G19

COSTAZ DESKTOP

Teacher's Assistant

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First Deliverable

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1 Introduction

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. 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, anytime.

1.1 Project/Product Feasibility Report

Costaz Desktop provides a system to efficiently manage the records of the students in regular basis, and to generate reports. The feasibility of the **Costaz Desktop** is described in detail below, with respect to the following feasibility criteria;

- Technical
- Operational
- Economic
- Schedule
- Specification
- Information
- Motivational
- Legal and Ethical

1.1.1 Technical Feasibility

Costaz Desktop is being developed using Dart language in Flutter framework. To provide cloud-services, and accessibility features, Google Sheets is being used as a Database for students' records, and Google Drive for a convenient and reliable storage medium for Excel sheets. Furthermore, the plugin, "*GoogleAPIs*" is being used to access all the APIs provided by the Google, and for better integration with Flutter framework.

1.1.2 Operational Feasibility

Costaz Desktop allows teachers to manage their students' attendance, report cards and other information in an intuitive manner. Costaz Desktop is designed to be easy to use and operationally feasible. Detailed operational feasibility is as follows;

- **Attendance**: Attendance marking is being made very easier, by providing following features:
    - Attendance can be traditionally marked one-by-one.
    - It can be marked for specific students as well, for which an additional view is being provided, and the performance of that student in that particular subject will be shown and visualized as well.
    - The Feature of "Select All" is being provided to mark all the (selected) students as "Present/Absent/Leave".
- **Report Card Generation**: The report cards of the students will be managed more reliably and easily by providing a dedicated feature for this purpose. An option for Report Card Generation is being provided to the context menus of every view. Report cards can be generated in the following ways;
    - Student wise list generation, and performance visualization.
    - Course wise list generation, for the teachers who are teaching multiple subjects to the same class.
    - Class wise list generation, with performance analysis.
- **Data Storage**: The following features will be introduced for this purpose;
    - Data will be stored online, to reduce the chance of data loss, and maximize the accessibility of the data.
    - Exports will be in Excel format to improve the portability, and maximize the application-independence of the generated data.
- **Data Visualization**: Every collection of records will be visually presented in the form of preferred graph as well.

1.1.3 Economic Feasibility

Since the Application is desktop based, there will be no cost for any web-hosting. Furthermore, as (Teacher's) Google Drive is being used as Data Storage service, there will be no additional cost of cloud data storage. All the configurations and settings will also be stored on Google Drive, so there will be no need to pay for any external database. Hence, Costaz Desktop is Economically Feasible for the developers, as well as for the customers.

1.1.4 Schedule Feasibility

The project is being developed in modules (as incremental development), and these modules will be gradually linked together timely (according to the Gantt Chart). January 2023 is the estimated completion date of our project.

1.1.5 Specification Feasibility

The requirements of **Costaz Desktop** are being successfully met, which are as follows;

- Feasible Attendance management system
- Efficient Reports Generation, at each level
- Data Visualization
- High-Performant framework: Flutter
- Maximizing the use of Open-Sourced modules: Flutter Plugins
- Using no-cost solutions for data handling
  - Google Sheets as Database
  - Google Drive for Data Storage, and Database

Hence, Costaz Desktop is feasible to develop, and satisfies all the requirements.

1.1.6 Information Feasibility

Costaz Desktop is a Desktop Application, which uses Google Account for Authentication, to gain access to Google Sheets and Google Drive linked to that Account. Google Services ensure security, reliability, and trust. Similarly, the Flutter framework is being used, which ensures maximum performance, maintainability, and portability.

1.1.7 Motivational Feasibility

Since our team members have all the tasks divided, and everyone is doing their work with keen interest, and new ideas with research are constantly being generated upon brainstorming. Moreover, the team also has technical development experience. Hence, the project is motivationally feasible.

1.1.8 Legal & Ethical Feasibility

Since Flutter framework and its plugins are being used which are all open-source, and Google Services which are being used are also free to use. Hence, **Costaz Desktop** is legally feasible.

1.2 Project/Product Scope

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 reports 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**.

Costaz Desktop solves the basic Teachers' needs, and utilizes the most reliable, secure and trusted Google's Services. For instance, Google Sheets is being used as the database to store students' data and to generate reports easily, and Google Drive is being used as primary distributed storage for ease-of-access. Google Drive also eliminates the need for any external database, which could have to be explicitly managed. Google Account allows the use of all the Google Services.

1.3 Project/Product Costing

Costaz Desktop is being developed by a team of two developers only. The cost parameters include;

- Labor Cost
- Google Workspace cost
- Cost of Google Sheets API
- Licensing Cost

This sums up-to ~**30k/-**

1.3.2 Project Cost Estimation by using Basic COCOMO'81

Type	Effort	Schedule	People Required
Organic	$PM = 2.4 \times (50)^{1.05}$	$TD = 2.5 \times (146)^{0.38}$	$PR = PM / TD$

Results		
PM	Person Month	145.9
kLOC	Lines Of Code (in thousands)	~50
TD	Total Duration (in months)	2.3
People	People Required	63

