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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

# A Report on DBMS- Minor Work

**COURSE CODE: 22UCSC501 COURSE TITLE: DBMS**
**SEMESTER: V DIVISION: A**
**COURSE TEACHER: Dr. U. P. Kulkarni**

**[ Academic Year- 2023-24]**

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Submitted
By

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## Minor Work: -

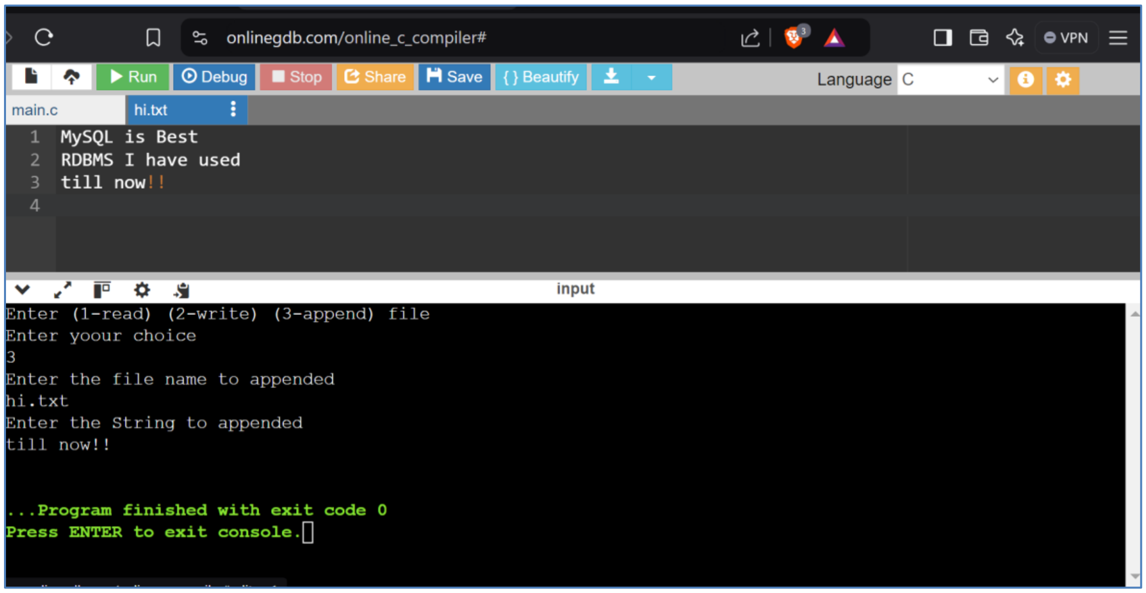
**Problem statement 1**: - Write a C program to discuss to demonstrate all the functions related to system calls in Unix based OS.

```
//A simple C program to showcase the System calls in Unix based OS systems

#include <stdio.h>

#include <fcntl.h>

#include <unistd.h>

#include <sys/stat.h>

#include <string.h>

#include <stdlib.h>

#define SIZE 100


char* readFile(char *str);

void writeFile(char *str);

void appendFile(char *str);


int main(){

   int choice;

   char str[SIZE];

   printf("Enter (1-read) (2-write) (3-append) file\n");

   printf("Enter your choice\n");

   scanf("%d",&choice);

   getchar();

   switch (choice)

   {
```

```
 case 1:
   printf("Enter the file name to read\n");
   scanf("%s",str);
   getchar(); //clr the I/P stream
   printf("The contents of the file are:\n%s\n",readFile(str));
   break;
 case 2:
   printf("Enter the file name to write\n");
   scanf("%s",str);
   getchar();
   writeFile(str);
   break;
 case 3:
   printf("Enter the file name to appended\n");
   scanf("%s",str);
   getchar();
   appendFile(str);
   break;
 default:
   break;
 }
 return 0;
}
```

```
void writeFile(char *filename){

    fflush(stdin);

    int fd = open(filename, O_CREAT | O_WRONLY | O_TRUNC, S_IRUSR | S_IWUSR);

    if(fd < 0){

        perror("Error occured while opning the file\n");

        close(fd);

        return;

    }

    char str[SIZE];

    printf("Enter the string to be writen\n");

    fgets(str, SIZE, stdin);

    write(fd, str, strlen(str));

    close(fd);

}


char *readFile(char *filename){

    char *str = (char *)malloc(SIZE*sizeof(char));

    int fd = open(filename, O_RDONLY);

    if(fd < 0){

        perror("Can't open this file\n");

        free(str);

        close(fd);

        return NULL;

    }

    int bytesRead = read(fd, str, SIZE-1);
    str[bytesRead] = '\0';

    close(fd);

    return str;

}


void appendFile(char *filename){

  int fd = open(filename, O_WRONLY | O_APPEND | O_CREAT, S_IRUSR | S_IWUSR);

  if(fd < 0){

        perror("Can't append to the file\n");

        close(fd);

        return;

    }

    char str[SIZE];

    fflush(stdin);

    printf("Enter the String to appended\n");

    fgets(str, SIZE, stdin);

    write(fd, str, strlen(str));

}
```

