Name	Lekh Sanatan Nayak
UID no.	2023800068
Experiment No.	10

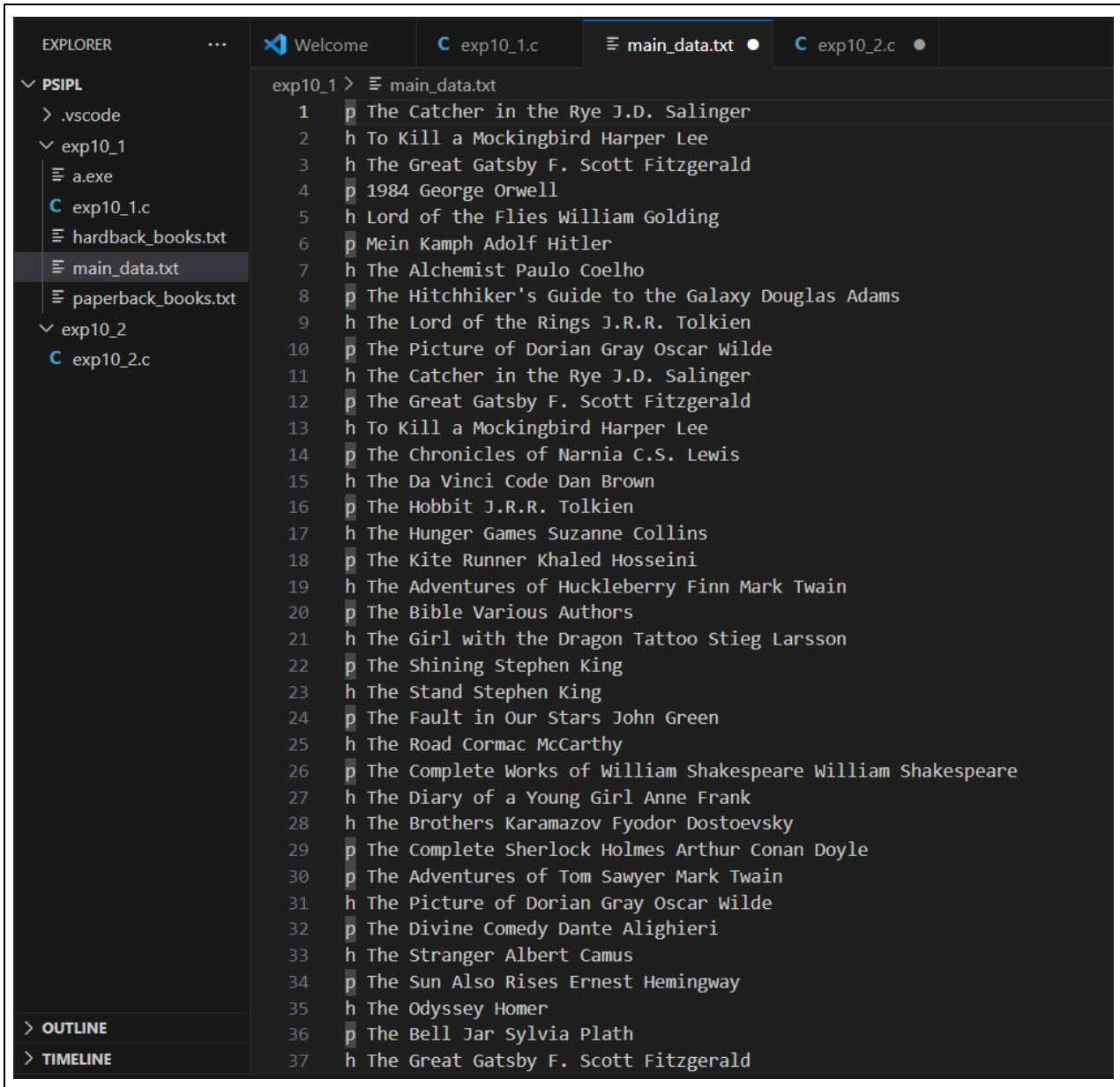
AIM:	**Implement various operations on files to solve a given problem.**
Program 1	
PROBLEM STATEMENT :	A publishing company holds in a file details of all the books they publish. However, in the future, they wish to maintain two distinct files (i) paperbacks (ii) hardbacks. Write a program which reads 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. 5. If an error occurs, print an error message and return 1. 6. Open the paperback books file "paperbacks.txt" in write mode (w) and check for errors. 7. If an error occurs, print an error message and return 1. 8. Open the hardback books file "hardbacks.txt" in write mode (w) and check for errors. 9. If an error occurs, print an error message and return 1. 10. Read each line from the main file using fgets until the end of the file is reached. 11. Check if the first character of the line (record[0]) is 'p' (indicating paperback). 12. If true, write the record to the paperback books file using fputs. 13. If the first character is 'h' (indicating hardback),