1.4 CPM – Critical Path Method

Activity	Description	Immediate Predecessor	Duration (Weeks)
A	Research on the Idea	-	6
B	Prototyping	A	7
C	Managing Google Account API	B	6
D	Managing Google Sheets API	C	8
E	Managing Google Drive API	D	4
F	Managing Charts API from 'E'	E	7
G	Attendance System	B, C, D, E	7
H	Report Cards System	B, C, D, E	8
I	Graphs Representation	G, H	7
J	Optimization & Debugging	I	7
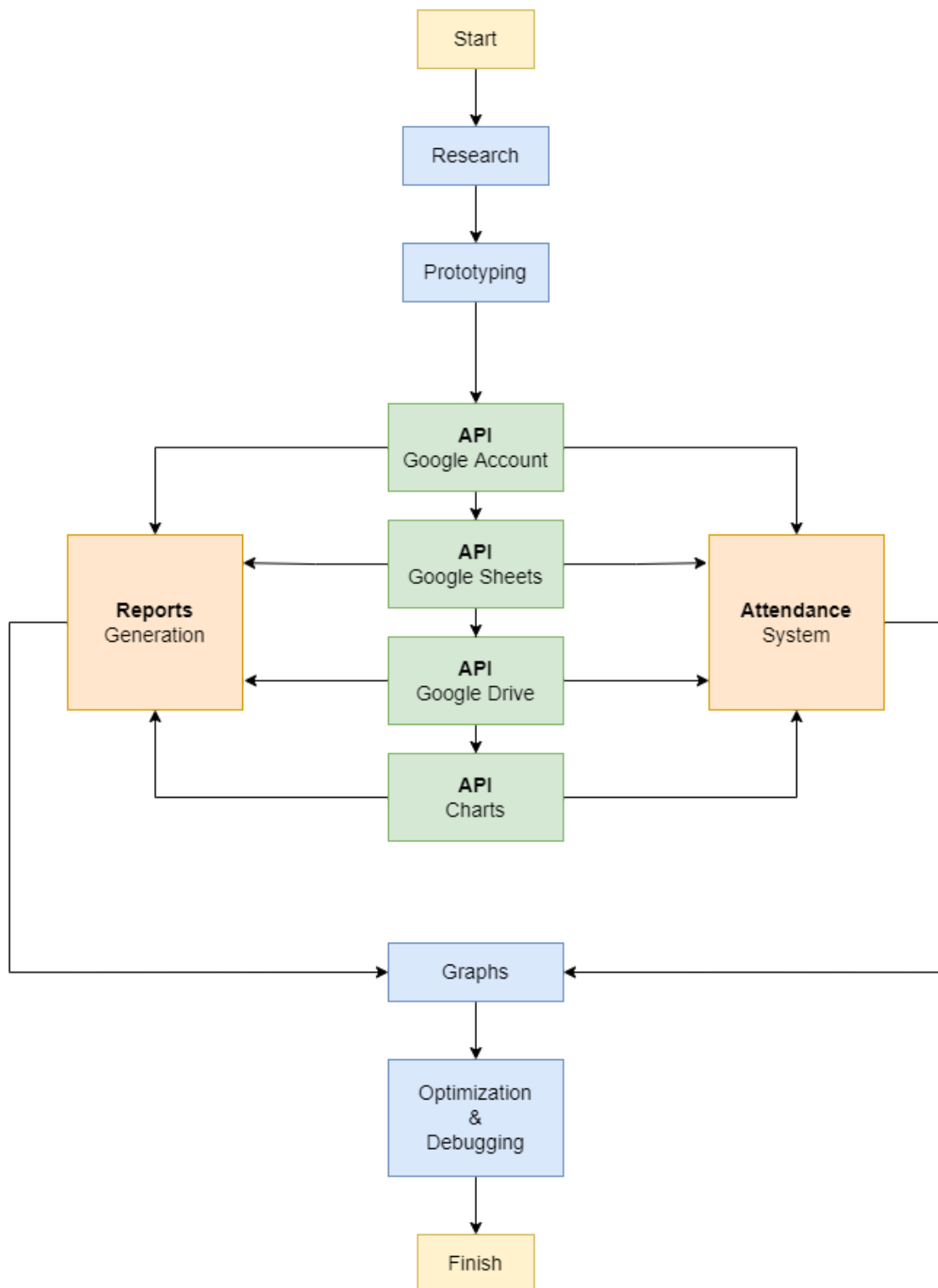
Activity	Duration	ES	EF	LS	LF	TS	FS
A	6	0	6	20	26	20	0
B	7	6	13	26	33	20	0
C	6	13	19	33	39	20	0
D	8	19	27	31	39	12	0
E	4	27	31	19	39	-8	0
F	7	31	38	32	39	1	0
G	7	38	45	39	46	1	1
H	8	38	46	38	46	0	0
I	7	46	53	46	53	0	0
J	7	53	60	53	60	0	0

