Base plan - iterative

1. Self design map
    a. 1 x 1 one way street, 2 streets total
    b. 1 crossroad
    c. 1 traffic lights
    d. One car
2. Car:
    a. Designated Size
    b. Designated Speed
    c. Actions:
        i. Forward
        ii. Back
        iii. Turn - left,right
    d. Designated position
        i. Locates at left most point of the horizontal road
3. Traffic light:
    a. Attributes:
        i. Red
        ii. Green
    b. Refresh: No
    c. Communication: No
    d. Designated position
        i. Locates at the crossroad
4. Rules:
    a. Set up the traffic light indicator
    b. Select the car
    c. Start to let the car run
    d. Check if the car is going in the direction which traffic light indicates

Pseudocode

```
car = {
        num x;
        num y;
        num dir = 0;
}
trafficLight = {
        Boolean forward;
        Boolean left;
        Boolean right;
}
funtion boolean meetTrafficLight() {
        tempX = car.x;
        tempY = car.y;
        if (car.dir == 0)
                tempX = car.x + 1;
        else if (car.dir == 270)
                tempY = car.y + 1;
        else if (car.dir == 90)
                tempY = car.y - 1;
        else if (car.dir == 180)
                tempX = car.x - 1
        If (tempX == trafficLight.xPos() && tempY == trafficLight.yPos())
                return true;
        else
                return false;
}

function void moveForward() {
        If (car.dir == 0)
                car.x = car.x + 1;
        If (car.dir == 270)
                car.y = car.y + 1;
        If (car.dir == 90)
                car.y = car.y -1;
        If (car.dir == 180)
                Car.x = car.x -1;
        return;
}

function boolean turnRight() {
        If (car.dir == 0) {
                car.dir = 90;
```

```
                return true;
        }
        Else If (car.dir == 90) {
                car.dir = 180;
                return true;
        }
        Else If (car.dir = 180){
                car.dir = 270;
                return true;
        }
        Else If (car.dir == 270){
                car.dir = 0;
                return true;
        }
}

function boolean turnLeft(){
        If (car.dir == 0) {
                car.dir = 270;
                return true;
        }
        Else If (car.dir == 90) {
                car.dir = 0;
                return true;
        }
        Else If (car.dir = 180){
                car.dir = 90;
                return true;
        }
        Else If (car.dir == 270){
                car.dir = 180;
                return true;
        }
}

function void carRun() {
        draw(event);
}

Algorithm draw
        Input running thread of the object car, context object
        Output void
```

```
Check when the car thread meet the traffic light
        If the traffic light indicates forward
                car.moveForward();
                context.drawImage(car, car.x, car.y);
        If the traffic light indicates turn left
                car.turnLeft();
                context.rotate(-90);
                context.drawImage(car, car.x, car.y);
        If the traffic light indicates turn right
                car.turnRight();
                context.rotate(90);
                context.drawImage(car, car.x, car.y);

End
```