



**MAHARASHTRA STATE BOARD OF TECHNICAL EDUCATION,
MUMBAI**

GOVERNMENT POLYTECHNIC KARAD

THIRD YEAR DIPLOMA COMPUTER ENGINEERING (I-SCHEME)

PART [B]

MICRO-PROJECT REPORT

“Library Management System based on Shell Scripting”

UNDER THE SUBJECT

OPERATING SYSTEM (22516)

SUBMITTED BY

Sr.no	Roll No	Enrollment No	Name of Team Member
1.	2251	2100100053	Pratik Pramod Shejwal
2.	2254	2100100056	Shravani Bharat Mahajan
3.	2260	2100100063	Riya Sunil Kharade

UNDER THE GUIDANCE

Ms. S.B.Patil

(DEPARTMENT OF COMPUTER ENGINEERING)

2023-24



**MAHARASHTRA STATE BOARD OF TECHNICAL EDUCATION,
MUMBAI.**

Certificate of completion

Of Micro-project Assessment at the end of Semester

This is to certify that,

Sr.no	Roll No	Enrollment No	Name of Team Member
1.	2251	2100100053	Pratik Pramod Shejwal
2.	2254	2100100056	Shravani Bharat Mahajan
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Has successfully completed “**Library Management System Based On Shell Scripting**” Micro-project of the Fifth semester Diploma in Computer Engineering of subject Operating System (22516) from Government Polytechnic Karad. Institute with Institute code(0010).

MS.S.B.Patil
(Project Guide)

Prof. S. B. Patil
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(Head of Institute)



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Place: Government polytechnic Karad

Date: 25/10/2023

Yours Sincerely,

2251-Pratik Pramod Shejwal
2254-Shravani Bharat Mahajan
2260-Riya Sunil Kharade

MICRO-PROJECT REPORT

“Library Management System based on Shell Scripting”

➤ RATIONALE:

Developing a Library Management System (LMS) using Shell Scripting is a practical and efficient choice for several reasons. Firstly, Shell Scripting offers a lightweight and straightforward solution, making it accessible even for users with minimal programming knowledge. It allows for quick and efficient development, ideal for managing a library's daily operations. This system will provide functionalities such as adding, deleting, searching, updating etc.

➤ AIM AND BENEFITS:

- 1)Efficient Library Management
- 2)User-Friendly Interface
- 3)Improved Book Management
- 4)Enhanced Accessibility

➤ COURSE OUTCOMES:

- CO A] Install operating system and configure it.
- CO B] Use operating system tools to perform various functions.
- CO C] Manage social issues and Environmental Ethics as lifelong learning.
- CO F] Apply file management technique.

➤ LITERATURE REVIEW:

- 1) We referred book, Book Name is Operating System, by-Vijay Patil
- 2) We referred following link:
 - i) <https://www.geeksforgeeks.org/introduction-of-operating-system-set-1/>

➤ ACTUAL PROPOSED METHODOLOGY:

- 1)Discussion about given topic.
- 2)Selection of good leader and distribution of responsibilities.
- 3)Collection of information using different resources.
- 4)Analysis of given information.
- 5)Presentation of given report.
- 6)Completion and submission of given tasks.

➤ ACTUAL RESOURCES REQUIRED:

Sr.no	Name of Resources	Specification	Quantity
1.	Computer system	Laptop i5 Processor 11 th Generation	1
2.	Ms Word	Microsoft Word 2021 MSO 64 bit	-
3.	Internet	4G, Wi-Fi	-
4.	Book	Operating System By-Vijay Patil	1

➤ INTRODUCTION:

A library management system using shell scripting provides a command-line interface for efficient and organized management of files and directories within an operating system. The "Add book" feature enables librarians to easily input new books into the system, ensuring efficient cataloguing. "Remove book" simplifies book removal and updates the library's inventory, promoting accurate record-keeping. "Edit book" and "Update book" functionalities offer librarians the flexibility to modify book details or status quickly, improving data accuracy. Lastly, "Display all" allows for a comprehensive overview of the library's entire collection, aiding in effective management and decision-making.

Additionally, Shell Scripting is platform-independent and can be deployed on various operating systems, making it adaptable for different library environments. Its lightweight nature ensures minimal resource consumption, making it suitable for both small and large libraries. Overall, this project's choice of Shell Scripting ensures a userfriendly, efficient, and cost-effective solution for managing library resources and services.

➤ PROJECT SCOPE:

The project scope for Library Management System using shell scripting involves creating a command-line interface that allows users to manage a library of files and directories within the operating system. This system will provide functionalities such as adding, deleting, searching, updating etc. It will be designed to work on Unix-like systems and provide an efficient and user-friendly way to handle file management tasks using shell commands.