Critical Path
A → B → C → D → E → F → H → I → J

1.5 Gantt chart
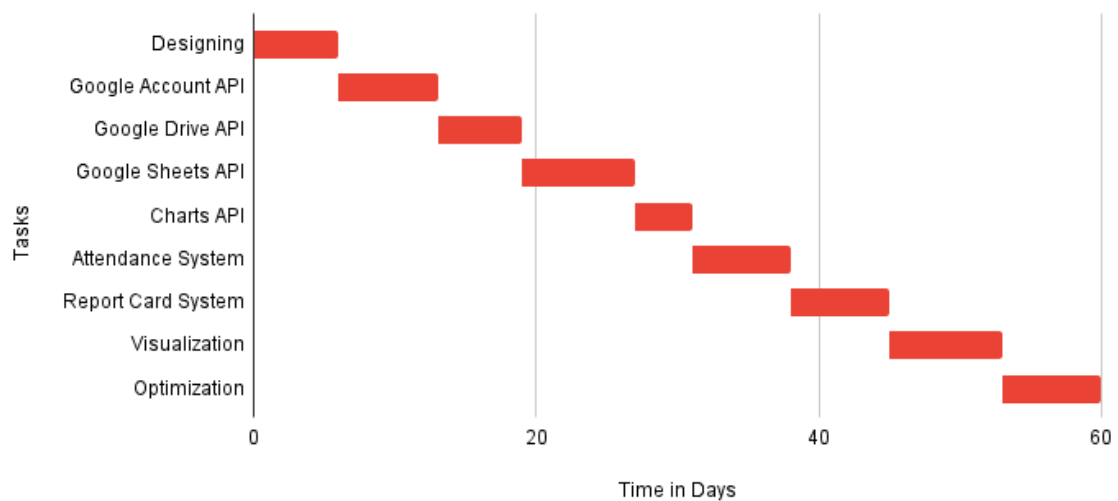
1.6 Introduction to Team members and their skill set

Costaz Desktop consists of a team of 2 members, with the following tasks and responsibilities assigned;

- **Muhammad Ammar**
  The Group leader, assigned to the following responsibilities;
    - Development
    - Brainstorming
    - Logic Designing

- **Muneeb Ahmed**
  The Researcher, assigned to the following responsibilities;
    - Research on features, and ideas
    - Research on Open-Source modules
    - Research on Google Services APIs
    - Critical Analysis
    - Screens Designing

1.7 Tools and Technology 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 Authentication Service**
  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.

1.8 Vision Document

Costaz Desktop is a free and easy-to-use solution for the teachers. It provides a unified environment where they can work on their students' attendance, grades, and report cards. Additionally, the software stores all of their content on their Google Drive that can be accessed from any computer.

Costaz Desktop will be available only on Desktop. Users will be able to seamlessly access their data from any device, where Costaz Desktop will be installed. A user's Google Account will be used as a gateway to access Google Services, like Google Sheets to create the database, and their Google Drive to store all the data. The app works only in Online mode so that users can work on the go, and changes will be saved instantly, as the user enters the data, without worrying about the data-loss.

1.9 Risk List

Costaz Desktop is being developed by remaining on the safe-zone at its best, still there are some risks to this project, which are as follows;

- **Google APIs**
  Since the project is heavily dependent on Google Services, any change in API call structure will require an immediate refactor of **Costaz Desktop Engine**.

- **Time**
  Since the structure of Costaz Desktop is entirely unique, it will require custom widget-engineering in Flutter, which can take significant amount of time.

- **Compactness, and Simplicity**
  Costaz Desktop shall be maximum compact in binary and code size, and simplistic in design. Due to its featureful nature, maintaining the code quality and code size is a big challenge.

- **Engine**
  The Core of Costaz Desktop will be initially developed, which will contain the API call management, and all the common functions. Any failure in the Engine can be catastrophic.

*******************REQUIREMENTS ENGINEERING*******************

1.1 Systems Specifications

Introduction

Costaz Desktop is a teacher-friendly desktop application developed to manage academic records of their students. It allows management of students' attendance and reports generation, and also helps visualize the data.

Costaz Desktop is being developed by a team of two developers, residents of Jhelum, Pakistan. The application was initially developed for universities, but now it can be used by any organization that needs to track the progress of its employees or students.

Existing System

Costaz Desktop allows teachers to automate existing traditional attendance systems, by enabling *Google Services*. 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 — all by using *Google Sheets API*. 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, anytime.

