CS30000 Assignment #3 (100 points, Due: Mon. Oct. 9)

1. Exercises (Section 2.1), Problem 8. (10 points)

2. (30 points) What is the function of the following SIC/XE assembly program? You can simply express its function using high language statement(s). Generate the SIC/XE object code for each instruction, either manually or by your assembler if your team has implemented it already.

    Notes: (1) by default, PC relative addressing mode should be used (i.e., -2048 ≤ disp ≤ 2047). If disp is out of 12 bit limit (i.e., disp ≥ 2048 or disp ≤ -2049), use base relative instead. (2) assume that DATA values are already there in advance so you do not need to worry about how to initialize them. (3) please check the appendix for the meaning of each instruction if needed. (4) some instruction(s) do not generate machine code.

A_FUN	START	0
MAXRECORD	EQU	2048 (in decimal)
RETADR	RESW	1
COUNT	WORD	MAXRECORD
FIRST	STL	RETADR
	LDX	#0
	LDS	#0
	+LDB	#DOUBLE
	BASE	DOUBLE
LOOP	LDA	DATA, X
	MUL	#2
	ADDR	A, S
	STA	DOUBLE, X
	TIX	COUNT
	JLT	LOOP
	STS	RESULT
	J	@RETADR
DATA	RESW	MAXRECORD
DOUBLE	RESW	MAXRECORD
RESULT	RESW	1
	END	FIRST

3. Exercises (Section 2.2), Problem 9. (8 points)

4. Exercises (Section 2.2), Problem 10. (8 points)

5. Exercises (Section 2.2), Problem 11. (8 points)

6. Exercises (Section 2.3), Problem 4. (6 points)

7. Exercises (Section 2.3), Problem 7. (6 points)

8. Exercises (Section 2.3), Problem 8. (6 points)

9. Exercises (Section 2.3), Problem 9. (8 points)

10. Exercises (Section 2.4), Problem 8. (10 points)