A Project Report

on

Slotted

carried out as part of the course CS1532 Submitted by

Rashi Singh

169105142

5th Semester B.Tech (CSE)

In partial fulfilment for the award of the degree

of

BACHELOR OF TECHNOLOGY

In

Computer Science & Engineering

MANIPAL UNIVERSITY
JAIPUR

Department of Computer Science & Engineering, School of Computing and IT

Manipal University Jaipur,
November, 2018

DECLARATION

I hereby declare that the project entitled **"*Slotted*"** submitted as part of the partial course requirements for the course ***Software Engineering***, for the award of the degree of Bachelor of Technology in Computer & Communication Engineering at Manipal University Jaipur during the ***5th Semester, November 2018*** semester, has been carried out by me. I declare that the project has not formed the basis for the award of any degree, associate ship, fellowship or any other similar titles elsewhere.

Further, I declare that I will not share, re-submit or publish the code, idea, framework and/or any publication that may arise out of this work for academic or profit purposes without obtaining the prior written consent of the Course Faculty Mentor and Course Instructor.

Signature of the Student:

Place: Manipal University Jaipur

Date:

Abstract

This report explains what the Slotted essentially does, which is providing a suitable platform for effortless communication between admin and end user. The steps to do so are described in an easy-to-read manner with relevant diagrams and scenarios, using the argumentative logic to every decision and fulfill the stated objective in the best possible way, balancing the available technology and the quality of results.

The general functional and non-functional requirements were analyzed and results were noted. This document was made in accordance with the IEEE standards for creating a Software Requirements Specification (SRS) document.

After the analysis stage, the beta stage of the Slotted was duly tested using the appropriate testing techniques, hence giving us the final functional product.

Table of Contents

List of Diagrams

1. Introduction

1.1 Purpose

The purpose of this document is to provide a detailed description of the software, Slotted. It will explain the purpose and features of the software, the interfaces of the software, what the software will do and the constraints under which it must operate. This document is intended for users of the software and also potential developers.

1.2 Document Conventions

This Document was created based on the IEEE template for System Requirement Specification Documents.

1.3 Intended Audience and Reading Suggestions

This software is intended for:

- All the members of The Music Club, who would want to book the Music room for band practices
- TMC core members/faculty who want to keep track of when the music room is being used and by whom on a daily basis.

1.4 Product Scope

The music room in-charge and core members of The Music Club can use this software to analyze daily and monthly usage of the music room and predict the future trend of usage, in order to determine quantity and quality of instruments required by the club.

1.5 Operating Environment

- Windows 2000
- Windows XP
- Windows Vista
- Windows 7
- Windows 8
- Windows 10
- Mac OS X
- Linux

1.6. Scope of The Work

Slotted focuses on providing convenience to the members of the music club, on the user end as well as the admin end. On the user end, Slotted helps the user avoid enquiring several people just to book the jam room. With simply a click of a button, users can now book slots in the music room as per their convenience. On the admin end, Slotted rectifies the issue of information exchange and organization by implementing various technologies to provide a P2P (Peer to Peer) platform for secure and flawless transmission of sensitive data. The Admin has access to sensitive data and can view the schedule, the equipment being used and book slots for themselves as well.

1.7. Product Scenarios

Slotted can be used in multiple organizational settings under various use cases and scenarios. It empowers its users to exchange and view information in a simple, yet powerful way. A few scenarios are illustrated below.

Scenario 1
For example, let's say you are a member of the Music Club, and you would like to book a slot in the music room. You simply have to login into the desktop app, Slotted and book a slot. You can view the schedule, and pick a slot accordingly. You can also pick the equipment you will be requiring during your specific slot. In this way, you save time and ensure that the music room is ready for your use.

Scenario 2

Assume you are the Head of the Music club. Some equipment from the music room has been damaged. You need to find out who has damaged the equipment, so you can recover the funds required to repair said damaged equipment. With Slotted, you can view who used which equipment and when, simply with the click of a button. As the head of the music club, you are granted admin access on Slotted and hence you can view the database which contains all details regarding the equipment that is being used.

Scenario 3:

Assume you are in the core committee of the Music Club, and you would like to book a slot in the music room. You simply have to login into the desktop app, Slotted and book a slot. You can view the schedule, and pick a slot accordingly. You can also pick the equipment you will be requiring during your specific slot. In this way, you save time and ensure that the music room is ready for your use.

