Name	Jhaveri Varun Nimitt
UID no.	2023800042
Experiment No.	10

AIM:	Implement various operations on files to solve a given problem.
Program 1	
PROBLEM STATEMENT :	A publishing company holds in a file details of all the books they publish. However, in the future, they wish to maintain two distinct files (i) paperbacks (ii) hardbacks. Write a program which reads a file containing details of both paperback and hardback books and creates two files as specified above. Assume that the first character in each input record indicates if the book is paperback(p) or hardback(h) or both(b).
ALGORITHM:	1. Start 2. Declare FILE pointers for the main file, paperback books file, and hardback books file. 3. Declare a character array 'record' to store each line read from the input file. 4. Open the main input file "input.txt" in read mode (r) and check for errors. a. If an error occurs, print an error message and return 1. 5. Open the paperback books file "paperbacks.txt" in write mode (w) and check for errors. a. If an error occurs, print an error message and return 1. 6. Open the hardback books file "hardbacks.txt" in write mode (w) and check for errors. a. If an error occurs, print an error message and return 1. 7. Read each line from the main file using fgets until the end of the file is reached. a. Check if the first character of the line (record[0]) is 'p' (indicating paperback). i. If true, write the record to the paperback books file using fputs. b. If the first character is 'h' (indicating hardback), i. Write the record to the hardback books file using fputs. 8. Close all the opened files: main file, paperback books file, and hardback books file. 9. End

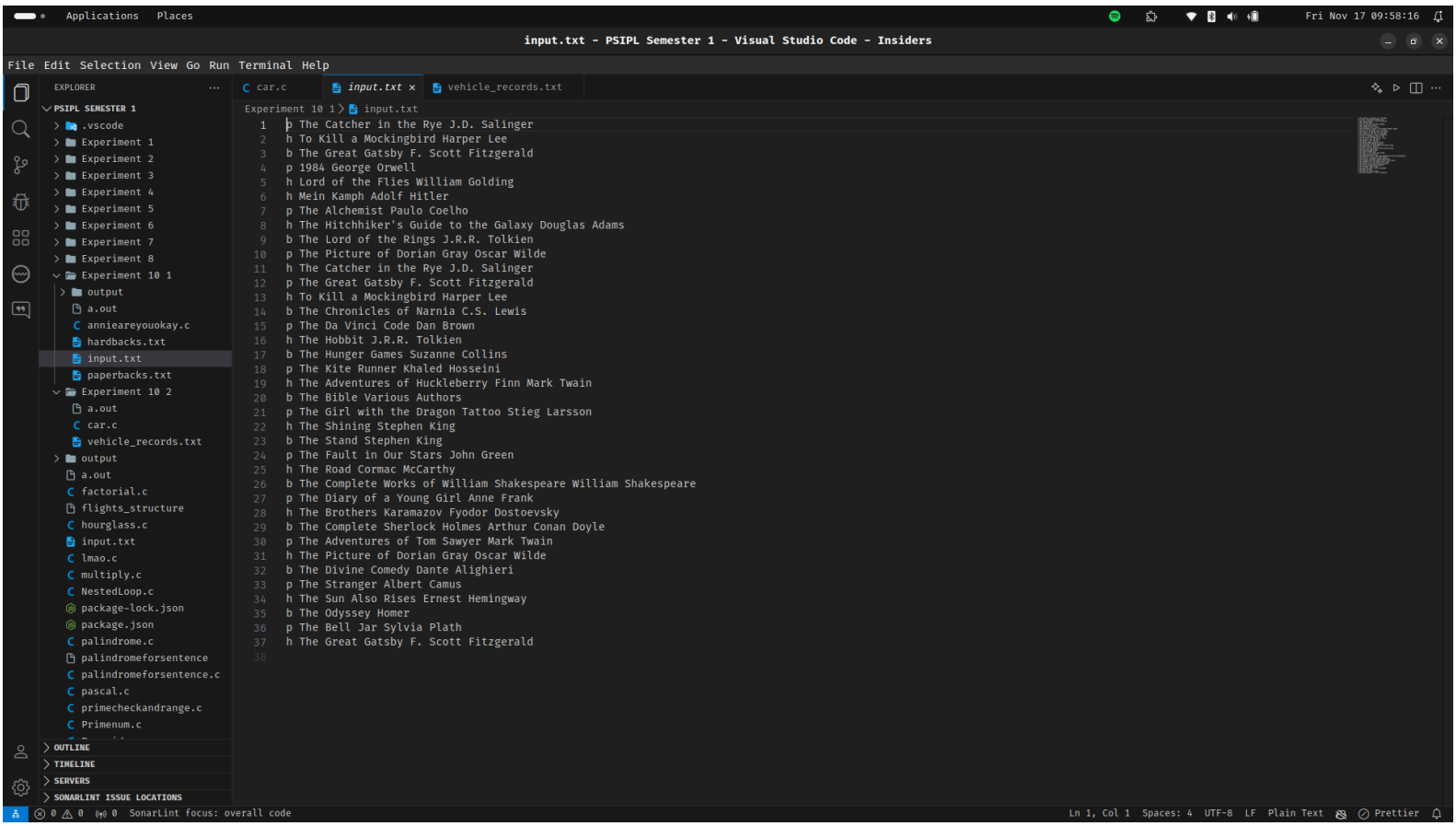
PROGRAM:

```c
#include <stdio.h>

int main() {
   FILE *main_file, *paperback_books_file, *hardback_books_file;
   char record[100];

   main_file = fopen("input.txt", "r");
   if (main_file == NULL)
   {
       printf("Error opening main book file\n");
       return 1;
   }

   paperback_books_file = fopen("paperbacks.txt", "w");
   if (paperback_books_file == NULL)
   {
       printf("Error opening paperback book file\n");
       return 1;
   }

   hardback_books_file = fopen("hardbacks.txt", "w");
   if (hardback_books_file == NULL)
   {
       printf("Error opening hardback book file\n");
       return 1;
   }

   while (fgets(record, sizeof(record), main_file))
   {
       if (record[0] == 'p')
       {
           fputs(record, paperback_books_file);
       }
       else if (record[0] == 'h')
       {
           fputs(record, hardback_books_file);
       }
       /**else if (record[0] == 'b')
       {
```

