SDM COLLEGE OF ENGINEERING AND TECHNOLOGY

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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

A Report
on

DBMS CTA Minor work

COURSE CODE: 2UCSC501 COURSE TITLE: Database Management Systems
SEMESTER:5 DIVISION: A
COURSE TEACHER: Dr. U.P.Kulkarni

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Submitted
By

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Table of Contents

A1:Write C program to study all file operations related SYSTEM CALLS supported by Unix OS and C libraries for file operations.

```
#include <stdio.h>
#include <string.h>
#include <fcntl.h>
#include <stdlib.h>
#include <unistd.h>
#define BUFFER_SIZE 1024
int createFile(const char *filename) {
    int fd = open(filename, O_CREAT | O_RDWR | O_TRUNC, S_IRUSR | S_IWUSR | S_IRGRP | S_IROTH);
    if (fd == -1) {
        perror("Error occurred while creating and opening the file");
        exit(EXIT_FAILURE);
    }
    printf("\nFile '%s' created and opened successfully.\n\n", filename);
    return fd;
}
void closeFile(int fd) {
    if (close(fd) == -1) {
        perror("An error occurred while closing the file");
        exit(EXIT_FAILURE);
    }
    printf("The file was closed successfully.\n\n");
}
void writeFile(int fd, const char *text) {
    ssize_t bytesWrite = write(fd, text, strlen(text));
    if (bytesWrite == -1) {
        perror("An error occurred while writing to file");
        closeFile(fd);
        exit(EXIT_FAILURE);
    }
    printf("%zd bytes written into the file.\n\n", bytesWrite);
}
void readFile(int fd) {
    char buffer[BUFFER_SIZE];
    ssize_t bytesRead;
    lseek(fd, 0, SEEK_SET);
    bytesRead = read(fd, buffer, BUFFER_SIZE - 1);
    if (bytesRead == -1) {
        perror("An error occurred while reading from file");
        closeFile(fd);
        exit(EXIT_FAILURE);
    }
    buffer[bytesRead] = '\0';
    printf("%zd bytes read from the file:\n%s\n", bytesRead, buffer);
}
int openFileForAppend(const char *filename) {
    int fd = open(filename, O_APPEND | O_RDWR);
    if (fd == -1) {
        perror("An error occurred while opening file for appending");
        exit(EXIT_FAILURE);
    }
    printf("File '%s' opened for appending successfully.\n", filename);
    return fd;
```

```
}
void appendToFile(int fd, const char *newText) {
    ssize_t bytesWrite = write(fd, newText, strlen(newText));
    if (bytesWrite == -1) {
        perror("An error occurred while appending to file");
        closeFile(fd);
        exit(EXIT_FAILURE);
    }
    printf("%zd bytes appended to the file.\n\n", bytesWrite);
}
int main() {
    int fd;
    char FILENAME[100];
    printf("Enter the file name: ");
    scanf("%s", FILENAME);
    fd = createFile(FILENAME);
    const char *text = "This is Aditya.\n From SDMCET Dharwad.\n";
    writeFile(fd, text);
    readFile(fd);
    closeFile(fd);
    fd = openFileForAppend(FILENAME);
    const char *newText = " 3rd year 5th sem.\n";
    appendToFile(fd, newText);
    closeFile(fd);
    return 0;
}
```

Input: Enter the file name:Q1.txt

Output:

```
File 'Q1.txt' created and opened successfully.

38 bytes written into the file.

38 bytes read from the file:

This is Aditya.

From SDMCET Dharwad.

The file was closed successfully.

File 'Q1.txt' opened for appending successfully.

37 bytes appended to the file.

The file was closed successfully.
```