To check if all slots are booked, you no longer have to consult countless people to find out which ones have been booked. Instead you can simply log onto Slotted and view the schedule, book a free slot and avoid clashing of slots.

2.Requirement Analysis

2.6. Functional Requirements

Home Page:

User Sign In: Registered users can sign In

Admin Sign In: Admins (core members of the Music Club) can sign in.

Admin Panel:

Credentials Entry: Admin Is asked to enter the Email Id and the password.

View Schedule: Admin can view the current schedule.

View Members: Admin can view all members of the Music Club.

View Equipments being used: Admin can view the equipments being used slot wise. Admin can also view who is using which slot when.

Book a slot: Admin can book a slot as per the schedule**.**

Cancel a slot: Admin can cancel their slot.

Log Out: Admin logs out and is redirected to the landing page.

User Panel:

Credentials Entry: User Is asked to enter the email ID and the password

Book a slot: Admin can book a slot as per the schedule**.**

Cancel a slot: Admin can cancel their slot.

View Schedule: Admin can view the current schedule.

Log Out: User logs out and is redirected to the landing page.

2.2 Non-Functional Requirements

Performance Requirements:

Slotted ensures that the user reaches maximum efficiency with minimal resources. The software is being developed by keeping memory and CPU constraints in mind. Minimal network requirements ensure an enhanced online experience thereby increasing productivity.

Security Requirements:

Slotted follows strict data privacy rules that are in due diligence with current laws and standards. The database ensures that all sensitive data is protected and secure.

Software Quality Attributes:

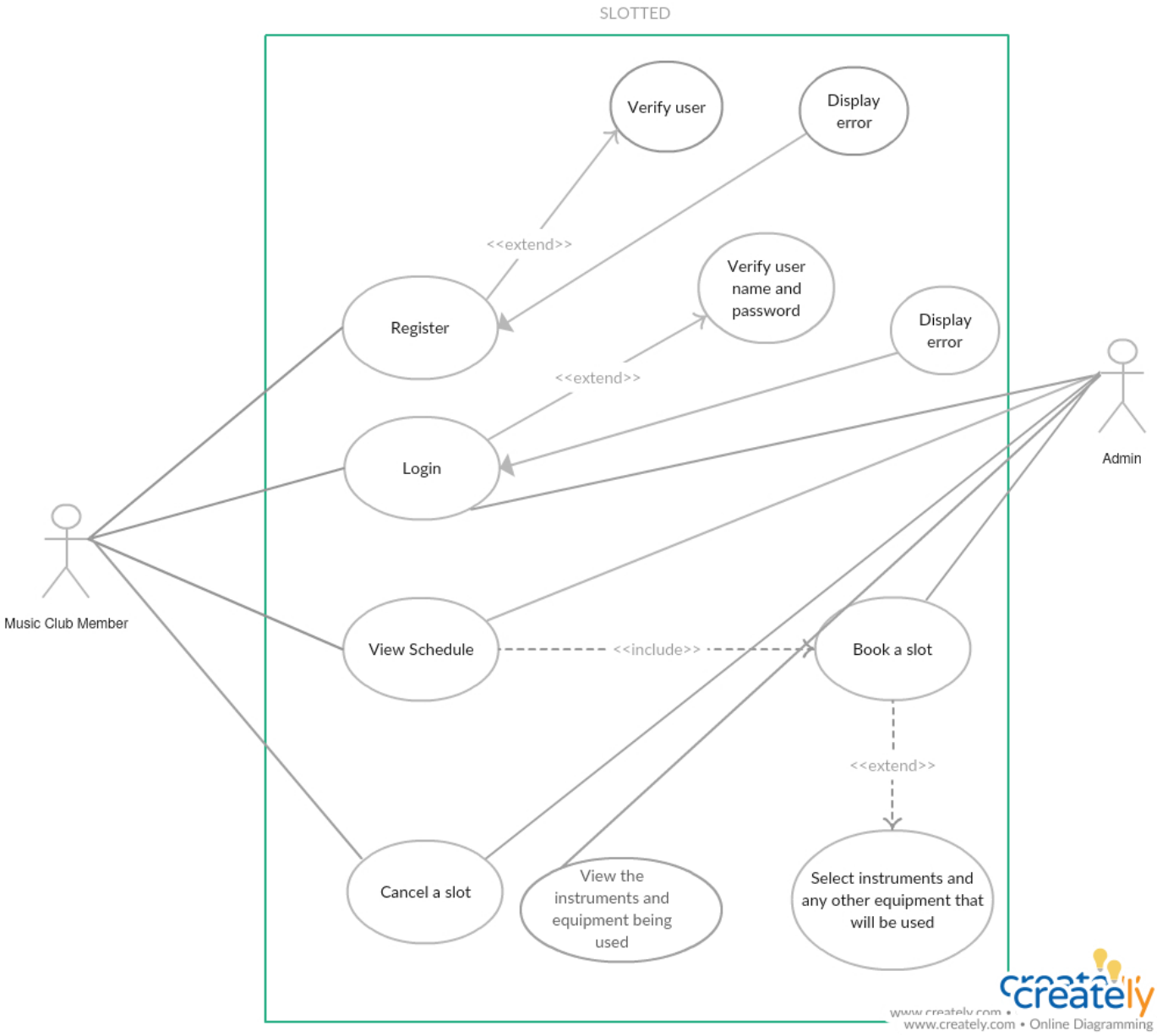
Slotted provides the users with an UI that is very minimal, yet powerful in nature. With a simple to use interface it can be used by both experts and typical users.