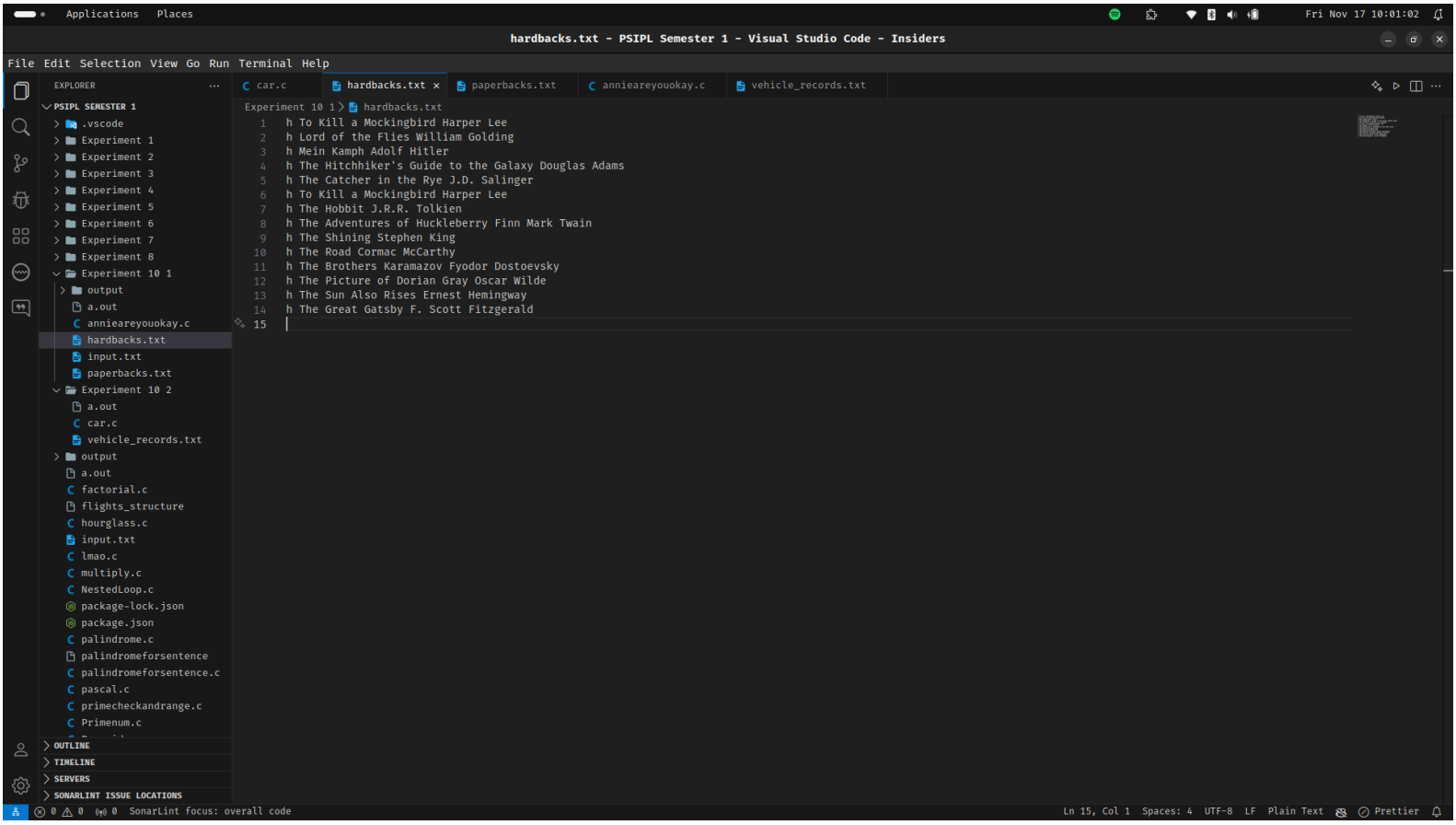
```
            fputs(record, paperba   ck_books_file);
            fputs(record, hardback_books_file);
        }*/                     //question does not state what to do with
books that are both hardback and paperback
    }

    fclose(main_file);
    fclose(paperback_books_file);
    fclose(hardback_books_file);

    return 0;
}
```

