



Government of **Western Australia**
School Curriculum and Standards Authority



ATAR course examination, 2020

COMPUTER SCIENCE

SOURCE BOOKLET

Refer to the information that follows to answer Question 22 in Section Two of the Question/Answer booklet.

The company Carpark Services currently have parking inspectors who walk and drive around its carparks checking if drivers have overstayed the one hour free limit.

Carpark Services has employed you as the project manager to develop a system to enable automation of its carparks around the city and charge customers for time used over the free one hour.

The description of the system to be developed is as follows.

- Each carpark has a specific maximum number of parking spaces for cars.
- Assume the carpark is not full at this stage. When a car is driven through the entry to the carpark, its licence plate number is captured using Licence Plate Recognition technology. The time and date of entry are also stored in the Vehicle database.
- Once this information is captured, the barrier gate will open and allow entry.
- The system will automatically be updated to add one to the variable maximum in the Vehicle database.
- If the maximum number of cars has been reached, the carpark full sign will be lit to inform incoming cars not to enter.
- If the licence plate cannot be read, a message will be displayed to manually input the number, which will then be stored in the Vehicle database.
- When the customer is ready to exit, they input their vehicle licence plate number into a payment machine.
- The payment machine will access the Cost Codes database and retrieve the amount owing by calculating the amount of time.
- The customer will insert a credit card to pay the amount owing and this will be verified by the bank.
- The machine will display 'go to barrier gate'.
- When the customer approaches the exit, the vehicle licence plate will be verified and, if the customer has paid, the barrier gate will open.
- If the customer has not paid, the machine at the gate will display the amount owing and the customer can insert a credit card for payment.
- When payment is completed, the barrier gate will open.
- The system will automatically subtract by one to update the Maximum Vehicle database.
- At the end of each month, the system will collate a report of transactions for the manager from the Vehicle database.

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*Published by the School Curriculum and Standards Authority of Western Australia
303 Sevenoaks Street
CANNINGTON WA 6107*