CSC 2770
Programming Challenge 1
Threaded Matrix Multiplication

Challenge

The ThreadedMatrixMultiply.c file demonstrates a threaded version of the matrix multiplication program. The example is hard-coded for a 3 x 3 matrix using three threads to distribute the calculation load.

Step 1: Copy the code to a directory on your virtual machine.

Step 2: Create a make file for the project. Consider the following as a sample format.

```
CC = gcc
CFLAGS = -Wall -pthread

SRCS = ThreadedMatrixMultiplication.c
OBJS = $(SRCS:.c=.o)
TARGET = ThreadedMatrixMultiplication

all: $(TARGET)

$(TARGET): $(OBJS)
    $(CC) $(CFLAGS) $(OBJS) -o $(TARGET)

%.o: %.c
    $(CC) $(CFLAGS) -c $< -o $@

clean:
    rm -f $(OBJS) $(TARGET)
```

Step 3: Add an int named calculationCount containing the sum of the number of calculations completed by all threads. The sum should be calculated in the multiply() function and protected with a mutex. You can find mutex examples in the lecture slides.

Step 4: Print the number of completed calculations after the result matrix is printed.

Evaluation

Create a GitHub repo for your programming challenge project. You must add **elbrown-tntech** and **faithnlee** as collaborators. Submit the URL for the repo to the iLearn dropbox for Programming Challenge 1 for evaluation.