SMART INDIA HACKATHON 2022

Basic Details of the Team and Problem Statement

Organization Name: National Digital Education Architecture (NDEAR), Department of School Education & Literacy (DoSEL).

PS Code: AK1095

Problem Statement Title: Bringing power of AI/ML to aid of teacher in a classroom

Team Name: Code-18.

Team Leader Name: Lokesh E.

Institute Code (AISHE): C-1336.

Institute Name: BMSIT&M.

Theme Name: SMART AUTOMATION.

Smart India Hackathon Grand Finale

SAHAYTA: Use of OCR/OMR for Automating Records

Presented By

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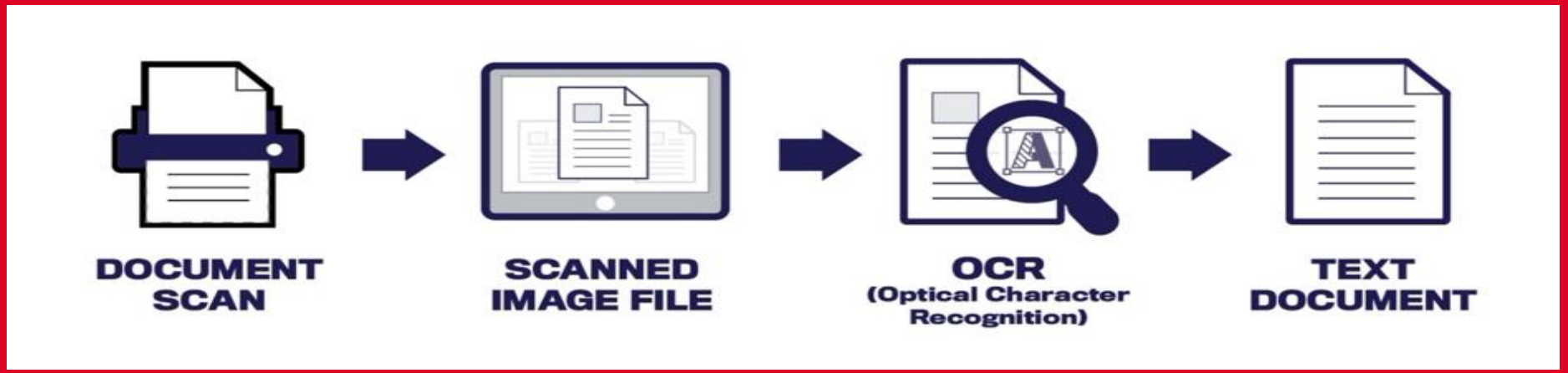
INTRODUCTION

- This Android application provides us with the functionality of text recognition and data extraction with the help of Machine learning Optical Character Recognition (OCR).This technology allows the conversion of scanned images of written text into text or information that is understood or edited by the application



MOTIVATION

- Teachers spend a lot of time in class updating records which are essential for managing large scale schooling operations in the country comprising of 23 crore students. Technology has made deep inroads into the hands of teachers with most of them having access to basic smart phone at the minimum. Teachers and administration staff in schools routinely have to update mid-day meal consumption data, attendance, and other relevant information including distribution of uniforms etc.

PROBLEM STATEMENT

Could AI/ML based OCR/OMR technology be used to help automate attendance and other school data records

- **Description:** Use Computer vision, OCR/OMR to solve for digitizing attendance and result processing for individual students, tracking mid-day meal data and other similar book keeping activities leveraging basic digital devices available to the teacher.

- **Issuing Organization:** National Digital Education Architecture (NDEAR), Department of School Education & Literacy (DoSEL).

PROPOSED SYSTEM

- Teachers/professors will no longer have to work on the student data manually.
- They are required to just take a picture of a specified template and the data will be automatically recognized and extracted as a collection which will be stored in the database linked.
- Teachers can see and access details of any specific student from the database.
- Teachers can also update/edit data already fed in to the system either manually or by taking another image.
- On the basis of fed data the academic performance, attendance percentage etc. Can be done. -they can also download the information of students in the excel format and can be saved in drive/sheets.

sahayta

Use of OCR/OMR for Automating Records

Advantages

- Accurate manipulation of the data.
- Increase in the quality of data maintenance activity- Ease for teachers in handling the data.
- Android application being compatible with any smartphone version.
- Provision of precision in recognizing and extraction of data from the defined template if picture taken in appropriate conditions.
- Teachers can access the data of students instantly from anywhere globally because the data is stored in the firebase(shared database).
- Reduction in manual interaction in managing data. - No need of higher end accessories any further.