Organizational Chart
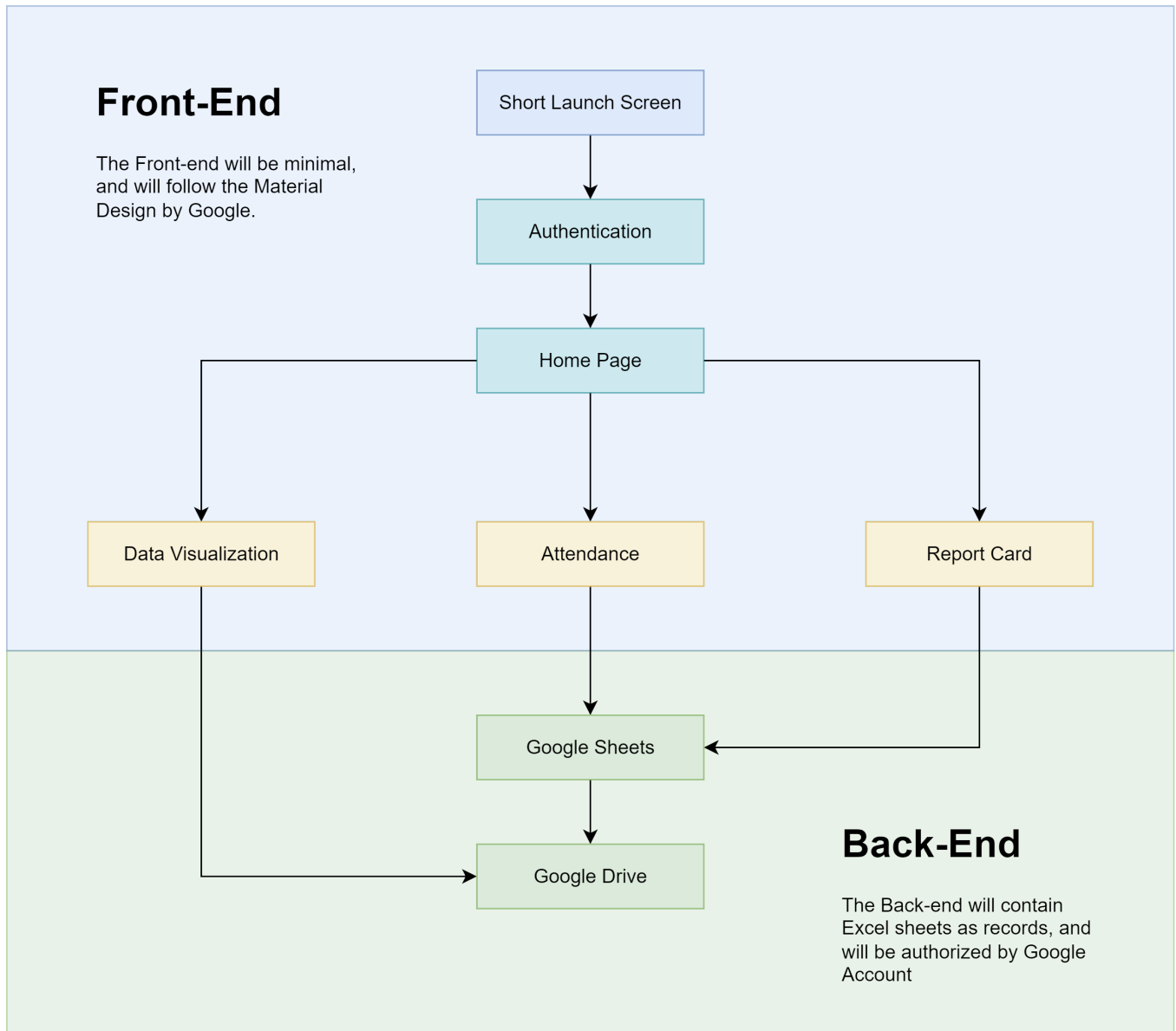
Front-End

The Front-end will be minimal, and will follow the Material Design by Google.

Short Launch Screen

Authentication

Home Page

Data Visualization

Attendance

Report Card

Google Sheets

Google Drive

Back-End

The Back-end will contain Excel sheets as records, and will be authorized by Google Account

Scope of the System:

The scope of the **Costaz** application is divided into four phases:

Phase 01:

This phase involves the authentication of the user, which includes:

- Launch Short Screen
- Sign in/up with Google Account
- Email Authentication
- Homepage

Phase 02:

This phase involves the data visualization of **Costaz Desktop,** which includes:

- Homepage
- Data Visualization
- Google Drive

Phase 03:

This phase involves the attendance system of the **Costaz Desktop,** which includes:

- Homepage
- Attendance
- Google Sheets
- Google Drive

Phase 04:

This phase involves the attendance system of the **Costaz Desktop,** which includes:

- Homepage
- Report Card
- Google Sheets
- Google Drive

Summary of Requirements (Initial Requirements)

Costaz Desktop considers the following requirements;

- **Attendance System**

  A full-fledge, easy-to-use, non-redundant attendance system should be provided, which can replace the traditional attendance marking — still following the similar standards.

- **Reports Generation**

  Report Cards should not have to be separately created, but should be generated by the information available, and provided by the user (teacher). The reports can also contain visualizations, like graphs, and charts, indicating students' performance. Reports should be easy to generate and shared to the students.

- **Online Services**

  Costaz Desktop aims to opt-for modern computations, and feasibility standards, but still wants to follow traditional layout and schemes of the educational-institutes. To cope with the situation, Google Services are being used to store, compute, and visualize the data.

