# MAHARASHTRA STATE BOARD OF TECHNICAL EDUCATION

D.Y.PATIL EDUCATIONAL ACADEMY
D.Y.PATIL POLYTECHNIC

# MICRO PROJECT

**Academic year: 2024 - 2025**

## TITLE OF PROJECT:

"APPOINTMENT MANAGEMENT SYSTEM"

**Course:** Computer Engineering **Course code:** (CO-3-K )

**Subject:** Data Base management system **Subject code:** (313302)

| Sr.NO | Name of group member | Roll No | Enrollment No | Seat No |
|---|---|---|---|---|
| 01 | Rushikesh S.Thombre | 112 | 23212350352 | |
| 02 | Sachin R. Tidke | 113 | 23212350301 | |
| 03 | Hiten R. Toke | 114 | 23212350350 | |

| **Subjet Teacher**: | **Head of the Department:** | **Principal:** |
|---|---|---|
| Prof. Pratik bhagat | Prof.S.Himanshi | Prof.S.V.Awachar |

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# ACKNOWLEDGEMENT

It is a matter of great pleasure by getting the opportunity of highlighting. A fraction of knowledge, I acquired during our technical education through this project. This would not have been possible without the guidance and help of many people. This is the only page where we have opportunity of expressing our emotions and gratitude from the core of our heart to them. This project not have been success without enlightened ideas, timely suggestions and interest of our most respected guide **"Prof. Pratik bhagat"** without her best guidance this would have been an impossible task to complete. I would like to thank "**Prof.S.Himanshi**" Head of our department for providing necessary facility using the period of working on this project work.

I would also like to thank our Principal of "Prof.s.Awachar" who encouragus and created healthy environment for all of us to learn in best possible way. Finally I would pay my respect and love to my parents and all other family members as we as friends for their love and encouragement throughout my career.

**Student Names:**

1. Rushikesh S. Thombre
2. Sachin R. Tidke
3. Hiten R. Toke

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# Certificate

This is to certify that **Mr.Rushikesh S. Thombre** Roll No**.112** of **Third Semester** Diploma in **Computer Engineering** of Institute **D.Y. Patil Polytechnic** Instt.Code:0996) has completed the Micro-Project in **Database Management System(313302)** for the academic year 2024-25 as prescribed. in the MSBTE curricuium of K Schem.

Place: Ambi

Enrollment No: 23212350352

Date: ……

Exam Seat No:

| **Subject Teacher** | **Head of the Department** | **Principal** |
|---|---|---|
| Prof. Pratik bhagat | Prof.S.Himanshi | Prof.S.V.Awachar |

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# Certificate

This is to certify that **Mr.Sachin R.Tidke** Roll No.**113** of **Third Semester** Diploma in **Computer Engineering** of Institute **D.Y. Patil Polytechnic** Instt.Code:0996) has completed the Micro-Project in **Database Management System(313302)** for the academic year 2024-25 as prescribed. in the MSBTE curricuium of K Schem.

Place: Ambi

Enrollment No: 23212350301

Date: ……

Exam Seat No:

| **Subject Teacher** | **Head of the Department** | **Principal** |
|---|---|---|
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# Certificate

This is to certify that **Mr.Hiten R. Toke** Roll No.**114** of **Third Semester** Diploma in **Computer Engineering** of Institute **D.Y. Patil Polytechnic** Instt.Code:0996) has completed the Micro-Project in **Database Management System(313302)** for the academic year 2024-25 as prescribed in the MSBTE curricuium of k Scheme.

Place: Ambi

Enrollment No: 23212350350

Date: ……

Exam Seat No

| **Subject Teacher** | **Head of the Department** | **Principal** |
|---|---|---|
| Prof. Pratik bhagat | Prof.S.Himanshi | Prof.S.V.Awachar |

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# INDEX

## ❖ Abstract:

The Appointment Management System is a database-driven application designed to streamline and automate the scheduling and management of appointments. This micro project focuses on creating a simplified model using a Database Management System (DBMS) to store, retrieve, and manage appointment data efficiently.