O/P: -



```
MySQL is Best
RDBMS I have used
till now!!
```

```
Enter (1-read) (2-write) (3-append) file
Enter yoour choice
3
Enter the file name to appended
hi.txt
Enter the String to appended
till now!!


...Program finished with exit code 0
Press ENTER to exit console.
```

Figure 1.1 – Appending to the file

## Problem Statement 2: - Write a C program to demonstrate the indexing and its associated properties.

```
//A simple C pgm to read and print the details of the employees

#include<stdio.h>

#include<stdlib.h>

#define SIZE 30

#define ECOUNT 10

typedef struct Employee{

   int empID;

   char name[SIZE];
```

```
    float salary;

}Employee;

void readEmployeeDetails(Employee *e, int n){

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

        printf("Enter the employee %d details\n", i+1);

        printf("Enter the employee id\n");

        scanf("%d",&e[i].empID);

         printf("Enter the employee name\n");

        scanf("%s",&e[i].name);

        printf("Enter the employee salary\n\n");

        scanf("%s",&e[i].salary);

    }

}


void printEmployeeDetails(Employee *e, int n){

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

        printf("EMPID : %d\n",e[i].empID);

        printf("EMP Name : %d\n",e[i].name);

        printf("EMP Salary : %d\n\n",e[i].salary);

    }

}


int main(){

    Employee e[ECOUNT];

    int n;
```