➤ OUTPUT OF MICROPROJECT:

- PROGRAM CODE:

```
LIBRARY_FILE="library.txt"
TEMP_FILE="temp.txt"
# Function to insert a book record
insert_book() {
    echo "Enter Book Title:"
    read title
    echo "Enter Book Author:"
    read author
    echo "Enter Book ISBN:"
    read isbn
    echo "Enter book Publisher: "
    read $publisher
    echo "Enter book Publisher Year: "
    read $publisher_year
    echo "Enter Number of book Copies Available: "
    read $available

    # Check if the book already exists
    if grep -q "$isbn" "$LIBRARY_FILE"; then
        echo "Book with ISBN $isbn already exists."
    else
        echo "$title:$author:$isbn" >> "$LIBRARY_FILE"
        echo "Book added successfully."
    fi
}
# Function to update a book record
update_book() {
    echo "Enter ISBN of the book to update:"
    read isbn
    if grep -q "$isbn" "$LIBRARY_FILE"; then
        echo "Enter new book title:"
        read new_title
        echo "Enter new author:"
        read new_author
        echo "Enter book Publisher: "
        read new_publisher
        echo "Enter book Publisher Year: "
        read new_publisher_year
        echo "Enter Number of book Copies Available: "
        read new_available
        sed -i "s/$isbn:*/$new_title:$new_author:$isbn/" "$LIBRARY_FILE"
        echo "Book updated successfully."
    fi
}
```

```

        else
            echo "Book with ISBN $isbn not found."
        fi
    }

# Function to delete a book record
delete_book() {
    echo "Enter ISBN of the book to delete:"
    read isbn
    if grep -q "$isbn" "$LIBRARY_FILE"; then
        grep -v "$isbn" "$LIBRARY_FILE" > "$TEMP_FILE"
        mv "$TEMP_FILE" "$LIBRARY_FILE"
        echo "Book deleted successfully."
    else
        echo "Book with ISBN $isbn not found."
    fi
}

# Function to display all books
display_books() {
    echo "NAME AUTHOR ID PUBLISHER YEAR NO_OF_COPIES";
    cat "$LIBRARY_FILE"
}

# Function to search for a book
search_book() {
    echo "Enter ISBN to search for:"
    read isbn
    if grep -q "$isbn" "$LIBRARY_FILE"; then
        grep "$isbn" "$LIBRARY_FILE"
    else
        echo "Book with ISBN $isbn not found."
    fi
}

# Main menu
while true; do
    echo "*****";
    echo "*****Library Management System*****";
    echo "*****";
    echo "1. Insert"
    echo "2. Update"
    echo "3. Delete"
    echo "4. Display"
    echo "5. Search"
    echo "6. Exit"
    echo "*****";
    echo "Enter Your Choice:"

```

```

read choice
case $choice in
    1) insert_book
        ;;
    2) update_book
        ;;
    3) delete_book
        ;;
    4) display_books
        ;;
    5) search_book
        ;;
    6) echo "Exiting the Library Management System."
        exit 0
        ;;
    *) echo "Invalid choice. Please select a valid option."
        ;;
esac
done

```

- **PROGRAM OUTPUT**

```

riyasunil@ubuntu:~$ bash l1.sh
*****
*****Library Management System*****
*****
1. Insert
2. Update
3. Delete
4. Display
5. Search
6. Exit
*****
Enter Your Choice:
1
Enter Book Title:
Yayati
Enter Book Author:
V.S.Khandekar
Enter Book ISBN:
2100
Enter book Publisher:
Mehta
Enter book Publisher Year:
1959
Enter Number of book Copies Available:
10
Book added successfully.

```



```

*****
*****Library Management System*****
*****
1. Insert
2. Update
3. Delete
4. Display
5. Search
6. Exit
*****
Enter Your Choice:
2
Enter ISBN of the book to update:
2100
Enter new book title:
Musafir
Enter new author:
Bashir Badr
Enter book Publisher:
sayed Ali
Enter book Publisher Year:
1985
Enter Number of book Copies Available:
25
Book updated successfully.

```

```

*****
*****Library Management System*****
*****
1. Insert
2. Update
3. Delete
4. Display
5. Search
6. Exit
*****
Enter Your Choice:
4
NAME AUTHOR ID PUBLISHER YEAR NO_OF_COPIES
Yayati:V.S.Khandekar:2100
*****
*****Library Management System*****
*****
1. Insert
2. Update
3. Delete
4. Display
5. Search
6. Exit
*****
Enter Your Choice:
5
Enter ISBN to search for:
2100
Yayati:V.S.Khandekar:2100

```

```

*****
*****Library Management System*****
*****
1. Insert
2. Update
3. Delete
4. Display
5. Search
6. Exit
*****
Enter Your Choice:
3
Enter ISBN of the book to delete:
2100
Book deleted successfully.
*****
*****Library Management System*****
*****
1. Insert
2. Update
3. Delete
4. Display
5. Search
6. Exit
*****
Enter Your Choice:
6
Exiting the Library Management System.
riyasunil@ubuntu:~$

```

➤ SKILL DEVELOPED/ LEARNING OUT OF THIS MICRO-PROJECT

- By doing this microproject we developed the skills to time management and organization.
- We improved Collaboration and Self-Confidence.
- We improved our critical and analytical thinking abilities.
- We learnt work ethics.
- We understood the importance of team work, cooperation of team members. Also it helps to develop leadership qualities.
- We understood the Shell Scripting Language and its command
- Project management and documentation skills.

➤ APLLICATION OF MICROPROJECT:

1. Managing a digital book collection.
2. Organizing and tracking academic research papers.
3. Cataloging and retrieving multimedia files.
4. Administering a local file repository.
5. Controlling access to sensitive documents.
6. Automating data backup and archiving.

➤ **CONCLUSION OF MICROPROJECT:**

In Conclusion, a shell script-based library management system simplify file management, including functions for adding, deleting, and searching, enhancing overall organizational efficiency in Unix-like environments. It serves as a versatile tool applicable to a wide range of data management needs.

➤ **References:**

- 1) We referred book, Book Name is Operating System, by-Vijay Patil
- 2) We referred following link:
 - i) <https://www.geeksforgeeks.org/introduction-of-operating-system-set-1/>