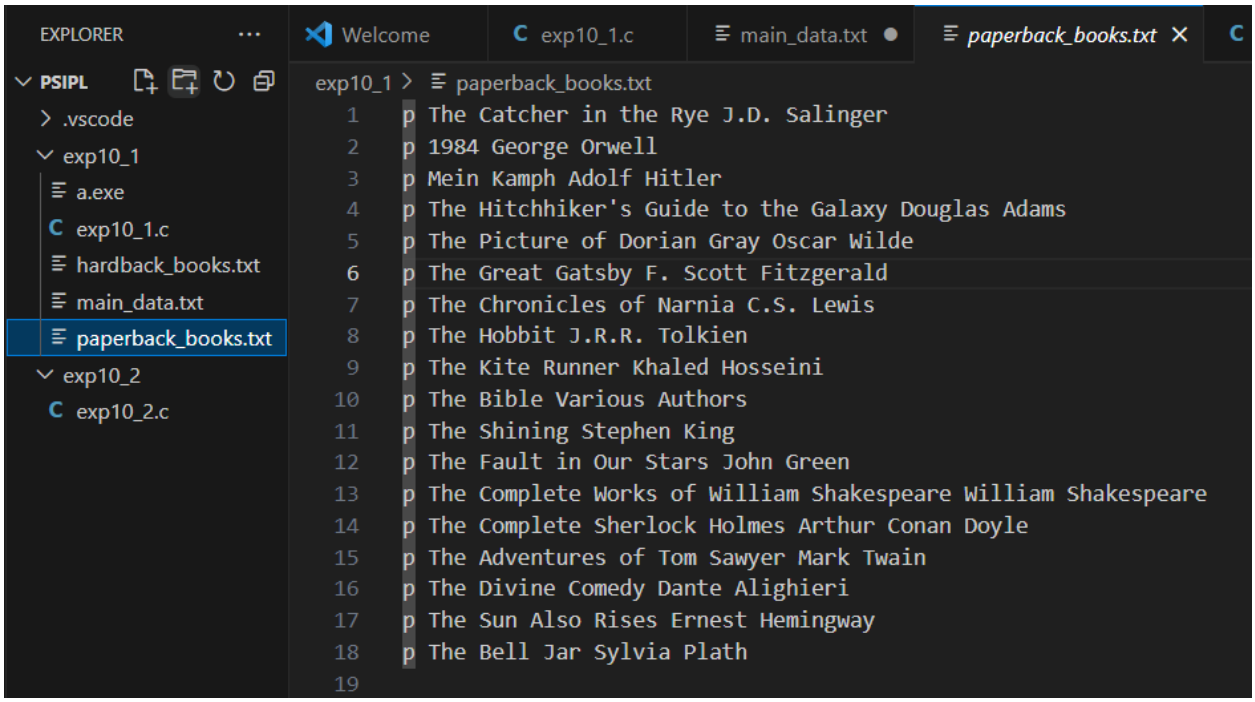
	14. Write the record to the hardback books file using fputs. 15. Close all the opened files: main file, paperback books file, and hardback books file. 16. End

