G19

COSTAZ DESKTOP

Teacher's Assistant
Group Members:

BSCS_F19_M_63   Muhammad Ammar

BSCS_F19_M_78   Muneeb Ahmed

PUJC
Punjab University Jhelum Campus
Department of Information Technology

Final Project Proposal

.

TABLE OF CONTENTS

1. Introduction

With the increasing number of students in schools, teachers are often found busy managing the attendance of their students. A teacher's assistant application is being developed, which will help teachers to manage the attendance sheet generation and report card generation. This application can be used by teachers to perform their daily duties more efficiently and effectively as they can now also be used for storing data in Google Drive, so that they can be accessed anywhere at any time. The name of this application is **Costaz**.

The word Costaz is derived from two words: "co-" which is used for the assistant agent, and "ostaz" which translates to "Teacher" in Arabic. **Costaz Desktop** is a teacher-friendly desktop application developed to manage academic records of their students. It allows for attendance sheets generation in Excel form, report card generation for individual students, and generation of marks sheets for all students, as well as for a specific course.

1.1 Project Title

Costaz Desktop – a Teacher's Assistant Desktop Application

1.2 Project Overview Statement

The aim of the project is to develop a desktop application which can be used by teachers to manage the attendance of their students and also generate various reports in Excel sheet format. The application will use Google Sheets as its database and Google Drive to store the Excel sheets. The application will be developed using the Flutter framework.

Project Overview Statement Template

Project Title: **Costaz Desktop –** Teacher's Assistant

Group Leader: Muhammad Ammar Khan – BSCS-F19-M-63

Project Members:

Name	Registration #	Email Address	Signature
Muhammad Ammar	BSCS-F19-M63	bscs.f19.m63@gmail.com	
Muneeb Ahmed	BSCS-F19-M78	bscs.f19.m.78@gmail.com	

Project Goal: To develop a desktop application that will be used by teachers to assist them in the management of student attendance, report cards and marks.

Objectives:

Sr.#	
1	Management of Attendance of Students.
2	Management of Report Cards of Students.
3	Generation of Records in Excel format.
4	Using Google Sheets as a lightweight Database.
5	Using Google Drive to store the Excel sheets.
6	Data Visualization

Project Success criteria:
- Attractive User Interface (UI), and great User Experience (UX)
- Maximum Bug-free Experience.
- Efficient usage of APIs.
- Minimal backend, only as required.

Assumptions, Risks, and Obstacles:
- We need to use Google's API for many purposes, it may get a little tedious to work with.
- Flutter is a relatively new technology.
- Optimization can take time.

Organization Address (if any):		
Type of project:	❑ Research	❑ Development
Target End users: Teachers		
Development Technology:	❑ Object-Oriented	❑ Structured
Platform:	❑ Web based	❑ Distributed
❑ Desktop based	❑ Setup Configurations	❑ Other
Suggested Project Supervisor: Miss. Amina		
Approved By:		
Date: 01 September 2022		

1.4 Project Goals & Objectives

The main goal of the Teacher's Assistant Application is to make the work of the teachers easier by providing them with a desktop application through which they can manage the attendance and report cards of their students easily.

The objectives of the application are as follows:

- To provide an easy-to-use interface for the teachers to manage their students' attendance and report cards.
- To generate the sheets in Excel format so that they can be easily shared and stored.
- To use the Google Account of the teacher to allow access to the Google Sheets, and Google Drive.
- To provide data visualization.

