**EXPERIMENT – 34**

34. Consider a file system where the records of the file are stored one after another both physically

and logically. A record of the file can only be accessed by reading all the previous

records. Design a C program to simulate the file allocation strategy.

#include <stdio.h>

#include <stdlib.h>

#include <string.h>

#define MAX\_RECORDS 100

#define MAX\_LENGTH 100

char fileSystem[MAX\_RECORDS][MAX\_LENGTH];

int recordCount = 0;

void createFile() {

int n;

printf("Enter number of records to store: ");

scanf("%d", &n);

getchar();

for (int i = 0; i < n; i++) {

printf("Enter record %d: ", i + 1);

fgets(fileSystem[i], MAX\_LENGTH, stdin);

fileSystem[i][strcspn(fileSystem[i], "\n")] = 0;

recordCount++;

}

printf("\nFile created with %d records.\n", recordCount);

}

void readSequential() {

printf("\nReading records sequentially:\n");

for (int i = 0; i < recordCount; i++) {

printf("Record %d: %s\n", i + 1, fileSystem[i]);

}

}

void readSpecificRecord() {

int index;

printf("Enter record number to read (1 to %d): ", recordCount);

scanf("%d", &index);

if (index < 1 || index > recordCount) {

printf("Invalid record number!\n");

return;

}

printf("\nAccessing record %d...\n", index);

for (int i = 0; i < index; i++) {

printf("Reading Record %d: %s\n", i + 1, fileSystem[i]);

}

}

int main() {

int choice;

while (1) {

printf("\n--- Sequential File Allocation Menu ---\n");

printf("1. Create File\n");

printf("2. Read File Sequentially\n");

printf("3. Read Specific Record\n");

printf("4. Exit\n");

printf("Enter choice: ");

scanf("%d", &choice);

getchar();

switch (choice) {

case 1:

createFile();

break;

case 2:

readSequential();

break;

case 3:

readSpecificRecord();

break;

case 4:

printf("Exiting program...\n");

exit(0);

default:

printf("Invalid choice!\n");

}

}

return 0;

}

SAMPLE OUTPUT:

--- Sequential File Allocation Menu ---

1. Create File

2. Read File Sequentially

3. Read Specific Record

4. Exit

Enter choice: 1

Enter number of records to store: 3

Enter record 1: Alpha

Enter record 2: Beta

Enter record 3: Gamma

File created with 3 records.

Enter choice: 3

Enter record number to read (1 to 3): 2

Accessing record 2...

Reading Record 1: Alpha

Reading Record 2: Beta