Business Rules:

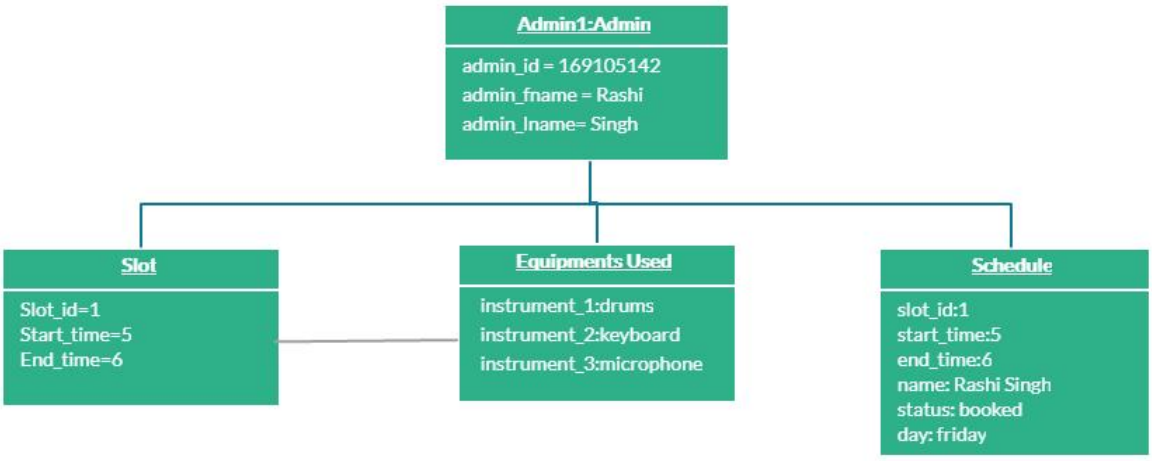
Slotted offers a lifetime free access to Its users. However, distribution of the Slotted software without permission and license Is not allowed.
A third party cannot use the Slotted to make monetary gains, In any way, what so ever.

2.3 Use Case Scenarios:

Use Case Diagram: Use case diagrams are usually referred to as behavior diagrams used to describe a set of actions (use cases) that some system or systems (subject) should or can perform in collaboration with one or more external users of the system (actors).



Object Diagram: An object diagram is a graph of instances, including objects and data values. A static object diagram is an instance of a class diagram; it shows a snapshot of the detailed state of a system at a point in time. The use of object diagrams is fairly limited, namely to show examples of data structure.