1.5 High-level system components

- **Authentication:** The Teacher will be authenticated by their Google Account, to keep perfect integration with other Google Services.
- **User Interface**: The interface will be developed using Flutter, which will give the application a Material Design' look and feel.
- **Business Logic**: The logical section will be developed in Dart Language in Flutter framework, to make the application partially platform independent.
- **Database**: The database will be created using Google Sheets, to keep and manage the data of the students.
- **Data Storage**: The data of the students in the form of Excel Sheets will be stored on Google Drive.
- **Data Visualization**: Pie Charts, and Bar Graphs will be used as Data Visualization. The teacher can switch between the two if possible.
- **Compatibility**: Costaz Desktop is being initially developed for desktop only, but will be made cross-platform in the future. Costaz Desktop will be compatible with Costaz Android as well.
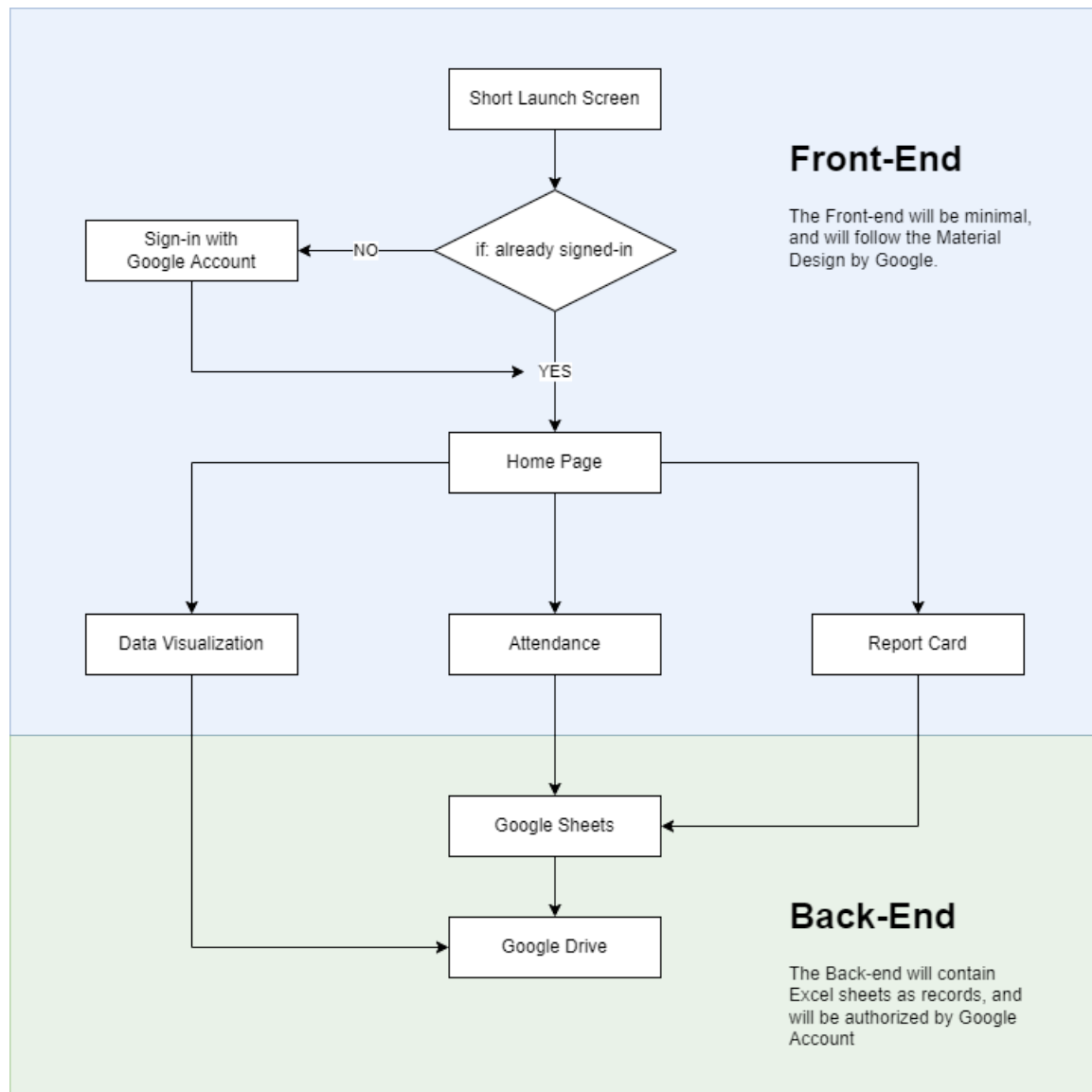
1.6 List of optional functional units