The system aims to allow users, such as customers and administrators, to interact with a centralized platform where they can book, update, or cancel appointments. It reduces manual errors, minimizes double bookings, and ensures the availability of time slots through a wellstructured database.

Key components of the project include creating database tables to store information on users, appointments, services, and time slots, establishing relationships between these entities, and executing SQL queries for data manipulation and retrieval. The system provides key functionalities like booking new appointments, modifying existing ones, and generating reports on the appointment schedules.

This micro project demonstrates the importance of a well-designed database to support business operations, ensuring data integrity and efficient management of appointment-related information. The project also highlights the use of relational databases, query optimization, and normalization techniques to improve data organization and system performance.

In conclusion, the Appointment Management System micro project showcases how a DBMS can be employed to automate and optimize appointment scheduling tasks, improving overall efficiency and user experience.

## ❖ Introduction

The Appointment Management System is a database-driven application that automates the process of scheduling and managing appointments. It is widely used in various sectors, including healthcare, education, and businesses, to improve the efficiency and organization of appointment scheduling, reduce errors, and provide users with a seamless experience.

In this micro project, we aim to design and implement a simplified version of an Appointment Management System using a Database Management System (DBMS). The system will be built to manage appointments, handle user data, and store appointment details securely. It will involve creating tables, establishing relationships between entities, and implementing queries to retrieve, insert, update, and delete records.

**Objectives:**

1. Efficient Appointment Scheduling: The system will allow users to schedule appointments based on availability and preferences.
2. Data Integrity: The system will ensure accurate recording of appointments and user data.
3. User Management: It will manage the profiles of users such as administrators, employees, and customers.
4. Appointment Tracking: The system will provide functionality for tracking upcoming, completed, or canceled appointments.
5. Report Generation: The system will generate basic reports on appointment schedules, user activity, and system usage.

**Key Components:**

1. Entities: Users (admins, employees, customers), Appointments, Services (if applicable), and Locations.

2. Database Tables: Tables for storing user information, appointment details (date, time, status), and service details.

3. Relationships: The system will have relationships between users and appointments, such as:

A user can book many appointments.

An appointment is related to one user.

4. Queries and Procedures: SQL queries will handle the core functionality, such as booking an appointment, canceling, updating, and retrieving available slots.

**Tools and Technologies:**

Database Management System (DBMS): MySQL, PostgreSQL, or similar.

Front-end (Optional): Simple user interfaces can be built with HTML, CSS, and JavaScript.

Programming Language (Optional): Backend programming for query processing using PHP, Python, or Java.

## ❖ Technology Used:

In developing an Appointment Management System, various technologies and tools are employed to create an efficient and robust database-driven application. Below are the keytechnologies and their roles in the project:

1. Database Management System (DBMS)

MySQL / PostgreSQ / SQLite: These relational database systems are used to store, retrieve, and manage appointment-related data. They provide the backbone for the project, ensuring data integrity, scalability, and support for complex queries.

Features: Support for SQL queries, data normalization, indexing, and relationships betweendifferent data tables (users, appointments, services).

Key Uses:

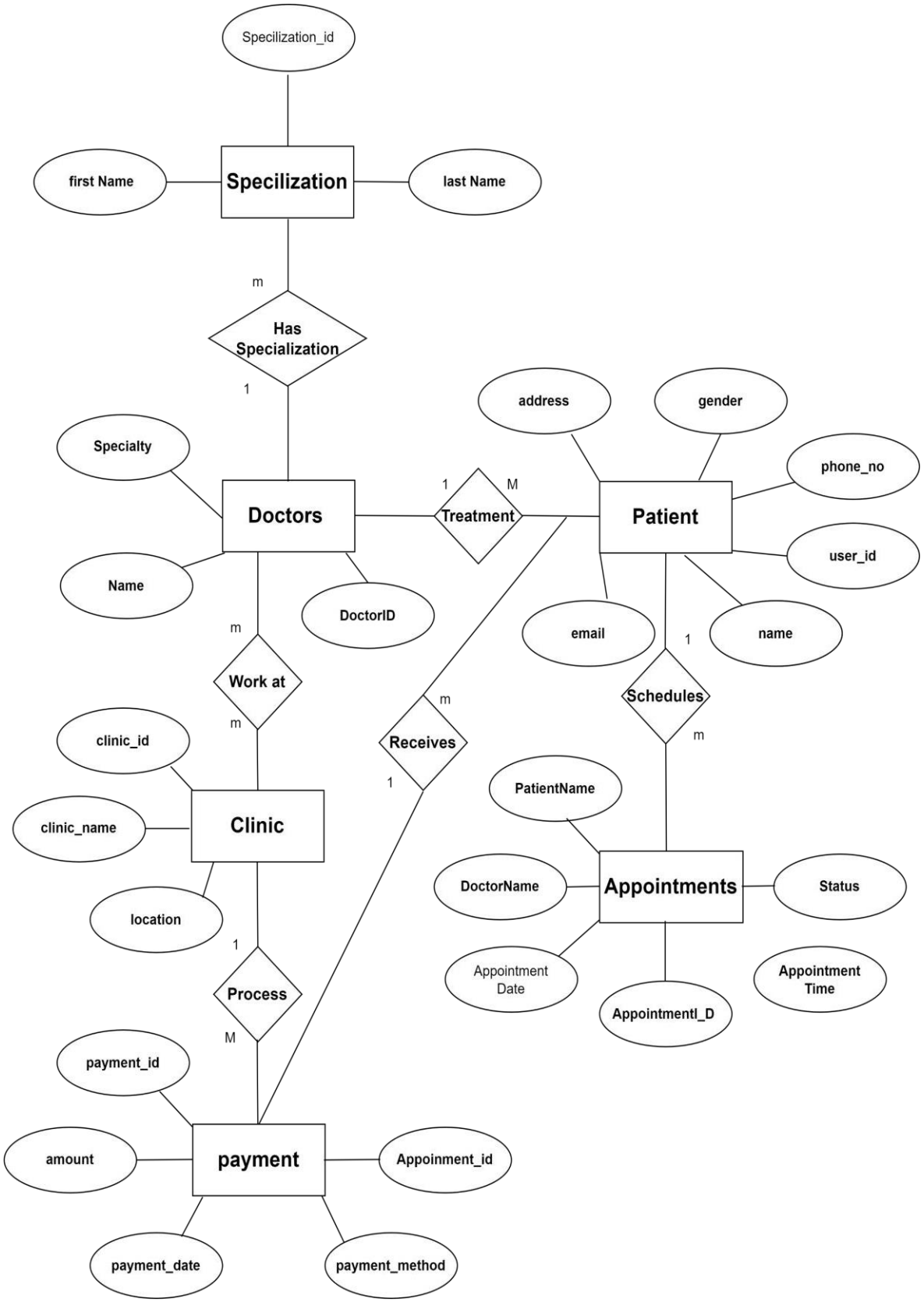
Storing user details, appointment data, and service

information. Implementing relations (one-to-many)

between users and appointments.Running SQL queries

to handle CRUD

# ER-Diagram


Specilization_id
Specilization
first Name
last Name
m
Has Specialization
1
Specialty
Doctors
Name
DoctorID
1
M
Treatment
address
gender
phone_no
Patient
user_id
email
name
1
Schedules
m
m
Work at
m
clinic_id
clinic_name
Clinic
location
1
Process
M
m
Receives
1
PatientName
DoctorName
Appointments
Status
Appointment Date
AppointmentI_D
Appointment Time
payment_id
amount
payment
Appoinment_id
payment_date
payment_method

