manual for the device;
					10				-a PDF containing qualification and acceptance testing procedures for the device;
					15				-a directory containing the well-commented source and build tools for the device programs and a readme for their use.
									All submissions should be identifiable as to source (you) and application (440SP13_PROJECT)
						0	/	150	function score (/100)
						0	/	0	extra credit score (/50)
						0	/	50	documentation score (/50)
						0	/	200	Total (/150)