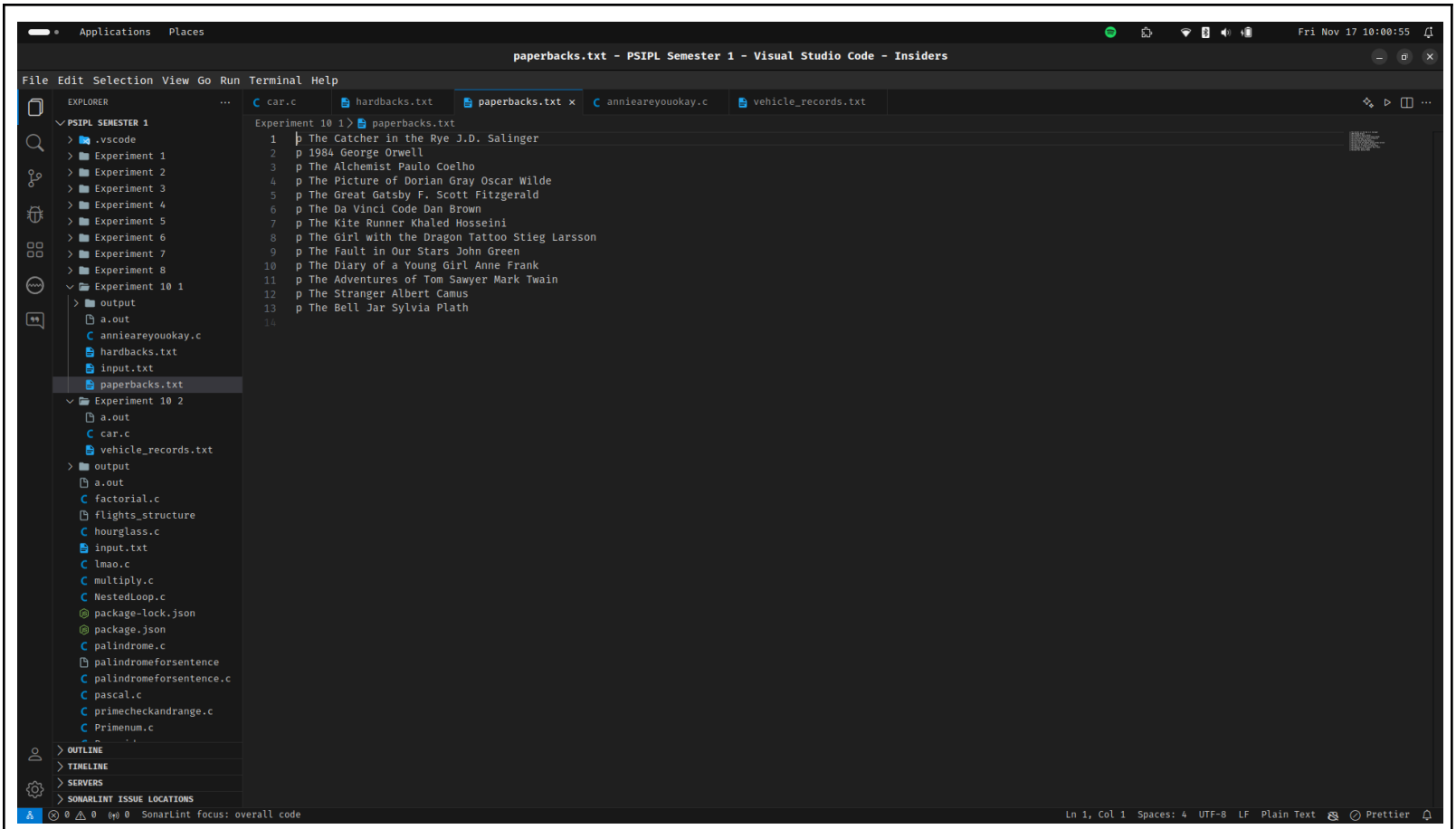
RESULT:

INPUT.TXT:



PAPERBACKS AND HARDBACKS.txt AFTER PROGRAM EXECUTION:





Program 2

PROBLEM STATEMENT :	Set up a file containing vehicle records which hold registration number and owner information (name and address). Write a program which, given a vehicle's registration number, will rapidly retrieve and print the owner information.
ALGORITHM:	1. Start 2. Define the function FindOwnerInfo that takes a registration number (regNumber) as input and finds corresponding owner information. a. Open the "vehicle_records.txt" file in read mode (r) and check for errors. i. If the file is not found, print an error message and exit the program. b. Declare variables: i. FILE pointer 'record' to handle file operations. ii. Character arrays 'line', 'fileRegNumber', 'ownerName', and 'ownerCountry' to store read data from the file. iii. Integer variable 'found' to keep track of whether the registration number is found in the file (initialize to 0).

c. Use a while loop to read each line from the file using fgets until the end of the file is reached.

i. Parse each line using sscanf to extract 'fileRegNumber', 'ownerName', and 'ownerCountry'.

ii. Compare 'fileRegNumber' with the provided 'regNumber'.

- If a match is found:

a. Print the owner's name and country corresponding to the registration number.

b. Set 'found' to 1 to indicate the registration number was found and break out of the loop.

d. If 'found' is still 0 after checking all lines, print a message indicating the registration number was not found in the file.

e. Close the 'vehicle_records.txt' file.

3. Define the main function.

a. Declare a character array 'regNumber' to store the user-input registration number.

b. Use an infinite loop to continuously prompt the user for a registration number and find its owner information.

i. Prompt the user to enter the registration number.

ii. Read the registration number using scanf.

iii. Call the FindOwnerInfo function, passing the entered registration number.

iv. Prompt the user to continue by pressing 1 or exit by pressing 0 .

