Pre-Lab Register Tables

Configure Port E: Pin 10, 11, 12, and 13 as Digital Output

GPIO Mode: Digital Input (00), Digital Output (01), Alternative Function (10), Analog (11)

Register	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
MODER	MODER15[1:0]		MODER14[1:0]		MODER13[1:0]		MODER12[1:0]		MODER11[1:0]		MODER10[1:0]		MODER9[1:0]		MODER8[1:0]		MODER7[1:0]		MODER6[1:0]		MODER5[1:0]		MODER4[1:0]		MODER3[1:0]		MODER2[1:0]		MODER1[1:0]		MODER0[1:0]	
MASK					0	1	0	1	0	1	0	1																				
VALUE					0	1	0	1	0	1	0	1																				

GPIOA Mode Register MASK Value = 0x ~~55000000~~ FF000000 (in HEX)

GPIOA Mode Register Value = 0x 55000000 (in HEX)

Configure Port A: Pin 1, 2, 3, and 5 as Digital Input

GPIO Mode: Digital Input (00), Digital Output (01), Alternative Function (10), Analog (11)

Register	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
MODER	MODER15[1:0]		MODER14[1:0]		MODER13[1:0]		MODER12[1:0]		MODER11[1:0]		MODER10[1:0]		MODER9[1:0]		MODER8[1:0]		MODER7[1:0]		MODER6[1:0]		MODER5[1:0]		MODER4[1:0]		MODER3[1:0]		MODER2[1:0]		MODER1[1:0]		MODER0[1:0]	
MASK																					1	1	0	0	1	1	1	1	1	1	0	0
VALUE																					0	0	0	0	0	0	0	0	0	0	0	0

GPIOA Mode Register MASK Value = 0x CFC (in HEX)

GPIOA Mode Register Value = 0x 0 (in HEX)

1110 1010 1010 A
1011 D 1011 B
1101 1011 1100 C
1101 D
0111 1110 E
1111 F

Write to Port E: Pins 10, 11, 12, and 13 connect to the rows of the keypad

Bit	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
ODR	Pin 31	Pin 30	Pin 29	Pin 28	Pin 27	Pin 26	Pin 25	Pin 24	Pin 23	Pin 22	Pin 21	Pin 20	Pin 19	Pin 18	Pin 17	Pin 16	Pin 15	Pin 14	Pin 13	Pin 12	Pin 11	Pin 10	Pin 9	Pin 8	Pin 7	Pin 6	Pin 5	Pin 4	Pin 3	Pin 2	Pin 1	Pin 0
Value																	1	1	0	0	0	0	1	1	1	1	1	1	1	1	1	1

Value written to PORTE ODR in order to pull down all rows: 0x C3FF **(in HEX)**

Value written to PORTE ODR in order to pull down row 1: 0x FBFF **(in HEX)**

Value written to PORTE ODR in order to pull down row 2: 0x F7FF **(in HEX)**

Value written to PORTE ODR in order to pull down row 3: 0x EFFF **(in HEX)**

Value written to PORTE ODR in order to pull down row 4: 0x DFFF **(in HEX)**

Read from Port A: Pins 1, 2, 3, and 5 connect to the columns of the keypad

Bit	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
ODR	Pin 31	Pin 30	Pin 29	Pin 28	Pin 27	Pin 26	Pin 25	Pin 24	Pin 23	Pin 22	Pin 21	Pin 20	Pin 19	Pin 18	Pin 17	Pin 16	Pin 15	Pin 14	Pin 13	Pin 12	Pin 11	Pin 10	Pin 9	Pin 8	Pin 7	Pin 6	Pin 5	Pin 4	Pin 3	Pin 2	Pin 1	Pin 0
Value																									0	0	0	0	0	0	0	0

Mask to check if a button from column 1 has been pressed: 0x 02 **(in HEX)**

Mask to check if a button from column 2 has been pressed: 0x 04 **(in HEX)**

Mask to check if a button from column 3 has been pressed: 0x 08 **(in HEX)**

Mask to check if a button from column 4 has been pressed: 0x 20 **(in HEX)**