# ❖Database Management System Program Code

```
CREATE DATABASE IF NOT EXISTS Appointments4;
 USE Appointments4;
 CREATE TABLE User
 (
 user_id INT PRIMARY
 KEY,name VARCHAR(255),
 email VARCHAR(255),
 phone_no VARCHAR(15),
 address VARCHAR(255),
 gender ENUM('Male', 'Female', 'Other')
 );
 INSERT INTO User (user_id, name, email, phone_no, address,
gender) VALUES
 (5, 'Sachin Tidke', 'sachin.tidke@example.com', '1234567890', '123Main St,
City', 'Male'),
 (6, 'Suyash Gavate', 'suyash.gavate@example.com', '2345678901','456 Elm
St, City', 'Male'),
 (7, 'Ganesh Bhadake', 'ganesh.bhadake@example.com',
'3456789012', '789 Pine St, City',
‘ ‘Male'),
 (8, 'Sarthak Shinde', 'sarthak.shinde@example.com', '4567890123','321 Oak St,
City', 'Male'),
 (9, 'Rohan Bhosale', 'rohan.bhosale@example.com', '5678901234','654 Cedar St,
City', 'Male');
 SELECT * FROM User;
```

```
CREATE TABLE Appointments (
AppointmentID INT PRIMARY KEY,
PatientName VARCHAR(255),
DoctorName VARCHAR(255),
AppointmentDate DATE,
AppointmentTime TIME,
Status VARCHAR(255)
);

INSERT INTO Appointments VALUES
(1234, 'sachin tidke', 'ganesh bhadke', '2024-08-20', '10:00:00',
'scheduled'),
(9877, 'ganesh bhadke', 'pankaj shirsath', '2024-08-10', '12:00:00',
'scheduled'),
(1294, 'pratik ekshinge', 'ganesh borade', '2024-08-22', '10:00:00',
'scheduled'),
(1634, 'suyash gavate', 'sujal jori', '2024-08-23', '10:00:00',
'scheduled'),
(1235, 'rohan tidke', 'aniket rathod', '2024-08-26', '10:00:00',
'scheduled');

SELECT * FROM Appointments;
CREATE TABLE Doctors (
DoctorID INT PRIMARY KEY,
Name VARCHAR(255),
```

```
 Specialty VARCHAR(255)
 );

 INSERT INTO Doctors VALUES
 (171712, 'pankaj shirsath', 'heart specialty'),
 (174562, 'nikam guarav', 'eye specialty'), (174543, 'varad ubale','heart
specialty'),
 (235453, 'vivek singh', 'eye specialty'), (342348,
 'prasad tekawade', 'heart specialty');

 SELECT * FROM Doctors;
 CREATE TABLE Specialization (
 specialization_id INT PRIMARY KEY AUTO_INCREMENT,
 specialization_name VARCHAR(20)
 );
 INSERT INTO Specialization (specialization_name) VALUES
 ('kumar'),
 ('shinde');
 SELECT * FROM Specialization;
CREATE TABLE Clinic (
 clinic_id INT PRIMARY KEY,
 clinic_name VARCHAR(255),
 location_code VARCHAR(50)
);
```

```
INSERT INTO Clinic (clinic_id, clinic_name, location_code) VALUES(1,
'City Health Clinic', 'LOC001'),
(2, 'Downtown Medical Center', 'LOC002'),
(3, 'Suburban Care Clinic', 'LOC003'), (4, 'Eastside Family Practice',
'LOC004'),
(5, 'Northview Health Services', 'LOC005');
SELECT * FROM Clinic;
CREATE TABLE Payments (
payment_id INT PRIMARY KEY,
amount DECIMAL(10, 2),
payment_date DATE,
payment_method VARCHAR(50),
appointment_id INT,
FOREIGN KEY (appointment_id) REFERENCES
Appointments(AppointmentID)
);
INSERT INTO Payments (payment_id, amount, payment_date,
payment_method, . ‘
‘appointment_id) VALUES
(1, 100.00, '2024-09-01', 'Credit Card', 1234),
(2, 150.50, '2024-09-05', 'Cash', 9877),
(3, 200.00, '2024-09-10', 'Debit Card', 1294),
(4, 120.75, '2024-09-15', 'Credit Card', 1634),
(5, 80.00, '2024-09-20', 'PayPal', 1235);
SELECT * FROM Payments;
```