- Read the user's choice using scanf.
- If the choice is 0, break out of the loop and exit the program.

4. End.

PROGRAM:

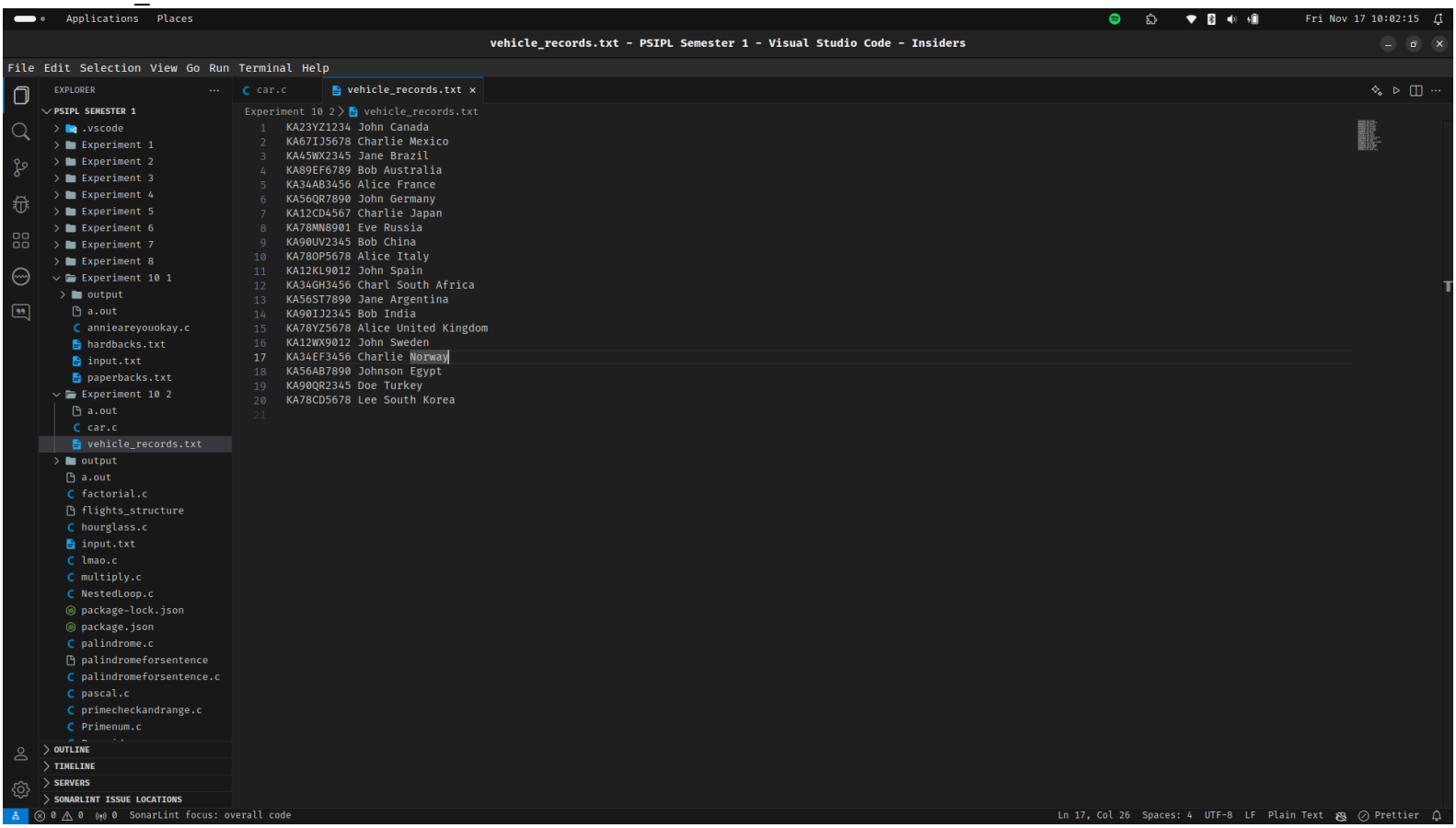
```
#include <stdio.h>
#include <string.h>
```

```c
#include <stdlib.h>

void FindOwnerInfo(char* regNumber)
{
   FILE* record = fopen("vehicle_records.txt", "r");
   if (record == NULL)
   {
       printf("Error: File not found.\n");
       exit(0);
   }
   char line[100];
   char fileRegNumber[20];
   char ownerName[50];
   char ownerCountry[50];
   int found = 0;

   while (fgets(line, sizeof(line), record))
   {
       sscanf(line, "%s %s %s", fileRegNumber, ownerName, ownerCountry);
       if (strcmp(fileRegNumber, regNumber) == 0)
       {
           printf("Information of Owner of vehicle: %s , %s\n",
ownerName, ownerCountry);
           found = 1;
           break;
       }
   }

   if (!found)
   {
       printf("Registration number not found.\n");
   }

   fclose(record);
}

int main() {
   char regNumber[20];
```