RELEVANCE TO SOCIETY

Sahayta aims to lessen the burden of teachers so that they could focus better on teaching and not on works such as student entry.

Major applications of the project includes :

- The App can be used to take record of Mid-day Meals
- The Attendance of students can be read directly from records
- Generating student's marks details and perform related operations such as total, average and percentage calculation etc. to generate marks card.
- May be extended to check keywords and accuracy of student answer-sheets
- Can be applied in other domains like data entry
- Can be adapted to be used by people in day to day life like by shopkeepers and wholesale retailers

TOOLS USED

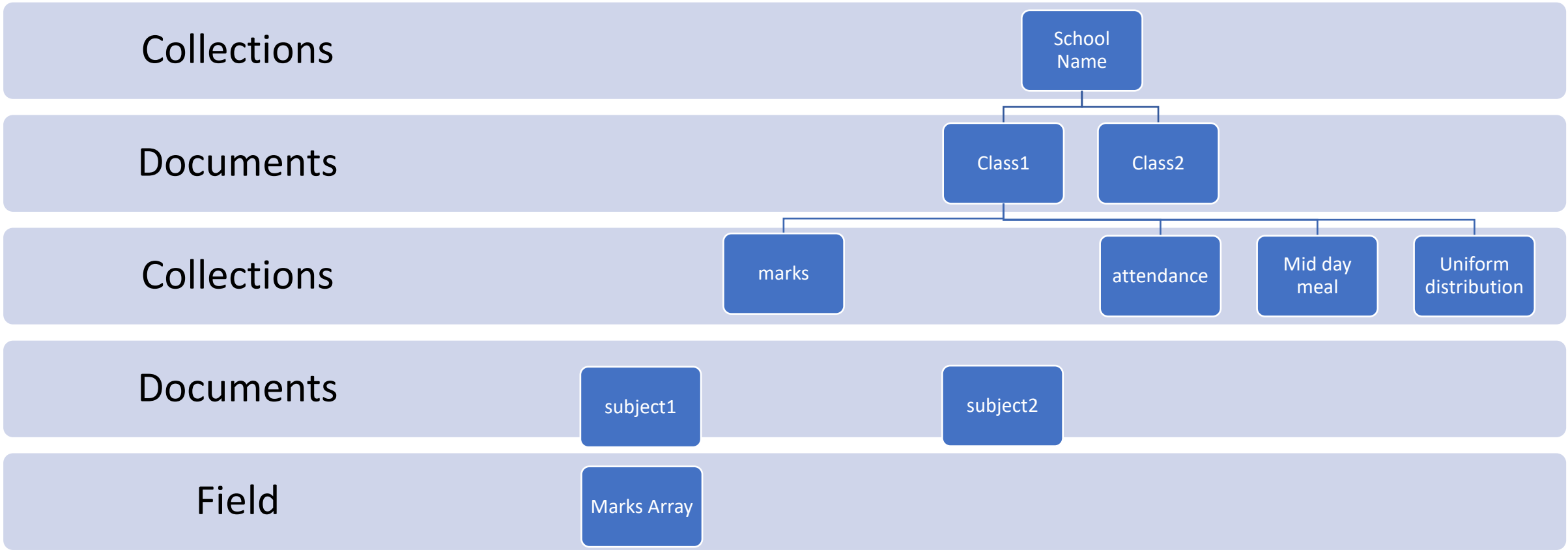
❖ Hardware Requirements

- At least 2.2GHz Processor
- Minimum Storage space- 4GB
- Local area network
- RAM – 4 GB