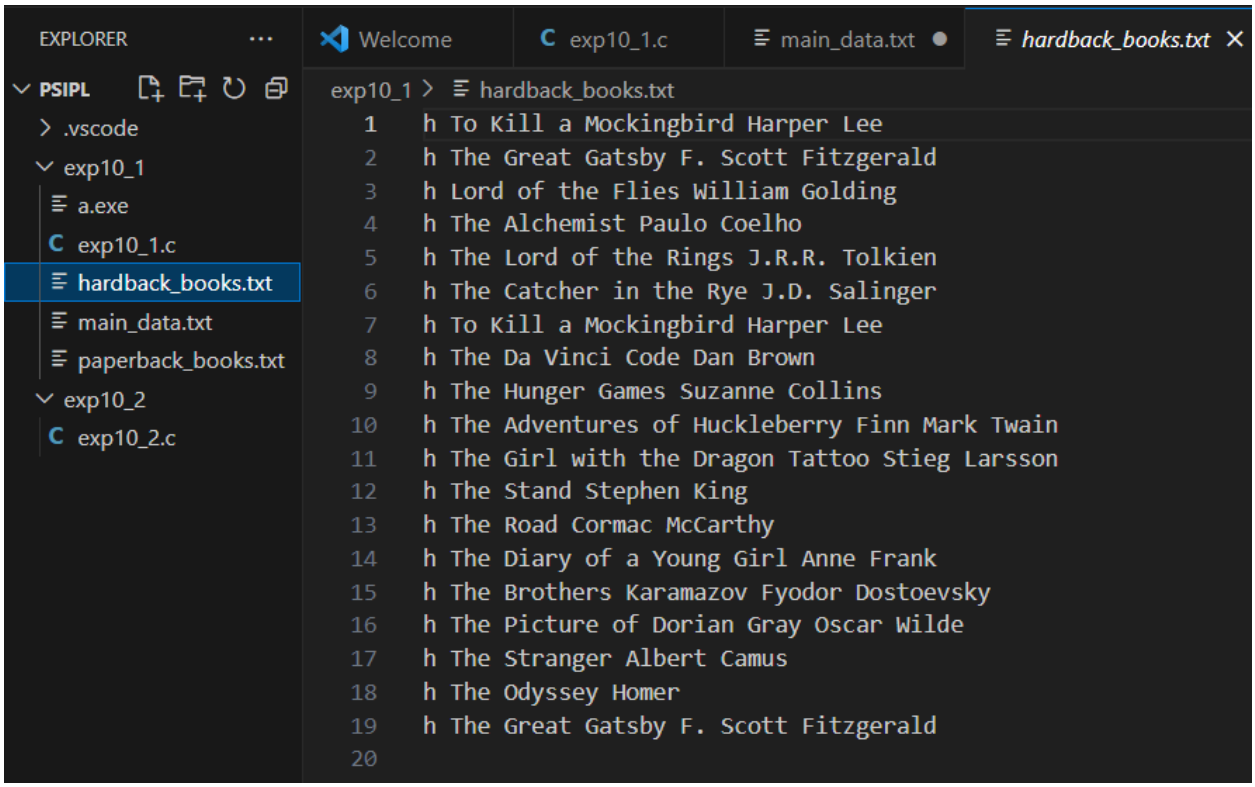
PROGRAM:	#include<stdio.h>
	
	int main(){
	
	FILE *main_data, *paperback_books_data, *hardback_book_data;
	char records[100];
	
	main_data = fopen("main_data.txt", "r");
	if (main_data == NULL) {
	printf("There was an error while opening main the file\n");
	return 1;
	}
	
	paperback_books_data = fopen("paperback_books.txt", "w");
	if (paperback_books_data == NULL) {
	printf("There was an error while opening paperback books file\n");
	return 1;
	}
	
	hardback_book_data = fopen("hardback_books.txt", "w");
	if (hardback_book_data == NULL) {
	printf("There was an error while opening hardback books file\n");
	return 1;
	}
	
	while (fgets(records, sizeof(records), main_data))
	{
	if (records[0] == 'p') {
	fputs (records, paperback_books_data);
	}
	
	else if (records[0] == 'h') {
	fputs (records, hardback_book_data);
	}

	}
	
	fclose(main_data);
	fclose(paperback_books_data);
	fclose(hardback_book_data);
	
	return 0;
	}

RESULT:	