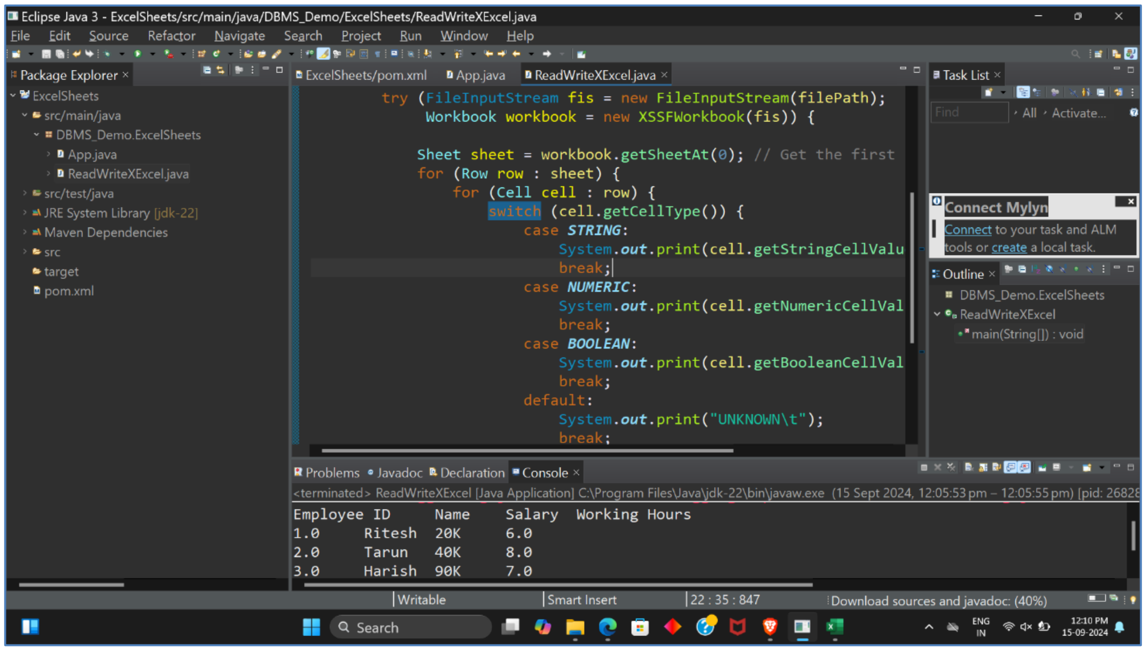
```
   printf("Enter the no of employees\n");

   scanf("%d",&n);


   if(n > ECOUNT){

       printf("max employees = %d\n", ECOUNT);

       exit(0);

   }


   readEmployeeDetails(e, n);

   printEmployeeDetails(e, n);

   return 0;

}
```

## Problem Statement 3: - Write a Java program to access the given Excel file with known file format

```
package DBMS_Demo.ExcelSheets;

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

//import java.io.FileInputStream;
//import java.io.IOException;
import java.io.*;
import java.util.*;

public class ReadWriteXExcel {
        public static void readExcelSheet(String filePath) {
                try (FileInputStream fis = new FileInputStream(filePath);
                Workbook workbook = new XSSFWorkbook(fis)) { //if you declare inside the try then no
need to close the fis & workbook externally it will be automatically closed
```

```
            Sheet sheet = workbook.getSheetAt(0); // Get the first sheet
            for (Row row : sheet) {
                for (Cell cell : row) {
                    switch (cell.getCellType()) {
                        case STRING:
                            System.out.print(cell.getStringCellValue() + "\t");
                            break;
                        case NUMERIC:
                            System.out.print(cell.getNumericCellValue() + "\t");
                            break;
                        case BOOLEAN:
                            System.out.print(cell.getBooleanCellValue() + "\t");
                            break;
                        default:
                            System.out.print("UNKNOWN\t");
                            break;
                    }
                }
                System.out.println();
            }

        } catch (IOException e) {
            e.printStackTrace();
        }

    }
    //Appending the file
    public static void appendFile(String filePath) {
             try (FileInputStream fis = new FileInputStream(filePath);
             Workbook workbook = new XSSFWorkbook(fis)) {

            // Access the existing sheet or create a new one if it doesn't exist
            Sheet sheet = workbook.getSheetAt(0); // Use the first sheet

            // Determine the next row index (one after the last row)
            int nextRowIndex = sheet.getLastRowNum() + 1;

            // Create a new row
            Row newRow = sheet.createRow(nextRowIndex);

            // Create new cells and set values
           // Cell cell1 = newRow.createCell(0);
           // Cell cell2 = newRow.createCell(1);
```

```
                Scanner sc = new Scanner(System.in);
                int columnsCount = sheet.getRow(1).getLastCellNum();
                for(int i=0; i<columnsCount; i++) {
                 Cell cell = newRow.createCell(i);
                 System.out.println("Enter the " + (i+1) + " cell value");
                 cell.setCellValue(sc.next());
                }

                // Write the changes to the file
                try (FileOutputStream fos = new FileOutputStream(filePath)) {
                    workbook.write(fos);
                }

            } catch (IOException e) {
                e.printStackTrace();
            }

        }

        public static void main(String[] args) {
    String filePath = "D:\\Github\\DBMS Assignment\\Book1.xlsx"; // Path to your Excel file
    readExcelSheet(filePath);
    appendFile(filePath);
        }
}
```