## ❖ Output:

Result Grid | Filter Rows: | Edit: | Export/Import: | Wrap Cell

| user_id | name | email | phone_no | address | gender |
|---|---|---|---|---|---|
| 5 | Sachin Tidke | sachin.tidke@example.com | 1234567890 | 123 Main St, City | Male |
| 6 | Suyash Gavate | suyash.gavate@example.com | 2345678901 | 456 Elm St, City | Male |
| 7 | Ganesh Bhadake | ganesh.bhadake@example.com | 3456789012 | 789 Pine St, City | Male |
| 8 | Sarthak Shinde | sarthak.shinde@example.com | 4567890123 | 321 Oak St, City | Male |
| 9 | Rohan Bhosale | rohan.bhosale@example.com | 5678901234 | 654 Cedar St, City | Male |
| NULL | NULL | NULL | NULL | NULL | NULL |

Result Grid | Filter Rows: | Edit: | Export/Import: | Wrap Cel

| AppointmentID | PatientName | DoctorName | AppointmentDate | AppointmentTime | Status |
|---|---|---|---|---|---|
| 1234 | sachin tidke | ganesh bhadke | 2024-08-20 | 10:00:00 | scheduled |
| 1235 | rohan tidke | aniket rathod | 2024-08-26 | 10:00:00 | scheduled |
| 1294 | pratik ekshinge | ganesh borade | 2024-08-22 | 10:00:00 | scheduled |
| 1634 | suyash gavate | sujal jori | 2024-08-23 | 10:00:00 | scheduled |
| 9877 | ganesh bhadke | pankaj shirsath | 2024-08-10 | 12:00:00 | scheduled |
| NULL | NULL | NULL | NULL | NULL | NULL |

Result Grid | Filter Rows: | Ec

| DoctorID | Name | Specialty |
|---|---|---|
| 171712 | pankaj shirsath | heart specialty |
| 174543 | varad ubale | heart specialty |
| 174562 | nikam guarav | eye specialty |
| 235453 | vivek singh | eye specialty |
| 342348 | prasad tekawade | heart specialty |
| NULL | NULL | NULL |

Result Grid | Filter Rows: | Edit: | Export/

| payment_id | amount | payment_date | payment_method | appointment_id |
|---|---|---|---|---|
| 1 | 100.00 | 2024-09-01 | Credit Card | 1234 |
| 2 | 150.50 | 2024-09-05 | Cash | 9877 |
| 3 | 200.00 | 2024-09-10 | Debit Card | 1294 |
| 4 | 120.75 | 2024-09-15 | Credit Card | 1634 |
| 5 | 80.00 | 2024-09-20 | PayPal | 1235 |
| NULL | NULL | NULL | NULL | NULL |

| | | |
|---|---|---|
| 5 | Northview Health Services | LOC005 |
| NULL | NULL | NULL |

Result Grid | Filter Rows:

| specialization_id | specialization_name |
|---|---|
| 1 | kumar |
| 2 | shinde |
| NULL | NULL |

## ❖ Advantage and Disadvantage:

• Advantages

1. Efficient Data Management

Centralized Storage: A DBMS allows for centralized storage and efficient management of appointment data such as schedules, client information, and appointment details. This helps in keeping all related information in one place, reducing redundancy.

Structured Data: DBMS enforces data integrity through schemas and constraints, ensuring that appointment data is consistent and properly formatted.

2. Data Retrieval and Querying

Quick Queries: Using SQL or similar query languages, you can easily retrieve specific appointment information (e.g., upcoming appointments, client history) from the DBMS.

Complex Queries: DBMS allows for more complex querying options, such as filtering appointments by client, time range, or location, which improves usability and reporting.

3. Scalability

Even though the project is small in scope, a DBMS allows for future scalability. As the organization or project grows, more appointments and users can be handled without significantly redesigning the system.