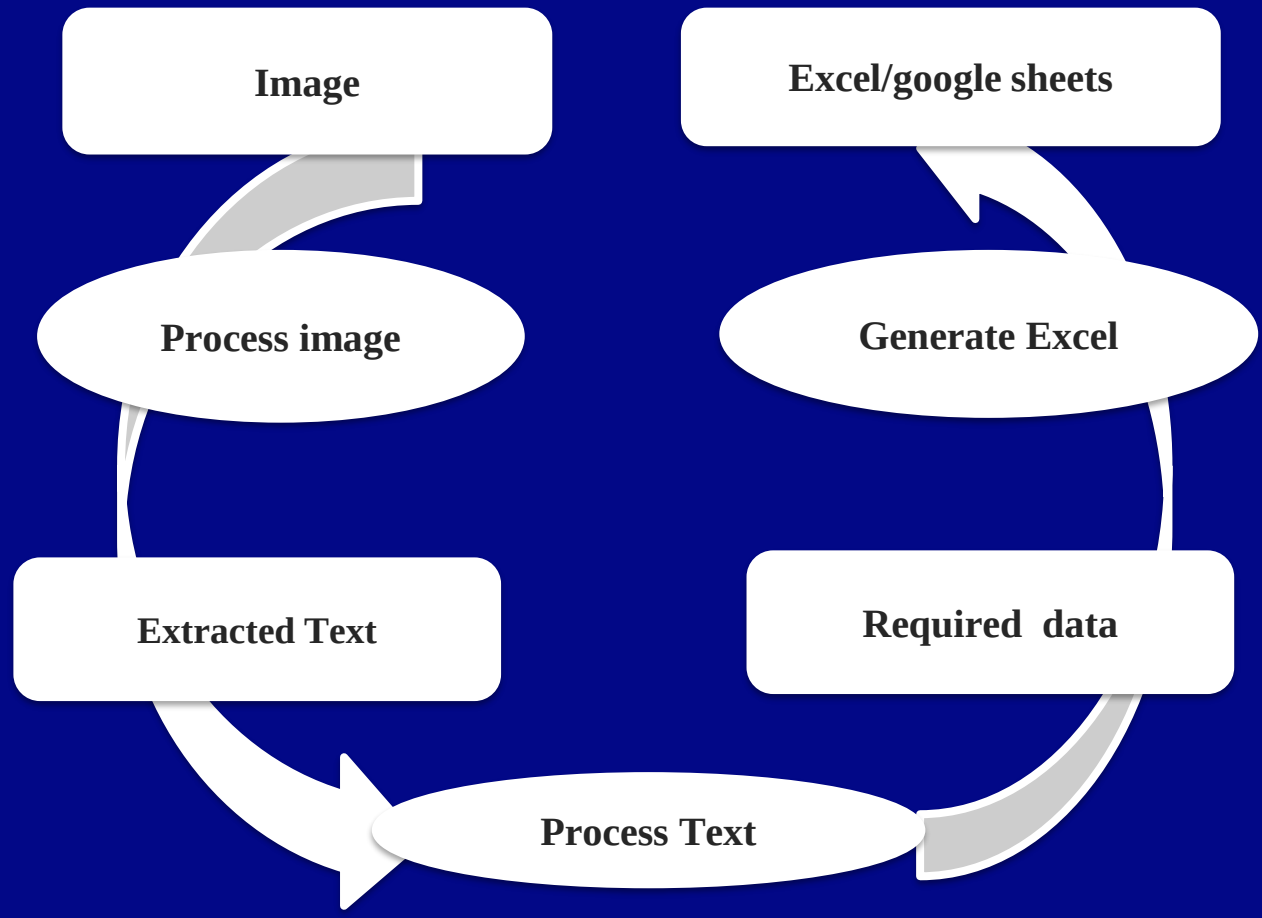
❖ Software Requirement

- Visual Studio Code
- Web-Browser (Chrome)
- OS (Windows 10)
- Flutter | Dart Installed
- Firebase Account and Firebase ML kit