EXPLORER
Welcome
exp10_1.c
main_data.txt
exp10_2.c
PSIPL
.vscode
exp10_1
a.exe
exp10_1.c
hardback_books.txt
main_data.txt
paperback_books.txt
exp10_2
exp10_2.c
OUTLINE
TIMELINE
exp10_1 > main_data.txt
1 p The Catcher in the Rye J.D. Salinger
2 h To Kill a Mockingbird Harper Lee
3 h The Great Gatsby F. Scott Fitzgerald
4 p 1984 George Orwell
5 h Lord of the Flies William Golding
6 p Mein Kamph Adolf Hitler
7 h The Alchemist Paulo Coelho
8 p The Hitchhiker's Guide to the Galaxy Douglas Adams
9 h The Lord of the Rings J.R.R. Tolkien
10 p The Picture of Dorian Gray Oscar Wilde
11 h The Catcher in the Rye J.D. Salinger
12 p The Great Gatsby F. Scott Fitzgerald
13 h To Kill a Mockingbird Harper Lee
14 p The Chronicles of Narnia C.S. Lewis
15 h The Da Vinci Code Dan Brown
16 p The Hobbit J.R.R. Tolkien
17 h The Hunger Games Suzanne Collins
18 p The Kite Runner Khaled Hosseini
19 h The Adventures of Huckleberry Finn Mark Twain
20 p The Bible Various Authors
21 h The Girl with the Dragon Tattoo Stieg Larsson
22 p The Shining Stephen King
23 h The Stand Stephen King
24 p The Fault in Our Stars John Green
25 h The Road Cormac McCarthy
26 p The Complete Works of William Shakespeare William Shakespeare
27 h The Diary of a Young Girl Anne Frank
28 h The Brothers Karamazov Fyodor Dostoevsky
29 p The Complete Sherlock Holmes Arthur Conan Doyle
30 p The Adventures of Tom Sawyer Mark Twain
31 h The Picture of Dorian Gray Oscar Wilde
32 p The Divine Comedy Dante Alighieri
33 h The Stranger Albert Camus
34 p The Sun Also Rises Ernest Hemingway
35 h The Odyssey Homer
36 p The Bell Jar Sylvia Plath
37 h The Great Gatsby F. Scott Fitzgerald


EXPLORER
PSIPL
.vscode
exp10_1
a.exe
exp10_1.c
hardback_books.txt
main_data.txt
paperback_books.txt
exp10_2
exp10_2.c
Welcome
exp10_1.c
main_data.txt
paperback_books.txt
exp10_1 > paperback_books.txt
1 p The Catcher in the Rye J.D. Salinger
2 p 1984 George Orwell
3 p Mein Kamph Adolf Hitler
4 p The Hitchhiker's Guide to the Galaxy Douglas Adams
5 p The Picture of Dorian Gray Oscar Wilde
6 p The Great Gatsby F. Scott Fitzgerald
7 p The Chronicles of Narnia C.S. Lewis
8 p The Hobbit J.R.R. Tolkien
9 p The Kite Runner Khaled Hosseini
10 p The Bible Various Authors
11 p The Shining Stephen King
12 p The Fault in Our Stars John Green
13 p The Complete Works of William Shakespeare William Shakespeare
14 p The Complete Sherlock Holmes Arthur Conan Doyle
15 p The Adventures of Tom Sawyer Mark Twain
16 p The Divine Comedy Dante Alighieri
17 p The Sun Also Rises Ernest Hemingway
18 p The Bell Jar Sylvia Plath
19