3. System Design

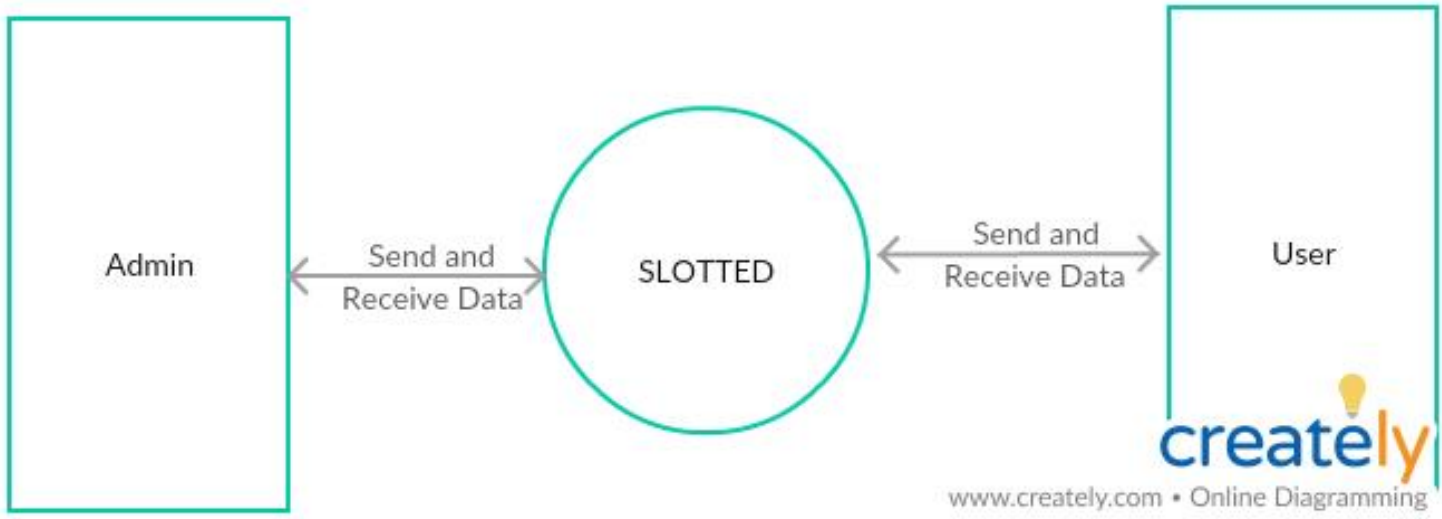
3.1 Design Goals:

This software has been designed for users, focusing mainly on students who want to book slots in the music room. An organization of any type can use the Slotted as a medium to communicate or transfer important information/instructions at various levels.

This software is versatile in the manner that it is not limited to any particular sector. An organization of any background can use this as a means of information exchange, storage as well as in the form of an appointment system.

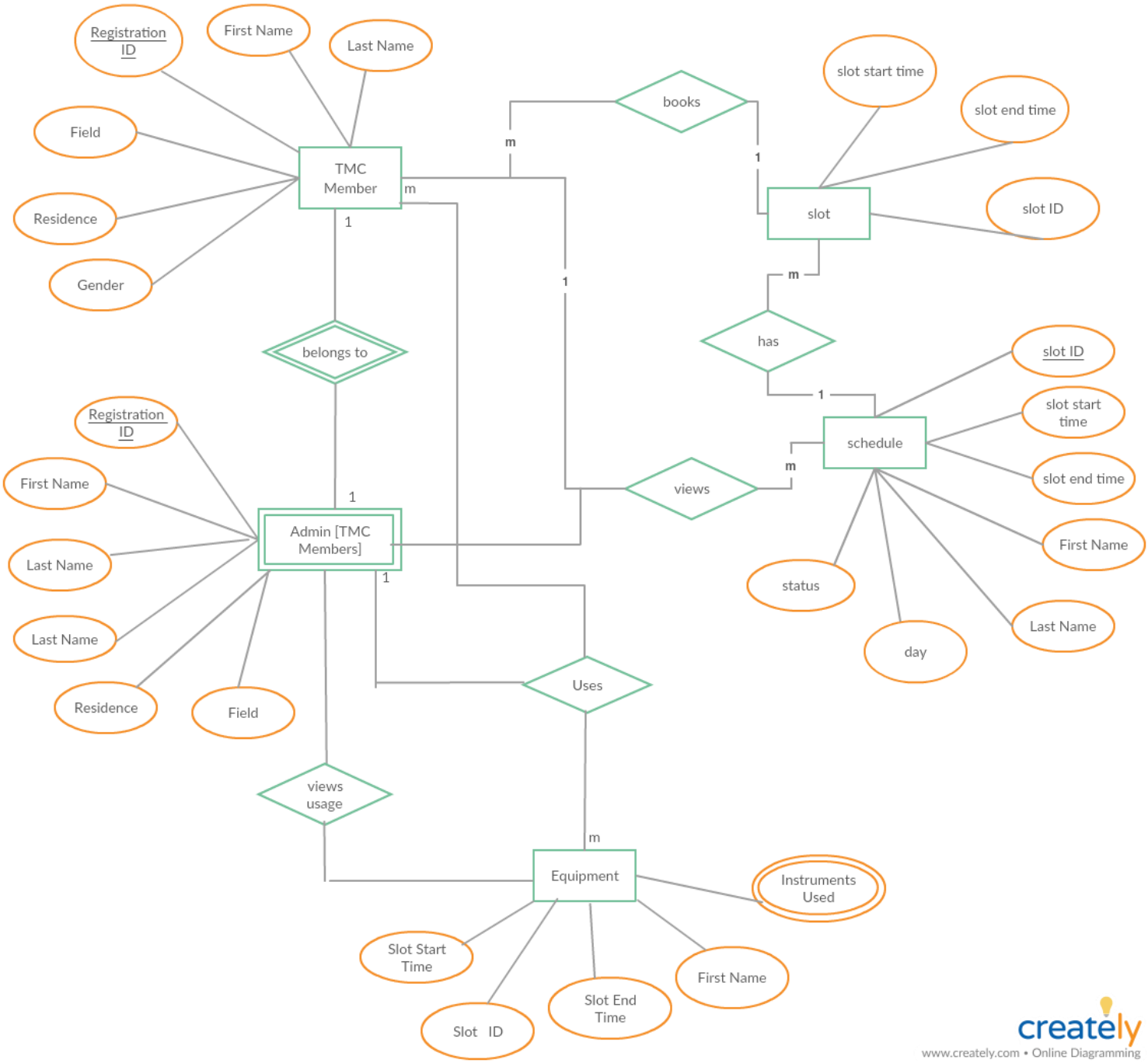
3.2 System Architecture:

DFD: A data flow diagram (DFD) is a graphical representation of the "flow" of data through an information system, modelling its process aspects. A DFD is often used as a preliminary step to create an overview of the system without going into great detail, which can later be elaborated.



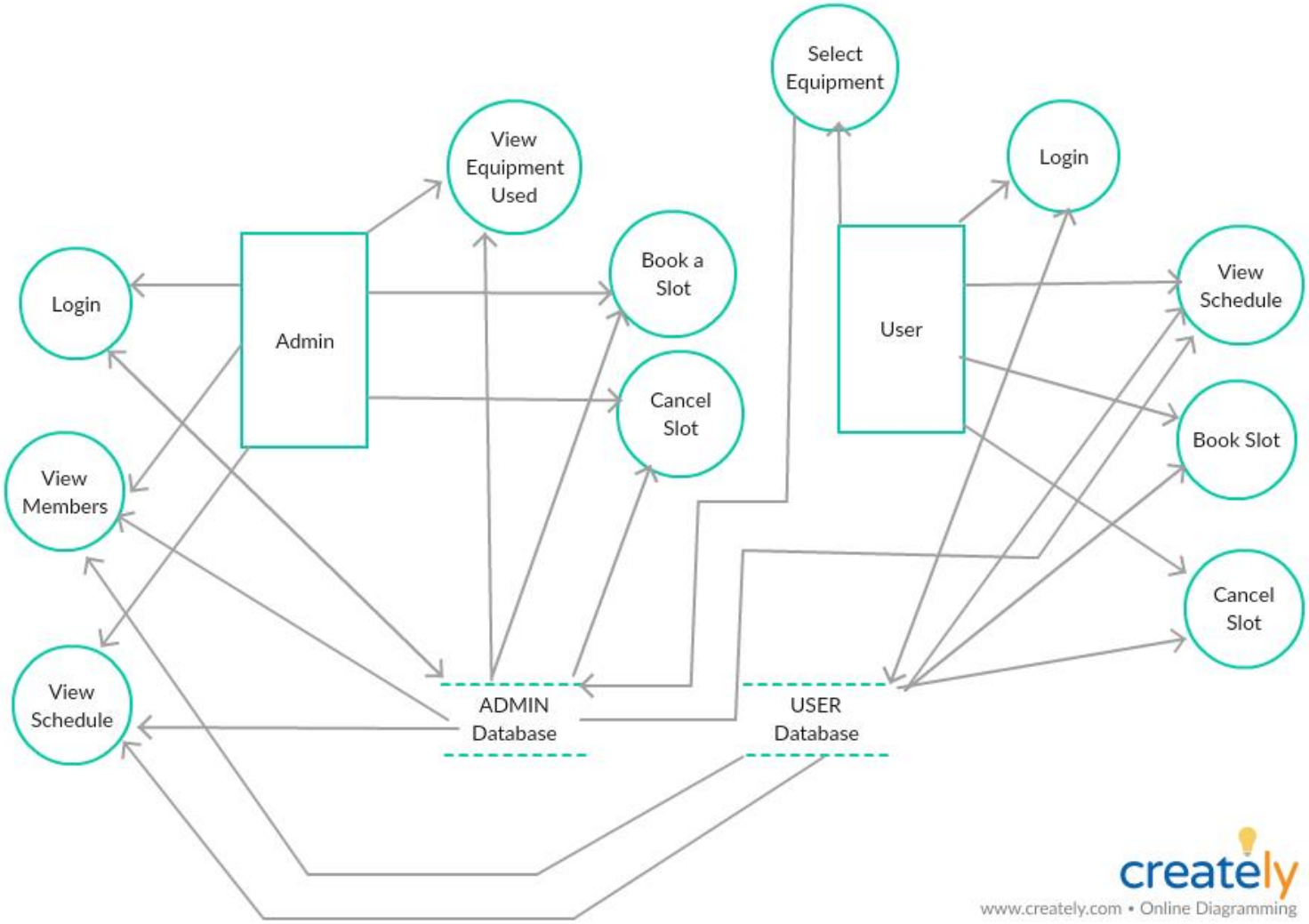
DFD (LEVEL 0)