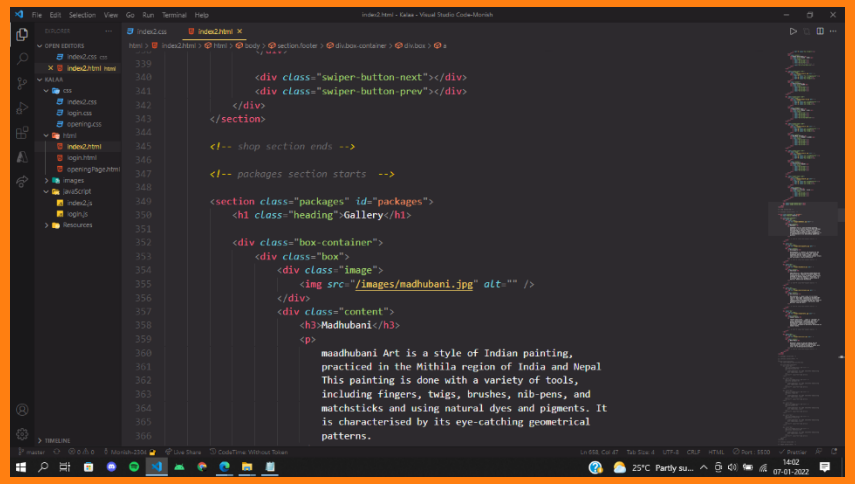
Methodology



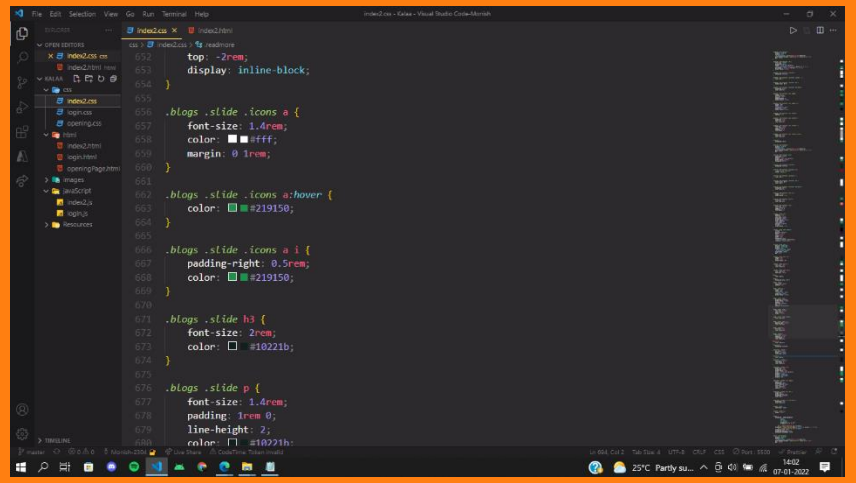
Methodology



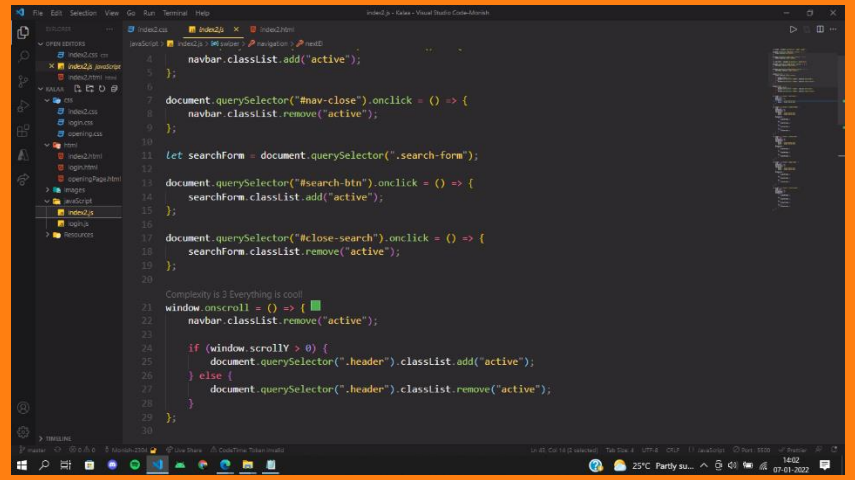
IMPLEMENTATION



```
                <div class="swiper-button-next"></div>
                <div class="swiper-button-prev"></div>
            </div>
        </section>

        <!-- shop section ends -->

        <!-- packages section starts  -->

        <section class="packages" id="packages">
            <h1 class="heading">Gallery</h1>

            <div class="box-container">
                <div class="box">
                    <div class="image">
                        <img src="/images/madhubani.jpg" alt="" />
                    </div>
                    <div class="content">
                        <h3>Madhubani</h3>
                        <p>
                            maadhubani Art is a style of Indian painting,
                            practiced in the Mithila region of India and Nepal
                            This painting is done with a variety of tools,
                            including fingers, twigs, brushes, nib-pens, and
                            matchsticks and using natural dyes and pigments. It
                            is characterised by its eye-catching geometrical
                            patterns.
```