4. Data Integrity and Security

Data Consistency: DBMS systems ensure consistency of the data using ACID (Atomicity, Consistency, Isolation, Durability) properties, reducing the chances of data anomalies.

Security Features: Most DBMS systems offer role-based access control, which ensures that only authorized users can access or modify appointment data.

5. Automation Capabilities

Automated Notifications: By scheduling tasks or using triggers within the DBMS, you can automate appointment reminders or notifications.

- Disadvantages

1. Complex Setup and Maintenance

Setup Complexity: Designing and implementing an appointment management system within a DBMS may require expertise in both database design and application development. This could be resource-intensive for a micro project.

Maintenance Overhead: Maintaining the system (e.g., updating schemas, optimizing queries) can become complex and time-consuming, particularly for small projects with limited technical staff.

2. Cost

Licensing Costs: While some DBMS systems are open-source (e.g., MySQL, PostgreSQL), others can be expensive (e.g., Oracle, Microsoft SQL Server). Depending on the size of the micro project, the costs associated with implementing and maintaining a DBMS may out weigh the benefits.

Resource Requirements: Running a DBMS with full features (security, backups, automation) may require more computational resources than a small project can afford.

3. Learning Curve

For a micro project, if the development team or users are not familiar with DBMS tools, there could be a steep learning curve to understanding how to efficiently store, query, and manage appointment data.

Training non-technical staff to interact with the DBMS for appointment scheduling may benecessary, further adding to the project's overhead.

4. Overkill for Small Projects

Excess Features: For a micro project, a full-fledged DBMS might be overkill. If the numberof appointments is small and the project has limited scope, simpler data management tools (like spreadsheets or a basic file system) might be more practical.

Unnecessary Complexity: Using a DBMS may introduce unnecessary complexity for smallerprojects, as the needs might not justify the powerful, but more involved, DBMS features.

5. Risk of Data Inconsistency

If the AMS isn't properly designed with a strong relational model or integrity checks, it couldlead to data inconsistency. For instance, an appointment might not be linked correctly to a client, or appointment times could overlap if proper constraints are not in place.

## ❖ Conclusion:

This Appointment Management System micro project aims to showcase how DBMS can be

effectively used to streamline processes in appointment scheduling and management. It

highlights key DBMS concepts like data storage, relational mapping, and query processing

in a real-world application scenario.

# WEEKLY PROGRESS REPORT

**MICRO PROJECT**

| SR NO. | WEEK | ACTIVITY PERFORMED | SIGN OF GUIDE | DATE |
|---|---|---|---|---|
| **01.** | 1st | Discussion and finalization of topic | | |
| **02.** | 2nd | Preparation and submission of Abstract | | |
| **03.** | 3rd | Literature Review | | |
| **04.** | 4th | Collection of Data | | |
| **05.** | 5th | Collection of Data | | |
| **06.** | 6th | Discussion and outline of Content | | |
| **07.** | 7th | Formulation of Content | | |
| **08.** | 8th | Editing and proof Reading of Content | | |
| **09.** | 9th | Compilation of Report | | |
| **10.** | 10th | Seminar | | |
| **11.** | 11th | Viva voc | | |
| **12.** | 12th | Final submission of Micro Project | | |

**Sign Of The Student** **Sign Of The Faculty**

# ANNXURE

## Evaluation sheet for the Micro Project
## Academic Year: 2024-2025.

**Name of Faculty: Prof. Pratik bhagat Sir**

Course: Computer Engineering Course

code: CO3K

Semester: 3rd

Title of the Project: Appointment management system

Major learning outcomes achieved by students by doing the project Practical outcomes:

Unit outcomes in cognitive domain Outcomes in Affective domain.

| Sr No. | Roll No. | Student Name | Marks out of 6 for performance in group activity (D5Col.8) | Marks out of THREE performance in oral/ presentation (D5Col.9) | Total out of 10 |
|---|---|---|---|---|---|
| 1 | 112 | Rushikesh S. Thombare | | | |
| 2 | 113 | Sachin R. Tidke | | | |
| 3 | 114 | Hiten R. Toke | | | |