

// Comments are written in English, as per instructions. Additionally, in a real code most if not of these comments will be needed, as a clear

// code, should be almost self-explanatory. Here they are written for the purposes of the excersice.

// The validation that check if the ownerName is valid has an issue when the given name also has spaces, so as for the current code to work, only

// names consisting of letters are accepted. Lost over an hour trying to understand why input like "Parvo vtoro" is received, just as "Parvo" by

// the program.

```
#include <iostream>
```

```
#include <vector>
```

```
#include <cctype>
```

```
#include <ctype.h>
```

// Here we include some parts of the standard library, so our code recognizes their functions.

```
using namespace std;
```

// Here we inform the program to associate all keywords related to "std", to it. Hence eliminating the need to write "std::" everytime, however turning those words

// into key words here as well. For example, "cin" cannot be used as a variable's name in our code now.

```
class RepairRecord {  
    public:  
    int recordId;  
    string licensePlate;  
    string ownerName;  
    string repairDescription;  
    vector<string> partsUsed;  
    int labourHours;  
};
```

```
// Here we define the attributes, which will be a part of our class. Setting an ID as to have a way to distinguish between the objects, in a way
```

```
// different then location memory ID (the id of the cell in the RAM, the object is saved). Additionally, a vector is set for partsUsed, as not
```

```
// to limit the maximum amount of parts that can be added.
```

```
void addRepairRecord(int id, vector<RepairRecord> repairRecordLog){  
    bool validPlateFlag = false;  
    RepairRecord newRecord;  
    // Flag used to exit the while loop, demanding a valid plate number.  
    newRecord.recordId = id;  
  
    cout << "Enter the car's license plate." << endl;  
    while (validPlateFlag == false){  
        // We validate that the entered plate is real - based on simple  
        // assumption that plate numbers have between 7 and 8 signs and forcing the  
        // user to type in plate numbers, until a valid one is written.  
        cin >> newRecord.licensePlate;  
        if (size(newRecord.licensePlate) > 6 && size(newRecord.licensePlate) < 9)  
{  
            validPlateFlag = true;  
        } else {  
            cout << "Enter a valida plate number - should have 7 or 8 signs in  
it." <<endl;  
        }  
    }  
  
    cout << "Enter the name of the car's owner." << endl;  
    string owner;  
    while (true) {  
        cin >> owner;
```

```

    if (size(owner) < 4 || size(owner) > 30){
        // If the entered name is not between 4 and 30 signs, forces the user
to type the name again.

        cout << "Enter a valid name with more than 3 and less than 31
letters." << endl;

        continue;
    }

    bool letterFlag = true;
    bool flag = true;
    for (int i = 0; i < size(owner); i++){
        if (isalpha(owner[i]) || isblank(owner[i])){
            continue;    // useless line, but did not have enough time to
figure out how to state:    "if not"
        } else {
            cout << "The name should consist only of letters and spaces." <<
endl;

            letterFlag = false;

            break;        // breaks the for loop, as the validation has failed
and new name is expected
        }
    }

    if (letterFlag == true) {
        newRecord.ownerName = owner;

        break;            // breaks the while loop, as the validation is
successful and the code can carry on
    } else if (letterFlag == false){
        continue;
    }

    // The for loop checks is any of the sting signs is different than a
letter or a space. If so a message appears and the loop "continues"

```

```

        // to its next iteration, forcing the user to input a real name.
        Otherwise if the while loop passes through the first if and the for loop

        // a "brake" command is initiated to stop it, as it would mean that the
        name is valid.

    }

    cout << "Enter a description of the problem that needs to be fixed." << endl;
    cin >> newRecord.repairDescription;

    cout << "Enter the spare parts that will be required to do the repairs. Once
    finised, type 'done' to continue with the next step." << endl;

    string sparePart;
    string sparePartLower;
    while (true){
        cin >> sparePart;
        for (int i = 0; i < size(sparePart); i++){
            sparePartLower += tolower(sparePart[i]);
        }

        // Convert the input to all lower case characters, as to allow
        comparisons in the following if statements. Not very optimised way,

        // especially since we need to lower just to seek for the exit word
        'done'.

        cout << sparePartLower << endl;
        if (sparePartLower == "done"){
            break;
        } else {
            newRecord.partsUsed.push_back(sparePart);

            // Couldnt find a way to go further than this in the time I had.
            Conceptually, i was treating the C++ vector as a python list.

            // But there might be differences i have not grasped. As i tried with
            both push_back and vector.insert(end(vector), value). In both cases, the result
            is the same and I cant figure out why.

```

```

    }
}

    cout << "Enter amount labour hours needed to finish the repairs." << endl;
    cin >> newRecord.labourHours;
    cout << "The form has been finished." << endl;
    repairRecordLog.push_back(newRecord);
}

void displayRepairRecords(){

}

int main() {
    vector<RepairRecord> repairRecordLog;

    // Create a vector to store all records. We use vector as we need a dynamic
    array, since we cannot anticipate its size.

    bool stopProgram = false;

    // Set a flag to allow to stop the program (while loop)

    string userInput;

    int counter = 0;

    // Will be used to give ids to each record. Starts at 0, as to correspond to the
    indices in the vector repairRecordLog

    cout << "Welcome to our repair shop." << endl;

    while (stopProgram == false) {

        // We use a while loop, to keep the program running as long as the user
        wishes

        cout << "Type 'add' to add a new record, 'display' to view all records,
        'search' to find all records of a certain vehicle" <<

```

```

" or 'exit' to stop the program." << endl;
cin >> userInput;
string userInputLowered;
for (int i = 0; i < size(userInput); i++){
    // Convert the input to all lower case characters, as to allow
    comparisons in the following if statements.
    userInputLowered += tolower(userInput[i]);
}
if (userInputLowered == "add") {
    // We use several if clauses, as to provide the user with the desired
    service.
    cout << "Please answer the next few questions, in order to fill in the
    new record." << endl;
    addRepairRecord(counter, repairRecordLog);
    counter++;
}
else if (userInputLowered == "display") {

}
else if (userInputLowered == "search") {

}
else if (userInputLowered == "exit") {
    // Allows the user to quit the program
    cout << "Thanks for visiting our store.";
    break;
}
else {
    // Informs the user, the command they have entered is invalid and leads
    them to trying again, in the next iteration

```

```
        cout << "The command you have entered is invalid. Try again.";
    }
}

return 0;
}
```