EXPLORER
PSIPL
.vscode
exp10_1
a.exe
exp10_1.c
hardback_books.txt
main_data.txt
paperback_books.txt
exp10_2
exp10_2.c
Welcome
exp10_1.c
main_data.txt
hardback_books.txt
exp10_1 > hardback_books.txt
1 h To Kill a Mockingbird Harper Lee
2 h The Great Gatsby F. Scott Fitzgerald
3 h Lord of the Flies William Golding
4 h The Alchemist Paulo Coelho
5 h The Lord of the Rings J.R.R. Tolkien
6 h The Catcher in the Rye J.D. Salinger
7 h To Kill a Mockingbird Harper Lee
8 h The Da Vinci Code Dan Brown
9 h The Hunger Games Suzanne Collins
10 h The Adventures of Huckleberry Finn Mark Twain
11 h The Girl with the Dragon Tattoo Stieg Larsson
12 h The Stand Stephen King
13 h The Road Cormac McCarthy
14 h The Diary of a Young Girl Anne Frank
15 h The Brothers Karamazov Fyodor Dostoevsky
16 h The Picture of Dorian Gray Oscar Wilde
17 h The Stranger Albert Camus
18 h The Odyssey Homer
19 h The Great Gatsby F. Scott Fitzgerald
20

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:	i. Start j. Define the function Find_owner that takes a registration number (regNumber) as input and finds corresponding owner information. k. 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. ii. Declare variables: iii. FILE pointer 'record' to handle file operations. iv. Character arrays 'line', 'file_regnumber', 'owner_name', and 'owner_country' to store read data from the file. v. Integer variable 'found' to keep track of whether the registration number is found in the file (initialize to 0). l. Use a while loop to read each line from the file using fgets until the end of the file is reached. i. Read each line using sscanf to extract 'file_regnumber', 'owner_name', and 'owner_country'. ii. Compare the 'file_regnumber' string with the provided 'regNumber' string. 1. If a match is found: b. Print the owner's name and country corresponding to the registration number. i. Set 'found' to 1 to indicate the registration number was found and break out of the loop. ii. If 'found' is still 0 after checking all lines, print a message indicating the registration number was not found in the file. iii. Close the 'vehicle_records.txt' file.

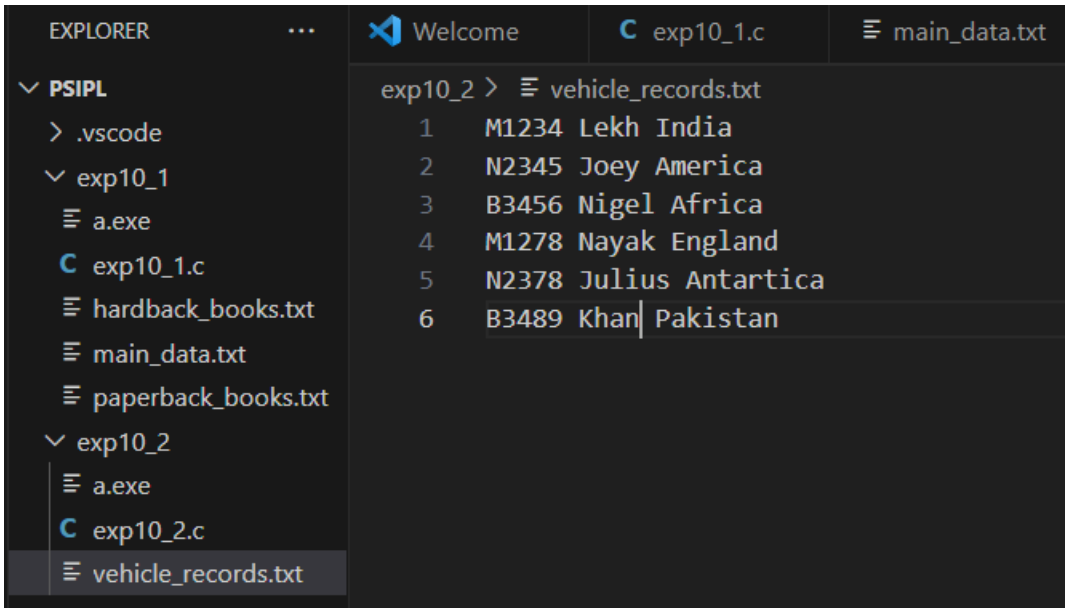
	c. Define the main function. i. Declare a character array 'regNumber' to store the user-input registration number. ii. Use an infinite loop to continuously prompt the user for a registration number and find its owner information. iii. Prompt the user to enter the registration number. iv. Read the registration number using scanf. v. Call the Find_owner function, passing the entered registration number. vi. Prompt the user to continue by pressing 1 or exit by pressing 0 . 1. Read the user's choice using scanf. 2. If the choice is 0, break out of the loop and exit the program. m. End.