ERD: An entity relationship model, also called an entity-relationship (ER) diagram, is a graphical representation of entities and their relationships to each other, typically used in computing in regard to the organization of data within databases or information systems.



3.3 Detailed Design Methodologies:

DFD: A data flow diagram (DFD) is a graphical representation of the "flow" of data through an information system, modelling its process aspects. A DFD is often used as a preliminary step to create an overview of the system without going into great detail, which can later be elaborated.


Select Equipment
View Equipment Used
Login
Book a Slot
Login
Admin
User
View Schedule
Cancel Slot
Book Slot
View Members
Cancel Slot
View Schedule
ADMIN Database
USER Database
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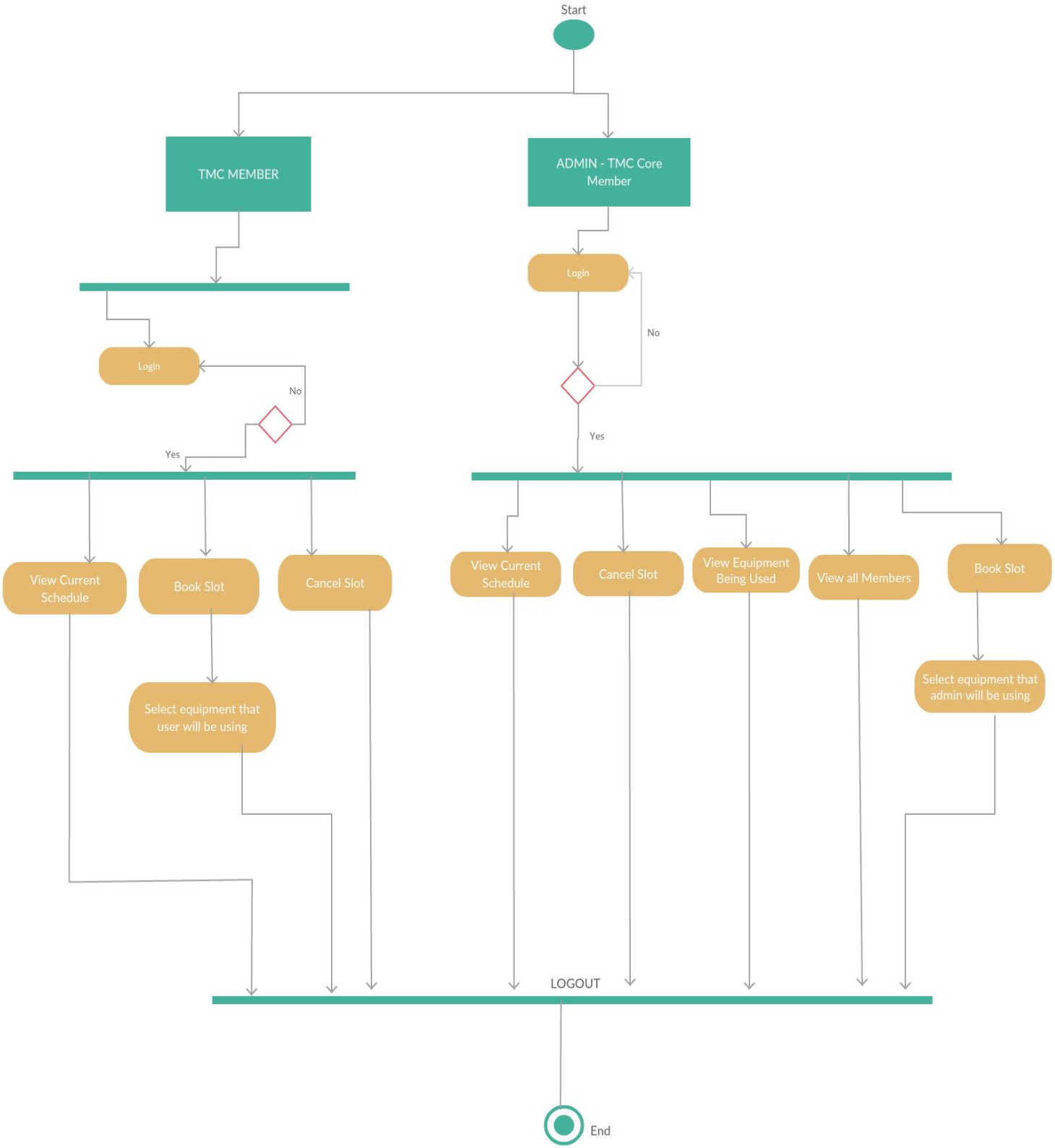
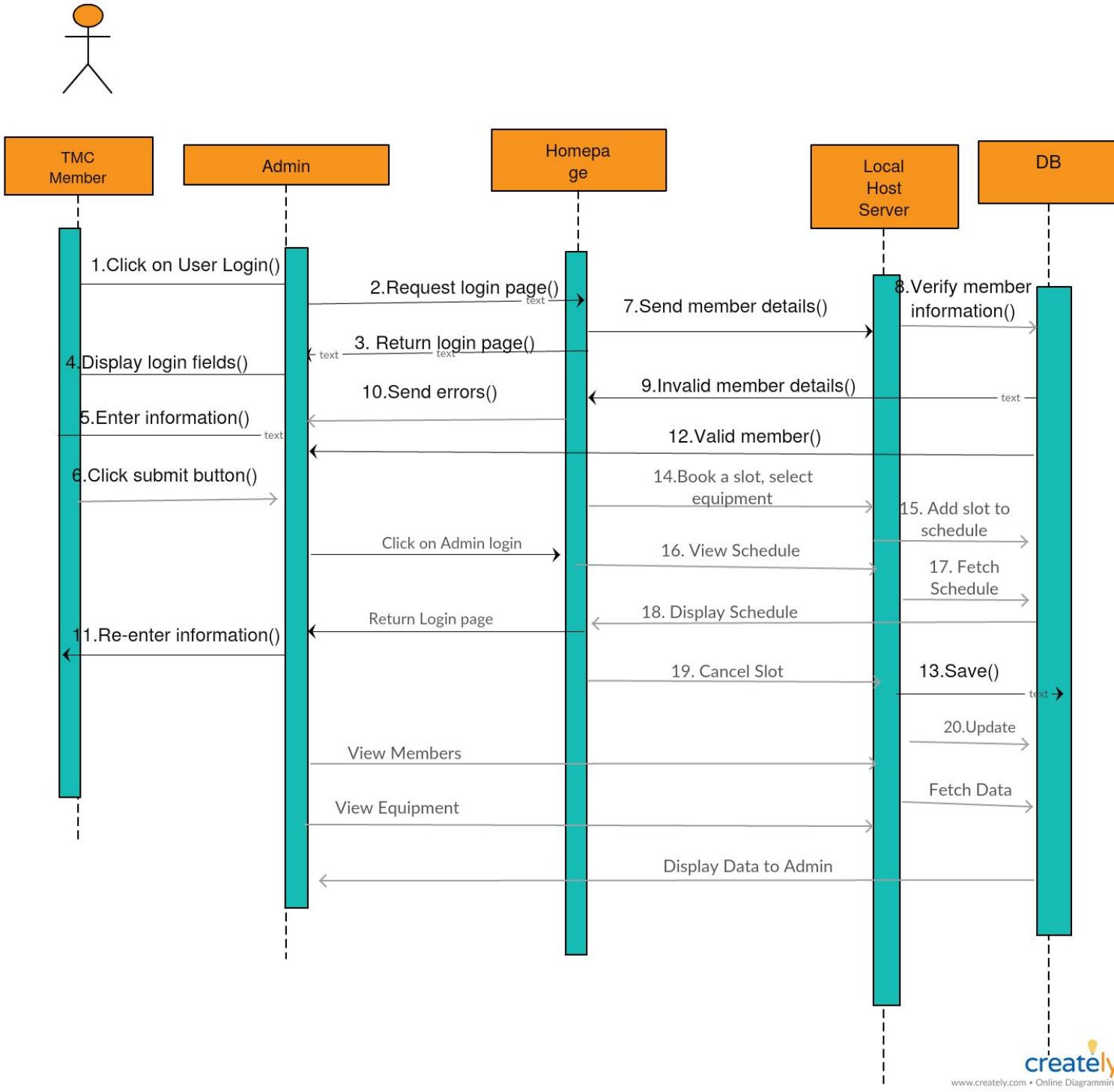
DFD LEVEL 1

