Output 1:

**vehicle not allowed**

**car under speed limit**

**car age:12**

**vehicle not allowed**

**car under speed limit**

**car age:39**

**car allowed**

**car under speed limit**

**car age:51**

**vehicle not allowed**

**car type:truck**

**car speed:122**

**car year:1979**

**car brand:astonmartin**

**car plate:ABC103**

**this car will be fined**

**car age:43**

**vehicle not allowed**

**car under speed limit**

**car age:34**

**car allowed**

**car under speed limit**

**car age:52**

**car under speed limit**

**car age:4**

**car allowed**

**car under speed limit**

**car age:2**

**car allowed**

**car type:bus**

**car speed:122**

**car year:1994**

**car brand:byd**

**car plate:ABC108**

**this car will be fined**

**car age:28**

**vehicle not allowed**

**car under speed limit**

**car age:16**

**car under speed limit**

**car age:3**

**car allowed**

**car type:truck**

**car speed:116**

**car year:1976**

**car brand:miata**

**car plate:ABC111**

**this car will be fined**

**car age:46**

**car type:bus**

**car speed:132**

**car year:1977**

**car brand:mg**

**car plate:ABC112**

**this car will be fined**

**car age:45**

**vehicle not allowed**

**car type:private**

**car speed:137**

**car year:1990**

**car brand:volkswagen**

**car plate:ABC113**

**this car will be fined**

**car age:32**

**car allowed**

**car under speed limit**

**car age:27**

**vehicle not allowed**

**car under speed limit**

**car age:41**

**vehicle not allowed**

**car under speed limit**

**car age:20**

**car under speed limit**

**car age:16**

**car under speed limit**

**car age:34**

**car allowed**

**car under speed limit**

**car age:37**

**road a:1 vehicles**

**road b:5 vehicles**

**road c:1 vehicles**

**efficiency of road b: 100%**

**efficiency of road a:20%**

**efficiency of road c:20%**

**Program ended with exit code: 0**

Output 2:

**car under speed limit**

**car age:43**

**car allowed**

**vehicle not allowed**

**car type:private**

**car speed:130**

**car year:2001**

**car brand:mercedes**

**car plate:ABC101**

**this car will be fined**

**car age:21**

**vehicle not allowed**

**car under speed limit**

**car age:1**

**car under speed limit**

**car age:7**

**vehicle not allowed**

**car allowed**

**vehicle not allowed**

**car under speed limit**

**car age:16**

**car allowed**

**car allowed**

**vehicle not allowed**

**car type:private**

**car speed:130**

**car year:1987**

**car brand:honda**

**car plate:ABC105**

**this car will be fined**

**car age:35**

**car allowed**

**car under speed limit**

**car age:7**

**car under speed limit**

**car age:23**

**vehicle not allowed**

**car type:bus**

**car speed:142**

**car year:1983**

**car brand:byd**

**car plate:ABC108**

**this car will be fined**

**car age:39**

**car under speed limit**

**car age:47**

**car allowed**

**vehicle not allowed**

**car under speed limit**

**car age:36**

**car allowed**

**car under speed limit**

**car age:8**

**vehicle not allowed**

**car under speed limit**

**car age:36**

**car allowed**

**vehicle not allowed**

**car type:private**

**car speed:141**

**car year:1988**

**car brand:volkswagen**

**car plate:ABC113**

**this car will be fined**

**car age:34**

**car allowed**

**car under speed limit**

**car age:9**

**car allowed**

**car under speed limit**

**car age:20**

**vehicle not allowed**

**car under speed limit**

**car age:42**

**car allowed**

**car allowed**

**vehicle not allowed**

**car type:private**

**car speed:107**

**car year:1984**

**car brand:porsche**

**car plate:ABC117**

**this car will be fined**

**car age:38**

**car under speed limit**

**car age:51**

**car allowed**

**car allowed**

**car type:truck**

**car speed:114**

**car year:1984**

**car brand:bentley**

**car plate:ABC119**

**this car will be fined**

**car age:38**

**road a:3 vehicles**

**road b:9 vehicles**

**road c:2 vehicles**

**efficiency of road b: 100%**

**efficiency of road a:33%**

**efficiency of road c:22%**

**Program ended with exit code: 0**

First class is called car, this class contains the car type and brand and license and the car speed and year model

This class contains setters and getters for every function, and it also contains a default constructor and an argument constructor

I initialized the variables in the main for 20 car objects with brands and license plates and types, then I used the rand operator to generate the year model and the car speed.

After that I put the objects in a queue.

The other class called road contained 3 allow functions one for each road and a bool function called radar that checks if the speed is above 100 and returns true if it is false if it is not.

There is also a function to calculate the age of the car

I created 3 roads from class road

I used a while loop that runs while the queue is not empty. Then I use another rand function to pass it randomly on one of the 3 roads the road checks if it is allowed and then it checks if it is above or below the speed limit, if it is above, it displays the cars details and a message saying that it will be fined if it is below it displays that the car is under the speed limit and the cars age. After I am done, I use the pop function to remove the first car object and the loop keeps on running until all objects are run through the system

Every time a car is allowed on a road there is a variable for each road that gets incremented. At the end of the code the largest variable is considered the most efficient and the efficiency of the 2 other roads are calculated based on the efficiency of this largest variable