

David has a car park. He wants to create an automatic parking payment system which takes in a vehicle owner's registration plate number and their duration of parking in order to generate a parking fee. The parking rate is £2.50 for the first 60 minutes, and £1.80 for every 30 minutes after that. At the end, David wants the program to print a ticket which states the user's details. David wants to save these details to an external text file.

An Engineer Mode must be made which can either produce a summary report showing all vehicles that have parked at David's car park or a registration report which, given a search term, will show all corresponding vehicles. This Engineer Mode is activated using a specific code which is entered if the user's name is "Engineer".

Develop a program that:

- Is user friendly i.e. prints a welcome and goodbye message, asks the user's name, and uses that name when requesting for the user's information at each input stage.
- Should activate the Engineer Mode if the name given is "Engineer" and the passcode given is correct. The engineer passcode itself is to your discretion.
- Takes in a user's registration plate number and duration of stay.
- Calculates a user's fee using the method shown above.
- Prints a ticket showing a user's name, registration number, duration of stay, and fee.
- The registration number and the parking charge should be saved to an external text file and sorted in alphabetical order according to the user's registration.
- If the Engineer Mode is activated, requests for either a registration report or summary report. How this is implemented is also your decision.
- A Summary report will print all the contents of the external text file.
- A Registration report will request a search term and will print all results from the text file which match said search term.