Activity Diagram: In Unified Modelling Language (UML), an activity diagram is a graphical representation of an executed set of procedural system activities and considered a state chart diagram variation. Activity diagrams describe parallel and conditional activities, use cases and system functions at a detailed level.


Start
TMC MEMBER
ADMIN - TMC Core Member
Login
No
Yes
Login
No
Yes
View Current Schedule
Book Slot
Cancel Slot
Select equipment that user will be using
View Current Schedule
Cancel Slot
View Equipment Being Used
View all Members
Book Slot
Select equipment that admin will be using
LOGOUT
End

Sequence Diagram: Sequence diagrams are sometimes called event diagrams or event scenarios. A sequence diagram shows, as parallel vertical lines (lifelines), different processes or objects that live simultaneously, and, as horizontal arrows, the messages exchange between them, in the order in which they occur.



4. Work Done

4.1 Development Environment

MAMP is a solution stack composed of free and open-source software running with proprietary commercial software, to run dynamic web sites on computers running macOS or Windows. It can be used to develop web sites that use popular current technologies, on a stand-alone desktop or laptop computer without the need for a separate web server.

Operating system: Windows

Web server: Apache

Database management system: MySQL

Web development: Python

Front End Technology: The front-end UI/UX of the Slotted is designed with the help of

1. Python programming language

Back End Technology: This software's back end/server side uses

PHP: Server-side language
MySQL: Database

Designing:

1. The **Tkinter** module (“Tk interface”) is the a Python interface to the Tk GUI toolkit. Both Tk and **Tkinter** are available on most Unix platforms, as well as on Windows systems. Tkinter is the standard GUI library for Python. Python when combined with Tkinter provides a fast and easy way to create GUI applications. Tkinter provides a powerful object-oriented interface to the Tk GUI toolkit.

4.2 Results and Discussion

- Slotted was developed by keeping user convenience and ease in mind. It allows its users to disseminate and organize crucial information.
- It meets the client's functional as well as non-functional requirements.
- It’s efficient, reliable and safe.
- Slotted provides premier support and best in class maintenance at no additional cost from the client.
- It was developed by keeping a client friendly approach and also by deploying the best software development principles.

5. Conclusion and Future

Conclusion

Slotted solves the problems as per the client’s requirements and needs. Strict and standardized software development principles were used while developing the software. Documentation of the code base is ready for any future development and upgradations.

5.1 Proposed Work Plan of the Project

Slotted solves the need of the hour of reliable and safe communication; however, there are still functionalities and implementations that can be improved and added. I look forward to integrating more features by using the latest technologies and methodologies in the near future.