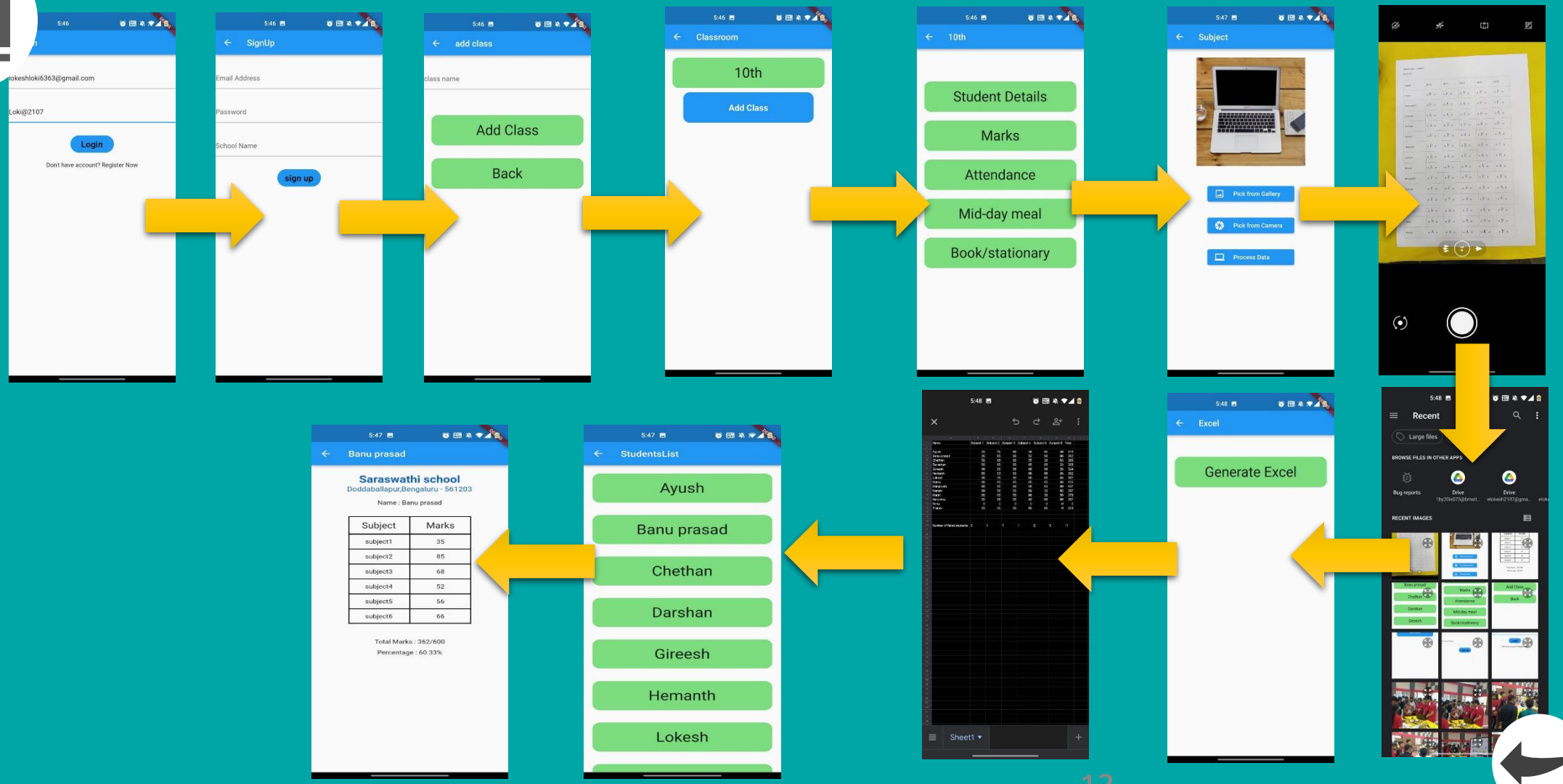
```
    top: -2rem;
    display: inline-block;
}

.blogs .slide .icons a {
    font-size: 1.4rem;
    color: #fff;
    margin: 0 1rem;
}

.blogs .slide .icons a:hover {
    color: #219150;
}

.blogs .slide .icons a i {
    padding-right: 0.5rem;
    color: #219150;
}

.blogs .slide h3 {
    font-size: 2rem;
    color: #10221b;
}

.blogs .slide p {
    font-size: 1.4rem;
    padding: 1rem 0;
    line-height: 2;
    color: #10221b;
```



```
    navbar.classList.add("active");
};

document.querySelector("#nav-close").onclick = () => {
    navbar.classList.remove("active");
};

let searchForm = document.querySelector(".search-form");

document.querySelector("#search-btn").onclick = () => {
    searchForm.classList.add("active");
};

document.querySelector("#close-search").onclick = () => {
    searchForm.classList.remove("active");
};

Complexity is 3 Everything is cool!
window.onscroll = () => {
    navbar.classList.remove("active");

    if (window.scrollY > 0) {
        document.querySelector(".header").classList.add("active");
    } else {
        document.querySelector(".header").classList.remove("active");
    }
};
```

Flutter

Initial Sample Screenshots/Results



FUTURE ENHANCEMNETS

- The initiative currently focuses on teachers but its use can be extended. Some enhancements we are planning on are:

1. Automated Message Sending regarding results, attendance and other details
2. We can add administrative operations such as teachers or heads can use the data for multiple operations.
3. Creating customized templates for data entry for different end users.

CONCLUSION

- Teachers must invest their time on useful resources which would further increase their knowledge and thereby be useful to children , not wasting a large amount of time on tasks like data entry which could be done with a click and without expensive resources.

THANK YOU!

-Team Code-18