



# NFCAW

(NEAR-FIELD COMMUNICATION  
ATTENDANCE WORKER)

MUHAMMAD KHAIRIL AKRAM MOHD KAMAL  
SITI NOR FARRAH SYAKILA CHE ANWAR  
NUR KAMILIA ARIFA MOKHTAR  
AINUL HUSNA ASRIL  
AINUL HAEZAH NORUZMAN



**NFC  
(Near-field  
Communication  
attendance for workers)**



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## **NEAR-FIELD COMMUNICATION ATTENDANCE WORKER**

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# PREFACE

## **Assalamualaikum w.b.t and greeting to all**

We are delighted to present the first edition of this book, which serves as a primary reference for students enrolled in the Diploma of Civil Engineering program, particularly for the subject Project Management and Practices (DCC40132).

This book is essential when using the NFCaw application, especially for construction workers. It provides detailed guidance on installing the necessary software and effectively utilizing the NFCaw application.

Furthermore, the book delves into the innovative use of Near Field Communication (NFC) technology for managing construction worker attendance. It bridges the gap between cutting-edge technology and the practical needs of construction management.

Wishing you an enjoyable and insightful learning experience!

FYP TEAM  
Department of Civil Engineering  
Polytechnic of Sultan Salahuddin Abdul Aziz Shah  
2025

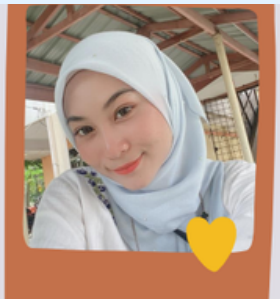
# EDITORS



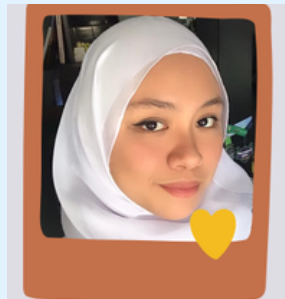
1 MUHAMMAD  
KHAIRIL AKRAM  
MOHD KAMAL



2 SITI NOR  
FARRAH  
SYAKILA CHE  
ANWAR



3 NUR KAMILIA  
ARIFA MOKHTAR



4 AINUL HUSNA  
ASRIL



5 DR. AINUL HAEZAH  
NORUZMAN

# NFCAW

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# COURSE OUTLINE

PROGRAMME	DIPLOMA IN CIVIL ENGINEERING							
DEPARTMENT	CIVIL ENGINEERING							
COURSE	PROJECT MANAGEMENT AND PRACTICES							
COURSE CODE	DCC 40132							
SLT & CREDIT	120 & 2							
PRE-REQUISITE	NONE							
SYNOPSIS								
<p>PROJECT MANAGEMENT AND PRACTICES focuses on the basic knowledge and understanding of project management. Students will be introduced to the definition and basic concept of project management and practices. Every aspect in project management is explained starting from the overview of project management, the Influences of organizational structures in project management, project lifecycle resources in project management, planning and scheduling, project control and monitoring, safety control, environmental management plan and quality assurance in project management. The application of common software such as Microsoft Project for planning and scheduling also will be exposed to the student.</p>								
COURSE LEARNING OUTCOMES (CLO)								
CLO	PLO	PEO	CLO DESCRIPTION					
1	1	1	Apply correctly the fundamental engineering concepts of project management.					
2	5	2	Manipulate appropriate techniques and software tool for planning and scheduling related to civil engineering activities					
3	11	3	Perform efficient management of time and resources in civil engineering field.					
TOPIC AND ASSESSMENTS								
NO	TOPICS		CLO	CONTINUOUS ASSESSMENT (100%)				
				TEST	QUIZ	ASSIGNMENT	MINI PROJECT	FINAL EXAM
				15%	5%	10%	20%	50%
1	INTRODUCTION		1	√	√			√
2	ORGANIZATIONAL STRUCTURES AND PROJECT LIFE CYCLE IN PROJECT MANAGEMENT		1,2	√	√			√
3	SITE SUPERVISION AND SAFETY MANAGEMENT IN CONSTRUCTION		1,2,3	√	√			√
4	PLANNING AND SCHEDULING		1,3	√			√	√
5	PROJECT CONTROL AND MONITORING		2,3	√	√	√		√



# **CHAPTER 1:**

# **PROJECT MANAGEMENT**

# Introduction of Project Management

"PROJECT MANAGEMENT AND PRACTICES offers a comprehensive exploration of fundamental project management principles, providing students with a foundational understanding of this crucial discipline. The course begins by defining and elucidating basic concepts within project management, offering an insightful overview. It delves into the impact of organizational structures on project management, elucidating how these structures influence project dynamics.