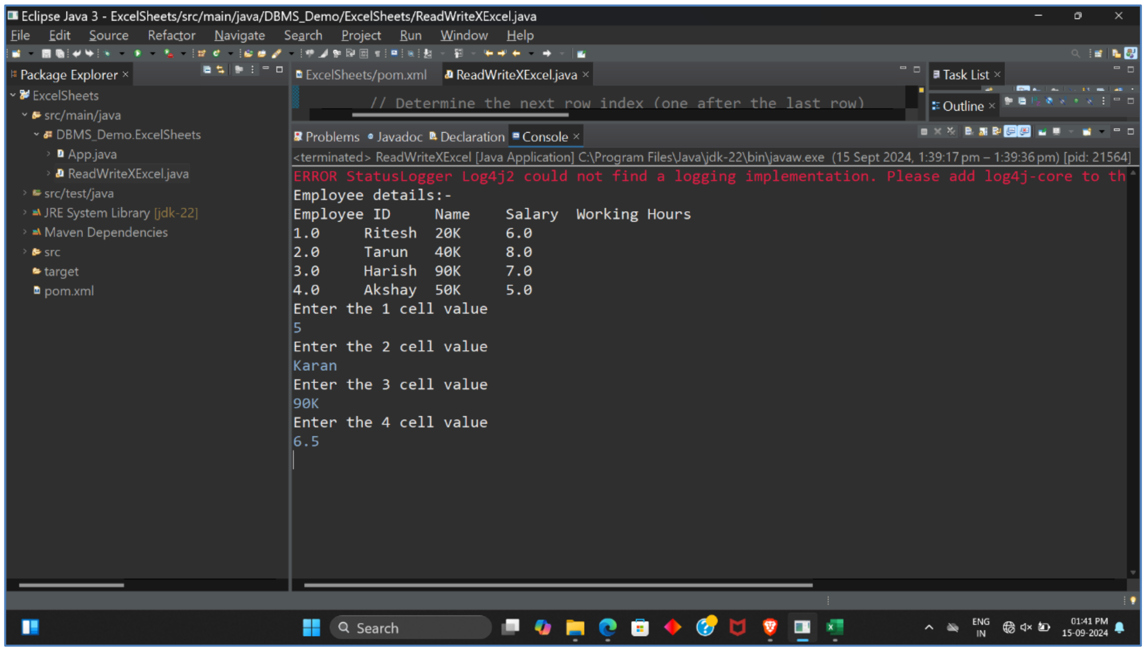


Eclipse Java 3 - ExcelSheets/src/main/java/DBMS_Demo/ExcelSheets/ReadWriteXExcel.java

```java
        try (FileInputStream fis = new FileInputStream(filePath);
             Workbook workbook = new XSSFWorkbook(fis)) {

            Sheet sheet = workbook.getSheetAt(0); // Get the first
            for (Row row : sheet) {
                for (Cell cell : row) {
                    switch (cell.getCellType()) {
                        case STRING:
                            System.out.print(cell.getStringCellValu
                            break;
                        case NUMERIC:
                            System.out.print(cell.getNumericCellVal
                            break;
                        case BOOLEAN:
                            System.out.print(cell.getBooleanCellVal
                            break;
                        default:
                            System.out.print("UNKNOWN\t");
                            break;
```

```
<terminated> ReadWriteXExcel [Java Application] C:\Program Files\Java\jdk-22\bin\javaw.exe (15 Sept 2024, 12:05:53 pm – 12:05:55 pm) [pid: 26828
Employee ID     Name    Salary  Working Hours
1.0     Ritesh  20K     6.0
2.0     Tarun   40K     8.0
3.0     Harish  90K     7.0
```

