

Assignment 3 : Semaphores – Wadi crossing

A recent flood has blocked a road in the mountains. The cleanup process has made one lane available to motorists, but the crossing has to be coordinated, i.e., only cars driving in one direction can be active at any time. Direction of travel can switch only if there are no cars using the road at that time.

Create a **Qt semaphore-based** solution to this problem. Your program should support an arbitrary number of cars/threads, that will be randomly assigned to one or the other of the crossing's sides. Each car should try to cross after waiting for a random amount of time. E.g.:

```
$ ./wadi 25
```

should create and coordinate 25 threads.

The output of your program should be similar to this:

```
Car 1 is waiting to cross.
Car 2 is waiting to cross.
Car 1 is crossing from east to west.
Car 2 is crossing from east to west.
Car 2 finished crossing.
Car 1 finished crossing.
...
Car 6 is crossing from west to east.
...
```