CPSC 359 Assignment 1: Binary to Seven Segment Decoder
Kell Larson 30056026

1. **The Problem:**
   Using a 4-bit input number, produce 7 outputs, each connected to part of a seven segment display. This seven-segment display will show the 1-digit hexadecimal value of the 4-bit input number.

2. **Input and Output Variables:**
   Input Variables:
   $(x * 2^0)$, $(x * 2^1)$, $(x * 2^2)$, $(x * 2^3)$, which combine into a 4-bit binary number where $x = 0$ or $x = 1$.
   Output Variables:
   7 outputs, each connected to a unique part of one seven-segment display.

3. **Variable Symbolization:**
   Input Variables:
   Let the 4-digit binary number be represented by $I_0, I_1 I_{,2} I_3$, with the numbering being to what 2^x that digit displays as part of a binary number.
   Output Variables:
   Let the output variables be represented as A,B,C,D,E,F,G with the lettering corresponding to the seven-segment display on the assignment sheet, which is also here ---->
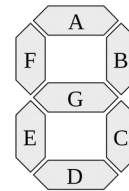
4. **Truth Table:**

Decimal Input #	Inputs				Outputs						
	I_3	I_2	I_1	I_0	A	B	C	D	E	F	G
0	0	0	0	0	1	1	1	1	1	1	0
1	0	0	0	1	0	1	1	0	0	0	0
2	0	0	1	0	1	1	0	1	1	0	1
3	0	0	1	1	1	1	1	1	0	0	1
4	0	1	0	0	0	1	1	0	0	1	1
5	0	1	0	1	1	0	1	1	0	1	1
6	0	1	1	0	1	0	1	1	1	1	1
7	0	1	1	1	1	1	1	0	0	0	0
8	1	0	0	0	1	1	1	1	1	1	1
9	1	0	0	1	1	1	1	1	0	1	1
10	1	0	1	0	1	1	1	0	1	1	1
11	1	0	1	1	0	0	1	1	1	1	1
12	1	1	0	0	1	0	0	1	1	1	0
13	1	1	0	1	0	1	1	1	1	0	1
14	1	1	1	0	1	0	0	1	1	1	1
15	1	1	1	1	1	0	0	0	1	1	1

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5. **Output Simplification via Map Function:**
   Please see the next page of the report for simplification via map method.

6. **Implementation:**
   Please see the last page of the report for implemented logic diagrams.