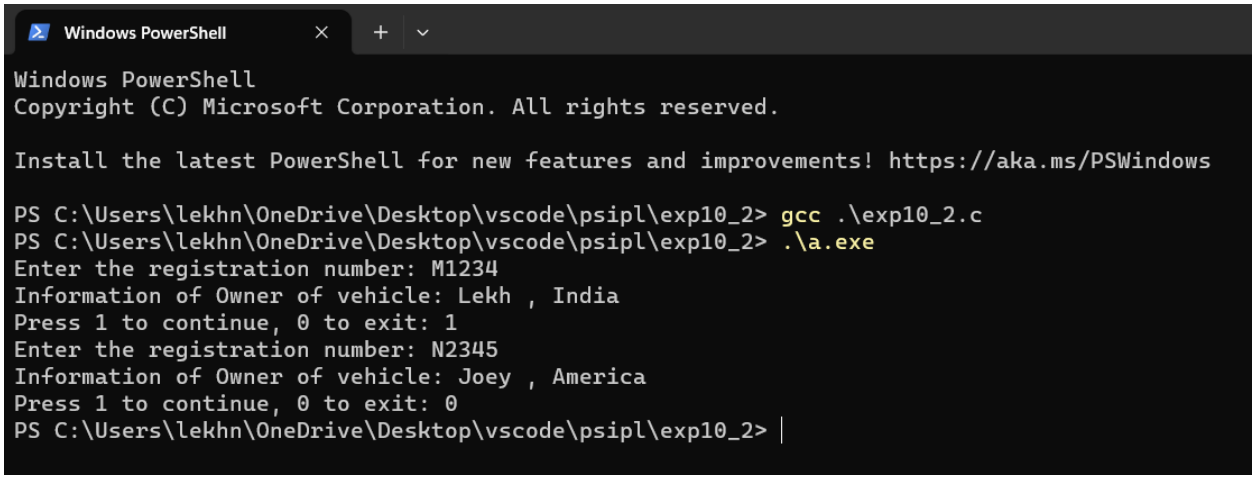
PROGRAM:	#include<stdio.h>
	#include<string.h>
	#include<stdlib.h>
	
	void Find_owner(char* regNumber) {
	
	char line[100];
	char file_regnumber[20];
	char owner_name[50];
	char owner_country[50];
	int found = 0;
	
	FILE *record;
	
	record = fopen("vehicle_records.txt", "r");
	if (record == NULL) {
	printf("ERROR 404\n");
	exit(0);
	}

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

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

   fclose(record);
}

int main() {
   char regNumber[20];

   while(1)
   {
       int choice;
       printf("Enter the registration number: ");
       scanf("%s", regNumber);
       Find_owner(regNumber);
       printf("Press 1 to continue, 0 to exit: ");

       scanf("%d", &choice);
       if (choice == 0)
       {
          break;
       }
    }
   return 0;
```

	}

RESULT:





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