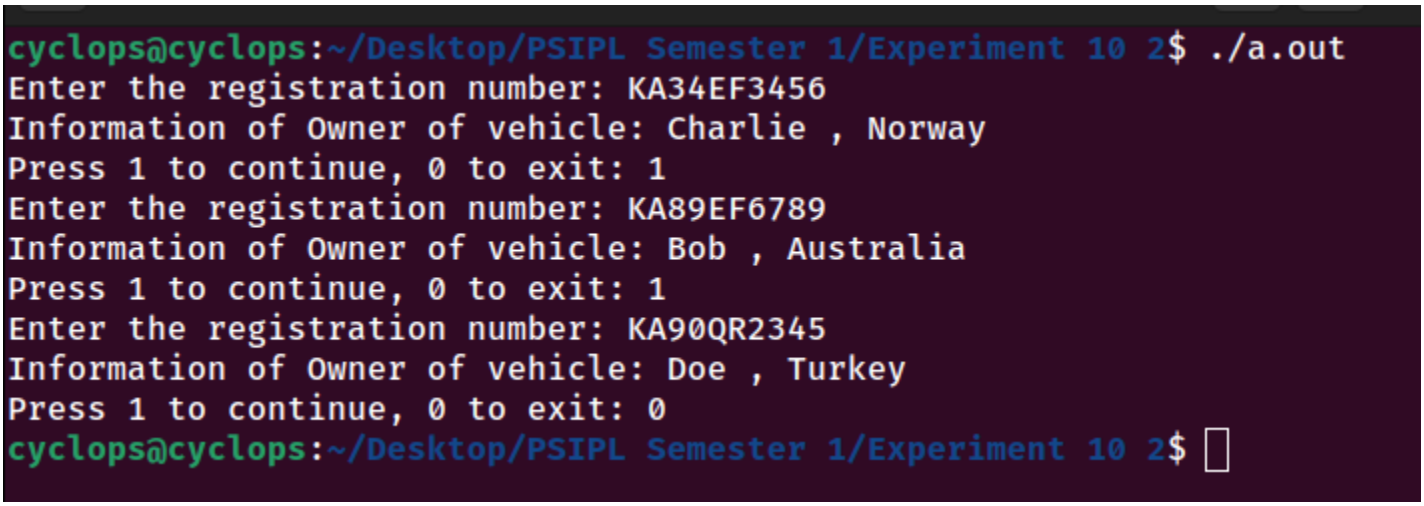
```c
    while(1)
    {
        printf("Enter the registration number: ");
        scanf("%s", regNumber);
        FindOwnerInfo(regNumber);
        printf("Press 1 to continue, 0 to exit: ");
        int choice;
        scanf("%d", &choice);
        if (choice == 0)
        {
            break;
        }
    }
    return 0;
}
```

RESULT:

VEHICLE_RECORDS.TXT :



OUTPUT:



CONCLUSION:	**I have learnt how to implement various operations on files to solve a given problem and understood the concept behind different file functions.**