1.2 Identifying External Entities

Over Specifying Entities

- Teacher
- Student
- Google Services
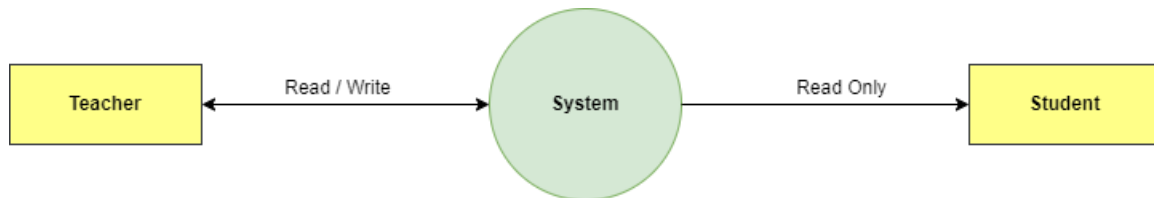 - Google Authentication Service
  - Google Drive
  - Google Sheets
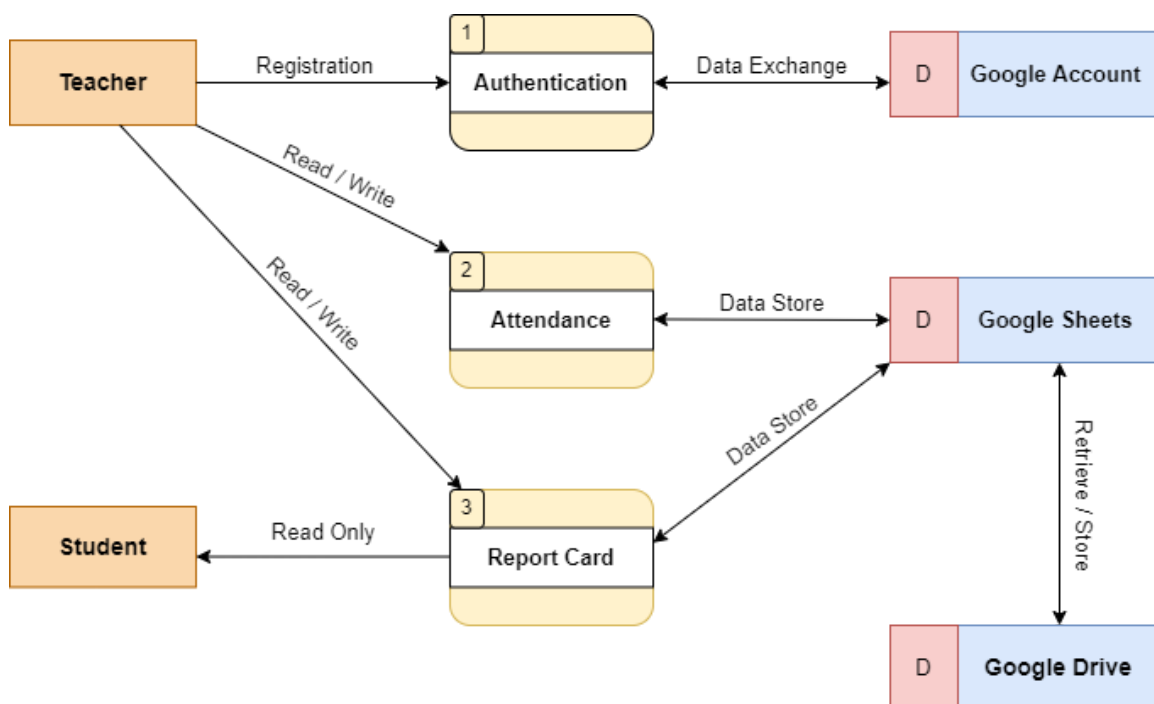
Performing Refinements

- Teacher
- Google Services

1.3 Context Level Data Flow Diagram

Level 0:

Level 1:

1.4 Capture "shall" Statements

Para	External Entity	Initial Requirements
1.0	Teacher	A teacher "shall" open the application.
1.0		A teacher "shall" provide their Google Account for Authentication Key.
1.0		A teacher "shall" go-to the main menu bar to access more features.
1.0		A teacher "shall" create the class card or course card.
1.0		A teacher "shall" right-click on the card for the context menu.
1.0		A teacher "shall" provide all the related details of a student to an application
1.0		A teacher "shall" mark a student's status (present/absent) in a class.
1.0		A teacher "shall" access the attendance sheet in their Google Drive
1.0		A teacher "shall" enter each student's marks separately.
1.0		A teacher "shall" generate the report card.
2.0	Google	Google "shall" authenticate the user.
2.0		Google APIs "shall" allow users to interact with the application.
2.0		Google Sheets "shall" be used as a database to keep student information in it.
2.0		Google Drive "shall" store the student stuff and personnel files in separate folders so that teachers can be more organized with their work.
2.0		Google Drive "shall" remove barriers with allowing sharing

1.5 Allocate Requirements

Para	Initial Requirements	Use Case Name
1.1	The teacher "will" sign up with their Google account to get verified to use Google Drive and Google Sheets.	UC_Authentication
1.2	A teacher "will" customize their experience by configuring the settings.	UC_Settings
1.3	The Navigation bar "will" be displayed on the left side of the screen.	UC_Navigation_Bar
1.3.1	A teacher "will" open the default page where all the performance of classes and courses will be available in the pie charts.	UC_Home
1.3.2	A teacher "shall" login to the system.	UC_Main
1.3.2.1	A teacher "shall" add the class of students on the homepage of the application.	UC_Class_Add
1.3.2.2	A teacher "will" create multiple class cards according to the schedule.	UC_Class_Card

1.3.2.2.1	A teacher "will" move to the next screen by clicking on the Class Card.	UC_Class_Primary_Action
1.3.2.2.2	A teacher "will" visualize an additional context menu on the screen with just a right click.	UC_Context_Menu
1.3.2.2.2.1	A teacher "shall" generate the report card of students in a group.	UC_Report_Generation
1.3.2.2.2.2	A teacher "will" delete a record file after it has been generated.	UC_Delete
1.3.2.2.2.3	A teacher "will" sometimes rename a report file after it has been generated.	UC_Rename
1.3.2.2.2.4	A teacher "will" visualize a pie-chart/bar-graph of how their students are behaving and performing.	UC_Performance
1.3.2.3	A teacher "shall" add the course for students in the Class Section.	UC_Course_Add
1.3.2.4	A teacher "will" set limits for the course, like total marks, marks for assignments, quizzes etc.	UC_Thresholds
1.3.2.5	A teacher "will" be able to create multiple course cards according to the schedule.	UC_Course_Card
1.3.2.5.1	A teacher "will" move to the next screen by clicking on Course Card.	UC_Course_Primary_Action
1.3.2.5.2	A teacher "will" be able to display a context menu on the screen by just right-clicking.	UC_Context_Menu
1.3.2.5.2.1	A teacher "will" generate a report for their students which will include the student's name, roll number, all the marks they obtained in that course, and the GPA of those marks.	UC_Report_Generation
1.3.2.5.2.2	A teacher "will" delete a record file after it has been generated.	UC_Delete
1.3.2.5.2.3	A teacher "will" be able to rename the selected cell to provide edited information of the student.	UC_Rename
1.3.2.5.2.4	A teacher "will" visualize a pie chart of their student's performance. In this visualization, each slice of the pie is one particular metric.	UC_Performance
1.3.2.5.2.5	A teacher "will" change the limits for both the grades of individual students and the number of courses.	UC_Edit_Thresholds
1.3.2.6	A teacher "will" select the class based on the available sections or shifts (mor/eve).	UC_Dropdown_Partition
1.3.2.6.1	A teacher "will" move to the next screen, where all the selected students' records are available by clicking the mouse over to the right.	UC_Dropdown_Primary_Action
1.3.2.6.2	A teacher "can" create a context menu with open and delete features by right-clicking.	UC_Context_Menu