Additionally, the curriculum covers the entire project lifecycle, detailing the essential resources required for effective project management. Topics extend to planning and scheduling, where students gain insights into methodologies and tools, including practical exposure to widely used software such as Microsoft Project.

The course further encompasses project control and monitoring, safety protocols, environmental management plans, and quality assurance strategies, offering a holistic approach to project management practices. Through this comprehensive exploration, students are equipped with the knowledge and skills necessary to navigate and contribute to successful project endeavors ."



# **CHAPTER 2: NEAR-FIELD COMMUNICATION (NFC)**

# Introduction of Near-Field Communication

Near-field communication (NFC) is a short-range wireless connectivity technology that uses magnetic field induction to enable communication between devices when they're touched together or brought within a few centimeters of each other.

NFC or Near Field Communication began in the early 1980s and is regarded the natural evolution of radio frequency identification or RFID. This technology enables the user to send radio information to a receiver in order to be identified for tracking purposes and for security.





# **CHAPTER 3: SMART ATTENDANCE SYSTEM**

# **Introduction of Smart Attendance System**

**A smart attendance system enables setting up the attendance workflows and maintaining a proper validation of employee time-sheets. A top-notch attendance system is used to track the employees working hours with a punch-in and out maintenance. It eliminates the need for manual attendance-taking, which is time-consuming and prone to errors.**

**The software provides free access to employees to look at their profiles and attendance records. Failing to monitor and manage attendance can lead to lost productivity, increased labor costs, decreased morale, and potential compliance issues. By implementing modern, digital attendance tracking solutions like, businesses can address these challenges and create a more efficient and productive workplace.**

# NFCaw

**NFC SMART  
ATTENDANCE SYSTEM  
FOR WORKERS**



### 3.1 INTRODUCTION OF NFCaw

The NFC Smart Attendance System is an advanced solution designed to revolutionize workforce management. In today's fast-paced world, efficient tracking and management of employee attendance is essential for organizations of all sizes. With NFC (Near Field Communication) technology at its core, this system provides a seamless and hassle-free approach to attendance monitoring.

Using an NFC-enabled device, employees can easily sign in and out by simply tapping their NFC tag against a designated reader. The system records the time and date of each interaction instantly, eliminating the need for manual attendance tracking. This ensures accuracy, minimizes errors and reduces time spent on administrative tasks.

**Title :** NFC Smart Attendance System For Workers (NFCaw)

**Aim :** The goal of creating this NFCaw application is to help workers learn more effectively.

**Objective of NFCaw apps :**

- 1.To develop an NFC-based attendance tracking system that allows construction workers to easily and quickly clock in and out using their NFC-enabled mobile devices.

2. To evaluate the effectiveness of employees using smart applications in dealing with workers attendance problems.
3. To determine satisfaction among the workers regarding to the NFC (Near-Field Communication) system.

## **ADVANTAGES OF NFCAW :**

### **1.Efficiency:**

NFC allows workers to quickly and easily record their attendance, saving time compared to traditional methods like signing in on paper or using punch cards.

### **2.Accuracy:**

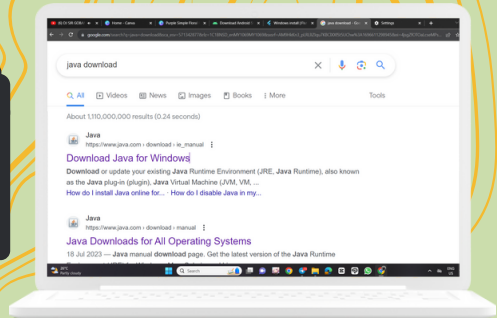
NFC systems reduce the chances of attendance errors or fraud, ensuring that workers' attendance records are precise and trustworthy.

### **3. Convenience:**

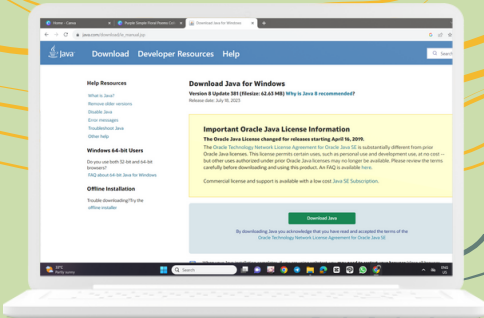
Workers can use their NFC-enabled devices smartphones for attendance, eliminating the need for carrying physical mobile or remembering PINs, making attendance tracking more convenient for them.

