Assignment 1

Duration: 1 week

Let us work with a simple railway system with a station and two trains. The two trains follow routes as described below:

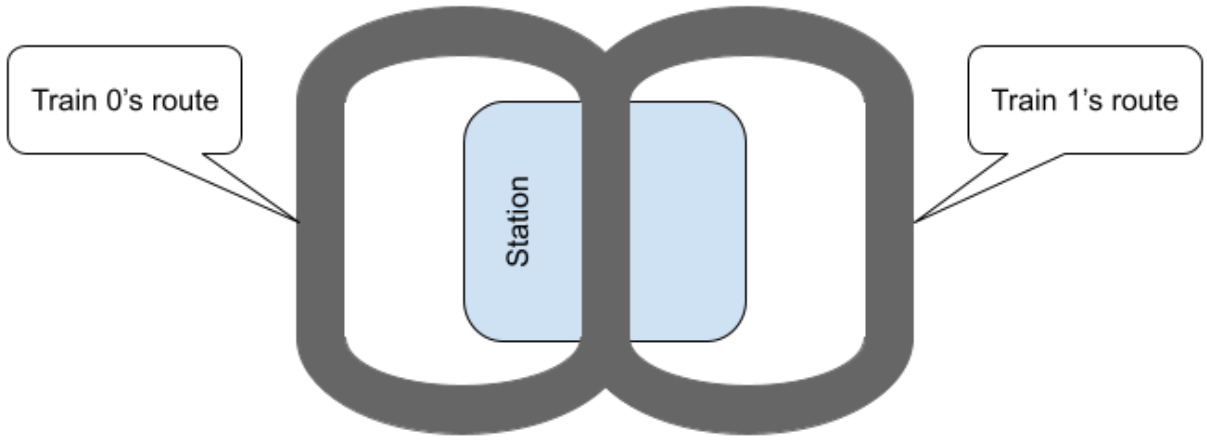

Figure 1: Description of the railway system

We don't want trains to collide. This means that only one train must be at the station at any given time.

A simple simulator of this system is provided in this repository. Clone the code, read it, and execute and observe it.

You may have observed that the given code doesn't guarantee that only one train is at the station at any given time. Create a copy of `train_station_simulator_racy_logic.cpp` as `train_station_simulator.cpp` in the same folder, and augment this file appropriately to ensure that the trains don't collide (think of constructs like locks, mutexes, etc.). Duly update the makefile.

Submit on Moodle – single zip file named *<roll-number-1>_<roll-number-2>_assignment1.zip* .

Note:

- We have not started doing any Runtime Verification yet. We are merely building our System-under-Verification (SUV). We will verify this system in upcoming assignments.
- Use Version Control through git (or any other system) effectively. You can judiciously create branches for upcoming assignments.