1.3.2.6.2.1	A teacher "will" generate a report for their students that includes the student's name and roll number, as well as all the marks they obtain in that class. The report will also include the GPA of those marks.	UC_Report_Generation
1.3.2.6.2.2	A teacher "will" delete the report file once it's generated.	UC_Delete
1.3.2.6.2.3	A teacher "will" rename the generated report and share it with the students.	UC_Rename
1.3.2.6.2.4	A teacher "will" visualize the data they receive from their records, so they can more easily spot the students who are performing exceptionally well, those who are doing OK, and those who need help.	UC_Performance
1.3.2.7	On click, the teacher "will" visualize the student's name, roll no, rank and CGPA.	UC_Student_Field
1.3.2.7.1	A teacher "will" move to the expanded screen of the record field by clicking left on their mouse.	UC_Student_Primary_Action
1.3.2.7.2	The teacher "can" visualize the attendance, and performance, create and generate reports, and reset and delete the field of the student by just clicking right on the mouse.	UC_Context_Menu
1.3.2.7.2.1	A teacher "will" open their student records individually in the field.	UC_Open
1.3.2.7.2.2	A teacher "will" create a report of students based on their attendance, performance, and grades.	UC_Create_Report
1.3.2.7.2.3	A teacher "can" generate student reports by clicking left on the Generate button on the screen.	UC_Generate_Report
1.3.2.7.2.4	A teacher "can" visualize how their students perform in assignments, presentations, and quizzes with pie charts – use them to quickly understand their strengths and weaknesses.	UC_Performance
1.3.2.7.2.5	A teacher "will" reset the record field in case if a student is missing or absent for extended periods of time.	UC_Reset
1.3.2.7.2.6	A teacher "can" move a student's field up or down by simply dragging it. This is helpful if your class list is in alphabetical order, and you want to rearrange students' fields for different activities.	UC_Drag_Drop
1.3.2.8	The teacher "will" either mark the attendance individually or by selecting all.	UC_Attendance_View
1.3.2.8.1	Each button will be colored differently. By default, students will be present, and the teacher just needs to mark the missing student's attendance.	UC_Attendance_Button_PAL
1.3.2.9	A teacher "will" visualize the student's report card, which will show a graphical representation of all the	UC_Report_Card_View

	student's performances in the pie charts. The charts are made from attendance records, class activities and marks received	
1.3.2.9.1	A teacher "will" set limits for both the grades of individual students and the number of courses, on the fly.	UC_Add_OTF
1.3.2.9.2	A teacher "can" save the changes to their report card by pressing buttons below the generated report card.	UC_Generate_Report
1.3.3	A teacher "will" pin students who are doing better and put information in bookmarks for students who need more attention.	UC_Bookmarks
1.3.4	A teacher "will" usually put all the files in Google Drive.	UC_Files
1.3.5	A teacher "will" change the font size, theme, notification preferences, and more in the setting.	UC_Settings
1.3.6	A teacher "will" provide feedback on the application features or any bugs.	UC_Feedback
1.3.7	A teacher "will" get all the old deleted material in the trash.	UC_Trash
1.3.8	A teacher "will" visualize our latest updates and will see the terms and conditions, privacy policy statement, and company location	UC_About

1.6 Prioritize Requirements

Para	Rank	Initial Requirements	Use Case ID	Use Case Name
1.0	Highest	The teacher "will" sign up with their Google account to get verified to use Google Drive and Google Sheets.	UC_1	UC_Authentication
1.0	Highest	A teacher "shall" add the class of student in the home page of application.	UC_2	UC_Class_Add
1.0	Highest	A teacher "shall" add the course in the top-level menu of the application.	UC_3	UC_Course_Add
1.0	Highest	The teacher "will" either mark the attendance individually or by selecting all.	UC_4	UC_Attandence_View,
1.0	Highest	A teacher "will" visualize the student report card which will show a graphical representation of the entire student's performance in the form of charts. The charts are made from attendance records, class activities and marks received.	UC_5	UC_Report_Card_View