Q1.txt

```
This is Aditya.

From SDMCET Dharwad.

3rd year 5th sem.
```

A2:Write a C program to demonstrate indexing and associated operations.

```
#include <stdio.h>

void display_arr(int arr[], int size) {

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

        printf("arr[%d] = %d\n", i, arr[i]);

    }

}

void update_element(int arr[], int index, int new_val, int n) {

    if (index >= 0 && index < n) {

        arr[index] = new_val;

    } else {

        printf("Invalid index updation \n");

    }

}

int calculate_sum(int arr[], int size) {

    int sum = 0;

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

        sum += arr[i];

    }

    return sum;

}

void pointer_accessing(int arr[], int index, int n) {

    if (index >= 0 && index < n) {

        printf("*(arr + %d) = %d\n", index, *(arr + index));
    } else {
        printf("Invalid index!\n");
    }
}
int main() {
    int arr[25], i, n, idx, nv, pa,sum;
    printf("Enter n elements in array: ");
    scanf("%d", &n);
    printf("\nEnter %d Array Elements: ",n);
    for (i = 0; i < n; i++) {
        scanf("%d", &arr[i]);
    }
    displayArr(arr, n);
    sum = calculate_sum(arr, n);
    printf("\nSum of Array Elements: %d\n", sum);
    printf("\nEnter particular index to be updated: ");
    scanf("%d", &idx);
    printf("\nEnter the new value to be updated: ");
    scanf("%d", &nv);
    update_element(arr, idx, nv, n);
    printf("\nArray After Updating Element at Index %d:", nv);
    displayArr(arr, n);
    printf("\nEnter the index at which the number is to be accessed: ");
    scanf("%d", &pa);
    printf("\nPointer Access @ index %d:", pa);
    pointer_accessing(arr, pa, n);
    return 0;
}
```

Input: Enter n elements in array: 5

Enter 5 Array Elements:10 20 30 40 50

Output:

```
arr[0] = 10
arr[1] = 20
arr[2] = 30
arr[3] = 40
arr[4] = 50
Sum of Array Elements: 150
```

Input: Enter particular index to be updated: 2

Enter the new value to be updated: 39

Output: Array After Updating Element at Index 2:

```
arr[0] = 10
arr[1] = 20
arr[2] = 39
arr[3] = 40
arr[4] = 50
```

Input: Enter the index at which the number is to be accessed: 3

Output: Pointer Access @ index 3:

```
*(arr + 3) = 40
```

A3:Write a Java program to access the given excel file with known file format.

```
import java.io.File;

import java.io.FileInputStream;

import org.apache.poi.xssf.usermodel.XSSFSheet;

import org.apache.poi.xssf.usermodel.XSSFWorkbook;

import org.apache.poi.ss.usermodel.Cell;

import org.apache.poi.ss.usermodel.Row;

public class readingExcelFile {

    public static void main(String[] args) {

        try {

            FileInputStream file = new FileInputStream(new File("Details.xlsx"));

            XSSFWorkbook workbook = new XSSFWorkbook(file);

            XSSFSheet sheet = workbook.getSheetAt(0);

            for(Row row : sheet) {

                      for(Cell cell : row) {

                    switch (cell.getCellType()) {

                        case NUMERIC:

                            System.out.print(cell.getNumericCellValue() + "\t");

                            break;

                        case STRING:

                            System.out.print(cell.getStringCellValue() + "\t\t");

                            break;

                        default:

                            System.out.print("Unknown type\t");
                            break;
                    }
                }
                      System.out.println();
            }
            file.close();
            workbook.close();
        } catch (Exception e) {
            e.printStackTrace();
        }
    }
}
```

Input: Details.xlsx

USN	NAME	DOB	SEM
2SD29CS111	Aditya	02-09-2004	5
2SD28CS222	Prarthan	19-12-2003	7
2SD27CS333	Prajwal	11-08-2005	3

Output:

```
USN             NAME            DOB             SEM

2SD29CS111      Aditya          02-09-2004      5

2SD28CS222      Prarthan        19-12-2003      7

2SD27CS333      Prajwal         11-08-2005      3
```