# BBM 301 - Programming Languages - Fall 2021 Midterm
# November 12, 2021

Name: _____

Student ID number: _____

Please write your name, ID and following honor pledge:
"**On my honor, I pledge that I have neither given nor received any unauthorized assistance on this exam.** "

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and **sign** your answer sheet.

**3- [30 pts] Writing Lex and Yacc**

The hexadecimal number system uses sixteen digits/alphabets: {0,1,2,3,4,5,6,7,8,9} and {A,B,C,D,E,F} with the base number as 16. Here, A-F of the hexadecimal system means the numbers 10-15 of the decimal number system respectively. In C, Java and Python, these hexadecimals are represented as constants that start with 0x, which consist of the digits 0–9, A–F. For example: 0x02BFCD, 0x6F, 0x4B2A are some examples of numbers in the hexadecimal number system.

In this question, you are asked to write an interpreter, using lex and yacc, that compares given hexadecimal numbers using three operators:

- ">" : greater
- "<" : smaller
- "==": is equal

Basically, the lex file will read in the hexadecimal numbers and the operators. The yacc file should compare these numbers and return appropriate results. *Hint: Use yacc's expression value assignment features ($$'s).*

The example input and outputs are as follows:

**Input: 0x4CC2 > 0xF5F3 Output: FALSE**
**Input: 0xAAA == 0x0AAA Output: TRUE**
**Input: 0xBC3 < 0xBCB Output: TRUE**

In addition to comparing hexadecimal numbers correctly, your interpreter should support handling multiple lines of inputs; should check for inputs that are not hexadecimal numbers and print an error message if wrong type of input is seen and should bypass the error by asking the user for the correct type of input.