2.0	Medium	The Navigation bar "will" be displayed on the left side of the screen.	UC_6	UC_Navigation_Bar
2.0	Medium	A teacher "will" open the default page where all the performance of classes and courses is available in the form of a graph.	UC_7	UC_Home
2.0	Medium	A teacher "shall" generate the report card of students individually or in a group.	UC_8	UC_Report_Generation
2.0	Medium	A teacher "will" visualize a pie chart of how their students are behaving and performing.	UC_9	UC_Performance
2.0	Medium	A teacher "will" set limits for both the grades of individual students and the number of courses	UC_1 0	UC_Tresholds
2.0	Medium	On click, Teacher "will" see the student's name, roll no, rank and CGPA.	UC_1 1	UC_Student_Field
2.0	Medium	A teacher "will" usually put all the files in Google Drive.	UC_1 2	UC_Files
2.0	Medium	A teacher "will" get all the old deleted material in the trash.	UC_1 3	UC_Trash
2.0	Medium	A teacher "can" save the changes to their report card by pressing buttons below the generated report card.	UC_1 4	UC_Generate_Report
2.0	Medium	Each button will be colored differently. By default, students will be present and the teacher just needs to mark the missing student's attendance.	UC_1 5	UC_Attendance_Button_PAL
2.0	Medium	The teacher "can" visualize the attendance, and performance, create and generate reports, reset and delete the field of the student by just clicking right on the mouse.	UC_1 6	UC_Context_Menu
2.0	Medium	A teacher "will" select the class based on the available sections or shifts (mor/eve).	UC_1 7	UC_Dropdown_Partition
2.0	Medium	A teacher "will" pin students who are doing better and put information in bookmarks for students who need more attention.	UC_1 8	UC_Bookmarks
2.0	Medium	A teacher "will" change the font size, theme, notification preferences, and more in the setting.	UC_1 9	UC_Settings
3.0	Lowest	A teacher "will" create multiple class cards according to the schedule.	UC_2 0	UC_Class_Card
3.0	Lowest	A teacher "will" move to the next screen by clicking the mouse over to the right.	UC_2 1	UC_Class_Primary_Action

3.0		A teacher "shall" generate the report card of students individually or in a group.	UC_22	UC_Report_Generation
3.0	Lowest	A teacher "will" delete report file information after it has been generated.	UC_23	UC_Delete
3.0	Lowest	A teacher "will" sometimes rename a report file after it has been generated.	UC_24	UC_Rename
3.0	Lowest	A teacher "will" visualize a pie chart of how their students are behaving and performing.	UC_25	UC_Performance
3.0		A teacher "will" create multiple course cards according to the schedule.	UC_26	UC_Course_Card
3.0	Lowest	A teacher "will" move to the next screen by clicking the mouse over to their left.	UC_26	UC_Course_Primary_Action
3.0	Lowest	A teacher "will" generate a report for their students that includes the student's name, roll number, all the marks they obtained in that course, and the GPA of those marks.	UC_27	UC_Report_Generation
3.0	Lowest	A teacher "will" delete the report file after it is generated.	UC_28	UC_Delete
3.0	Lowest	A teacher "will" rename the report file after it is generated and provide contents to the students.	UC_29	UC_Rename
3.0	Lowest	A teacher "will" visualize a pie chart of their student's performance. In this visualization, each slice of the pie is one particular metric.	UC_30	UC_Performance
3.0	Lowest	A teacher "will" change the limits for both the grades of individual students and the number of courses.	UC_31	UC_Edit_Thresholds
3.0	Lowest	A teacher "will" move to the next screen where all the selected students' records are available by clicking the mouse over to the right.	UC_32	UC_Dropdown_Primary_Action
3.0	Lowest	A teacher "will" generate a report for their students that includes the student's name and roll number, as well as all the marks they obtain in that class. The report will also include the GPA of those marks.	UC_33	UC_Report_Generation
3.0	Lowest	A teacher "will" move to the expanded screen of the record field by clicking left on their mouse.	UC_34	UC_Student_Primary_Action
3.0	Lowest	A teacher "will" open their student records individually in the field.	UC_35	UC_Open
3.0	Lowest	A teacher "will" create a report of students based on their attendance, performance, and grades.	UC_36	UC_Create_Report

3.0	Lowest	A teacher "can" generate student reports by clicking left on the Generate button on the screen.	UC_37	UC_Generate_Report
3.0	Lowest	A teacher "will" reset the record field in case if a student is missing or absent for extended periods of time.	UC_38	UC_Reset
3.0	Lowest	A teacher "can" move a student's field up or down by simply dragging it. This is helpful if your class list is in alphabetical order, and you want to rearrange students' fields for different activities.	UC_39	UC_Drag_Drop
3.0	Lowest	A teacher "will" provide feedback on the application features or any bugs.	UC_40	UC_Feedback
3.0	Lowest	A teacher "will" visualize our latest updates and will see the terms and conditions, privacy policy statement, and company location	UC_41	UC_About

1.7 Requirements Trace-ability Matrix

Sr#	Para	System Specification Text	Build	Use Case Name	Category
1	1.0	The teacher "will" sign up with their Google account to get verified to use Google Drive and Google sheets.	B1	UC_Authentication	Services
2	1.0	A teacher "will" customize their experience by configuring the settings.	B1	UC_Settings	Services
3	1.0	The Navigation bar "will" be displayed on the left side of the screen.	B1	UC_Navigation_Bar	Services
4	1.0	A teacher "will" open the default page where all the performance of classes and courses are available in the pie charts.	B1	UC_Home	Services
5	1.0	A customer "shall" log in to the system and can change his password.	B1	UC_Main	Services
6	1.0	A teacher shall add the class of students on the homepage of the application.	B1	UC_Class_Add	Services
7	1.0	A teacher "will" create multiple class cards according to the schedule.	B1	UC_Class_Card	Services
8	1.0	A teacher "will" move to the next screen by clicking the mouse over to the right.	B1	UC_Class_Primary_Action	Services
9	1.0	A teacher "will" visualize an additional context menu on the screen with just a right click.	B1	UC_Context_Menu	Services
10	2.0	A teacher "shall" generate the report card of students individually or in a group.	B1	UC_Report_Generation	Services

