

Computer Science Summer Tasks.

On many major roads average speed checks are in place. Two sensors are placed a known distance apart and vehicle number plate recognition is used to identify a vehicle and the time it enters the section of road being monitored. The time is recorded when the vehicle leaves the monitored section.

By using the time taken to travel the known distance, the average speed of a vehicle can be calculated.

Write a program for calculating average speeds for a vehicle travelling through a section of road. (Speed limits for roads are 20, 30, 40, 60 and 70mph)

In the UK most vehicle registrations are in the format:

- two letters
- two numbers
- three letters

For example, AZ01 XYZ.

The vehicle number plate recognition system will provide this information as a string of characters. Write a program that will determine whether a string entered meets these requirements or not and alerts the user to the correct use of the string.

When a customer has a problem with a product, automated troubleshooting programs are available to help them.

If a problem with a mobile device occurs, then a troubleshooting process is invoked, with the user responding to a series of questions that lead to a solution or advice to contact the supplier directly.

For example, a conversation might proceed as follows:

System: 'Has the phone got wet?'
User: 'No'
System: 'Has the phone been dropped?'
User: 'No'
System: 'Is the phone fully charged?' ...

Not all of the questions need to have yes or no responses but each response will need to lead to a supplementary question or a solution.

You will need to create a troubleshooting tree for a mobile device. This should be a demonstration version of the system with at around 10 possible outcomes.

A primary school teacher wants a computer program to test the basic arithmetic skills of her students. The program should generate a quiz consisting of a series of random questions, using in each case any two numbers and addition, subtraction and multiplication. The system should ask the student's name, then ask 10 questions, output if the answer to each question is correct or not and produce a final score out of 10.