Figure 3.1 – R/W operations on Excel file

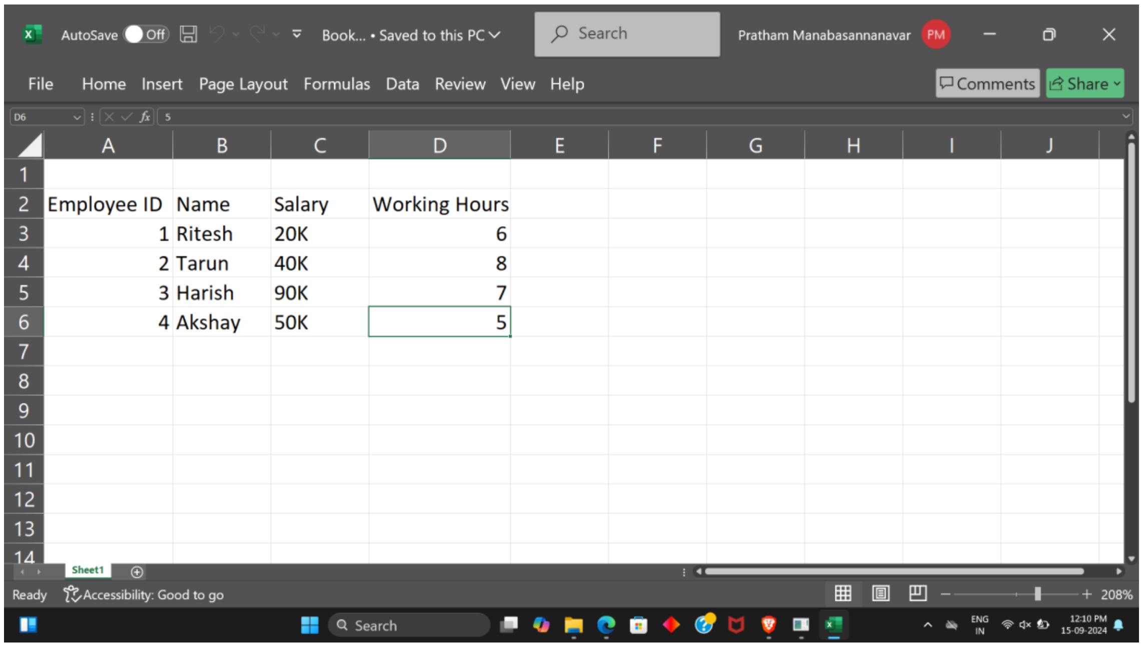


Eclipse Java 3 - ExcelSheets/src/main/java/DBMS_Demo/ExcelSheets/ReadWriteXExcel.java

```java
        // Determine the next row index (one after the last row)
```

```
<terminated> ReadWriteXExcel [Java Application] C:\Program Files\Java\jdk-22\bin\javaw.exe (15 Sept 2024, 1:39:17 pm – 1:39:36 pm) [pid: 21564]
ERROR StatusLogger Log4j2 could not find a logging implementation. Please add log4j-core to th
Employee details:-
Employee ID     Name    Salary  Working Hours
1.0     Ritesh  20K     6.0
2.0     Tarun   40K     8.0
3.0     Harish  90K     7.0
4.0     Akshay  50K     5.0
Enter the 1 cell value
5
Enter the 2 cell value
Karan
Enter the 3 cell value
90K
Enter the 4 cell value
6.5
```

Figure 3.2 – Inserting values into Excel sheet


AutoSave Off
Book... • Saved to this PC
Search
Pratham Manabasannanavar
File Home Insert Page Layout Formulas Data Review View Help
Comments Share
Sheet1
Ready
Accessibility: Good to go
208%

| Employee ID | Name | Salary | Working Hours |
|---|---|---|---|
| 1 | Ritesh | 20K | 6 |
| 2 | Tarun | 40K | 8 |
| 3 | Harish | 90K | 7 |
| 4 | Akshay | 50K | 5 |

Figure 3.3 – Excel sheet to perform R/W operations