11	2.0	A teacher "will" delete report file information after it has been generated.	B1	UC_Delete	Services
12	1.0	A teacher "will" sometimes rename a report file after it has been generated.	B1	UC_Rename	Services
13	1.0	A teacher "will" visualize a pie chart of how their students are behaving and performing.	B1	UC_Performance	Services
14	1.0	A teacher "shall" add the course to the top-level menu of the application.	B1	UC_Course_Add	Services
15	1.0	A teacher "will" set limits for both the grades of individual students and the number of courses	B1	UC_Tresholds	Services
16	1.0	A teacher "will" create multiple course cards according to the schedule.	B1	UC_Course_Card	Services
17	1.0	A teacher "will" move to the next screen by clicking the mouse over to their left.	B1	UC_Course_Primary_Action	Services
18	1.0	A teacher would be able to display a context menu on the screen by just right-clicking.	B1	UC_Context_Menu	Services
19	1.0	A teacher "will" generate a report for their students that includes the student's name, roll number, all the marks they obtained in that course, and the GPA of those marks.	B1	UC_Report_Generation	Services
20	1.0	A teacher "will" delete the report file after it is generated.	B1	UC_Delete	Services
21	2.0	A teacher "will" rename the report file after it is generated and provide contents to the students.	B1	UC_Rename	Services
22	2.0	A teacher "will" visualize a pie chart of their student's performance. In this visualization, each slice of the pie is one particular metric.	B1	UC_Performance	Services
23	1.0	A teacher "will" change the limits for both the grades of individual students and the number of courses.	B1	UC_Edit_Thresholds	Services
24	1.0	A teacher "will" select the class based on the available sections or shifts (mor/eve).	B1	UC_Dropdown_Partition	Services
25	1.0	A teacher "will" move to the next screen, where all the selected students' records are available by clicking the mouse over to the right.	B1	UC_Dropdown_Primary_Action	Services
26	1.0	A teacher "can" create a context menu with open and delete features by right-clicking.	B1	UC_Context_Menu	Services
26	1.0	A teacher "will" generate a report for their students that includes the student's name and roll number, as well as all the marks they obtain in that class. The report will also include the GPA of those marks.	B1	UC_Report_Generation	Services

27	1.0	A teacher "will" delete the report file once it's generated.	B1	UC_Delete	Services
28	1.0	A teacher "will" rename the generated report and share it with the students.	B1	UC_Rename	Services
29	1.0	A teacher "will" visualize the data they receive from their records, so they can more easily spot the students who are performing exceptionally well, those who are doing OK, and those who need help.	B1	UC_Performance	Services
30	1.0	On click, the teacher "will" visualize the student's name, roll no, rank and CGPA.	B1	UC_Student_Field	Services
31	2.0	A teacher "will" move to the expanded screen of the record field by clicking left on their mouse.	B1	UC_Student_Primary_Action	Services
32	2.0	The teacher "can" visualize the attendance, and performance, create and generate reports, and reset and delete the field of the student by just clicking right on the mouse.	B1	UC_Context_Menu	Services
33	1.0	A teacher "will" open their student records individually in the field.	B1	UC_Open	Services
34	1.0	A teacher "will" create a report of students based on their attendance, performance, and grades.	B1	UC_Create_Report	Services
35	1.0	A teacher "can" generate student reports by clicking left on the Generate button on the screen.	B1	UC_Generate_Report	Services
36	1.0	A teacher "can" visualize how their students perform in assignments, presentations, and quizzes with pie charts – use them to quickly understand their strengths and weaknesses.	B1	UC_Performance	Services
37	1.0	A teacher "will" reset the record field in case if a student is missing or absent for extended periods of time.	B1	UC_Reset	Services
38	1.0	A teacher "can" move a student's field up or down by simply dragging it. This is helpful if your class list is in alphabetical order, and you want to rearrange students' fields for different activities.	B1	UC_Drag_Drop	Services
39	1.0	The teacher "will" either mark the attendance individually or by selecting all.	B1	UC_Attendance_View	Services
40	1.0	Each button will be colored differently. By default, students will be present, and the teacher just needs to mark the missing student's attendance.	B1	UC_Attendance_Button_PAL	Services
41	1.0	A teacher "will" visualize the student report card, which will show a graphical representation of all the student's performances in the pie charts. The charts	B1	UC_Report_Card_View	Services

		are made from attendance records, class activities and marks received			
42	2.0	A teacher "will" set limits for both the grades of individual students and the number of courses, on the fly.	B1	UC_Add_OTF	Services
43	2.0	A teacher "can" save the changes to their report card by pressing buttons below the generated report card.	B1	UC_Generate_Report	Services
44	1.0	A teacher "will" pin students who are doing better and put information in bookmarks for students who need more attention.	B1	UC_Bookmarks	Services
45	1.0	A teacher "will" usually put all the files in Google Drive.	B1	UC_Files	Services
46	1.0	A teacher "will" change the font size, theme, notification preferences, and more in the setting.	B1	UC_Settings	Services
47	1.0	A teacher "will" provide feedback on the application features or any bugs.	B1	UC_Feedback	Services
48	1.0	A teacher "will" get all the old deleted material in the trash.	B1	UC_Trash	Services
49	1.0	A teacher "will" visualize our latest updates and will see the terms and conditions, privacy policy statement, and company location	B1	UC_About	Services

1.9 High-Level Use case Diagram