**CONCORDIA UNIVERSITY**

**DEPARTMENT OF**
**COMPUTER SCIENCE AND SOFTWARE ENGINEERING**

COMP 426, Fall 2019 Instructor: R. Jayakumar

**ASSIGNMENT 2**

Issued: Oct. 7, 2019 Due: Oct. 21, 2019

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***Note:*** *The assignments must be done individually and submitted electronically.*

## Multicore Implementation of 2D Bouncing Balls Simulation Using Intel TBB

In this assignment, you are going to implement the 2D bouncing balls simulation from Assignment 1 using Intel Threading Building Blocks (TBB). Specifically do the following:

- Develop the TBB program using appropriate generic parallel algorithms to implement the concurrent computation threads and other TBB constructs to implement the control thread from Assignment 1.
- Implement the required OpenGL calls within your TBB program appropriately.
- Optimize your TBB program to minimize/avoid synchronization as much as possible.

You may develop the program on the workstations in the lab or on your own computer with at least 4 cores, but demo it on the workstations in the lab. Your assignment will be marked on the basis of the demo.

Your submission should include a report describing how you designed and optimized your TBB program based on the computation threads and the control thread from Assignment 1 and the source code of your implementation.

## Submission Format for Assignments and Project

Create one zip file, containing the necessary source-code files and the report. Your zip file should be called A#_studentID, where # is the number of the assignment. studentID is your student ID number.