- **Expressive Sheets:** The rows of Attendance Sheets will be colored based on student's attendance.
- **Time Table**: Weekly Time Table scheduling, and reminders of upcoming events. Google Calendar can be used for alerts and reminders.
- **Student's Inquiry Portal**: Google Form integration for this purpose.
- **Online Class Arrangement**: Google Meet integration, and the invitation links will be shared to all the students of the particular class, and incoming students will be verified by their email (listed on Google Sheets), and will be automatically entered.
- **Inbox**: Only the mails of the students will be shown, and can be viewed in this section.
- **Personal Pocket**: A folder to store miscellaneous data. Data will be stored on a reserved place in Google Drive.

1.7 Exclusions

- **Notes Taking:** Notes talking features could also be possible, but it would require a system to handle whiteboard, which would require extra resources.
- **Post System**: A system like Facebook to post announcements or other data, could also be possible, but it would require a dedicated system to handle it.
- **Scheduling**: To make Costaz Desktop more independent, and lightweight, the scheduling tasks (i.e., room allocation etc.) are currently not supported.
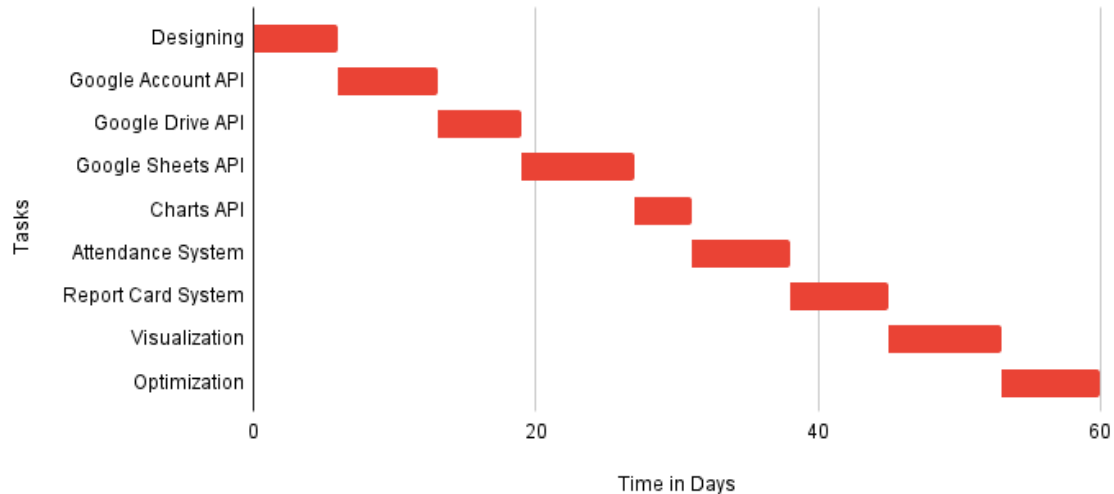
1.8 Application Architecture

Costaz Desktop will use the **Client-Server** Architecture, in the following way;

1.9 Gantt chart

1.10 Hardware and Software Specification

Costaz Desktop is a Desktop application, and it has the following requirements;

- Windows 7/10/11 (latest build).
- 4 GB of RAM at least.
- Ethernet Connection.
- Google Account (personal/work).

1.11 Tools and technologies used with reasoning

- **Flutter**

  Flutter framework is chosen due to the following reasons:
  - Dart compiles to C++ for Windows builds, which can be compiled to native binaries by a desired compiler (GCC/MSVC/Clang).
  - Plugin support.
  - Access to Google's Material Design and Library.

- **Google Account**

  The teacher's Google account will be used to access the Google Services API.

- **Google Sheets**

  For better integration with other Google Services.

- **Google Drive**

  To ensure reliability, security and trust, Google Drive is the perfect choice for data storage.