## 3.2 METHOD TO INSTALL SOFTWARE TO DEVELOP NFCAW APPLICATION

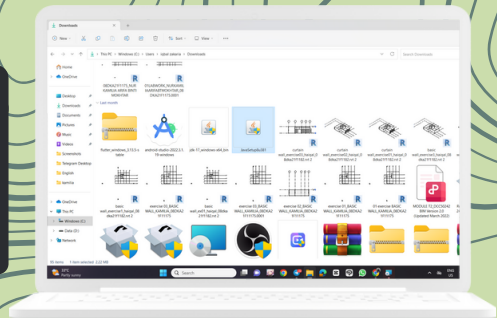
1. First, open Google and search for Java download.



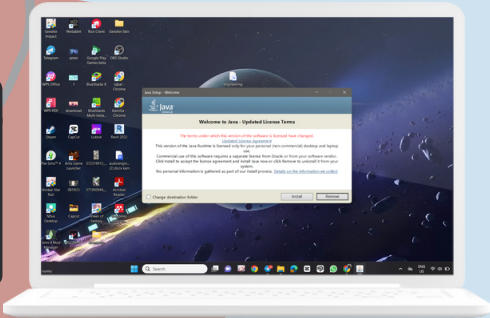
2. Click on the page and click on the green button to download java in the device used



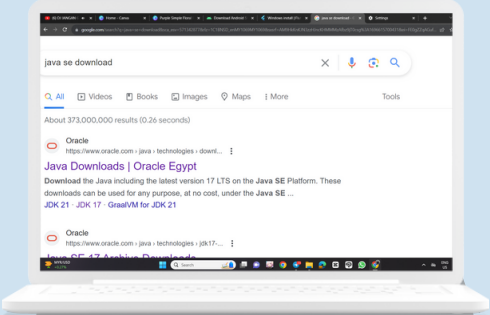
3. Java that has been downloaded will be stored in the file section



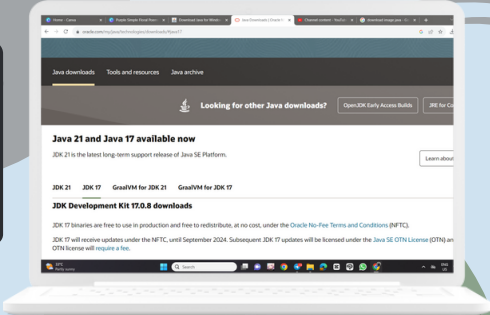
4. Then, we need to click on the downloaded file to download the file in java

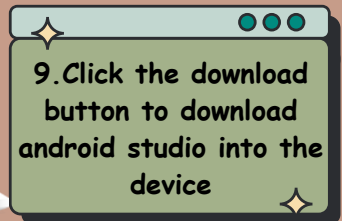
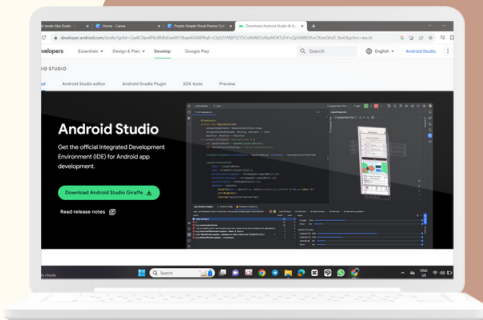
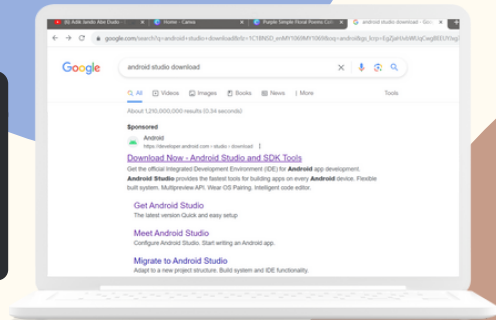
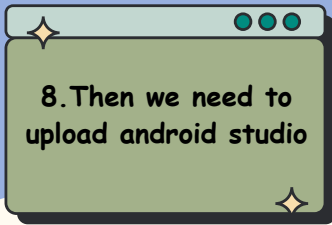
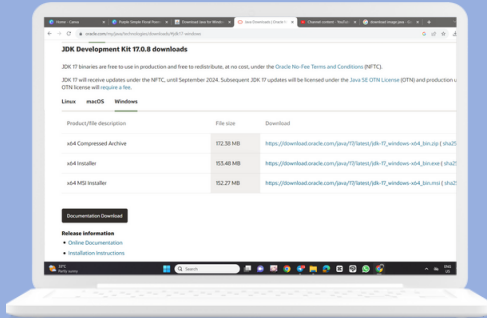


5. When finished downloading, move to the next step which is to download Java SE

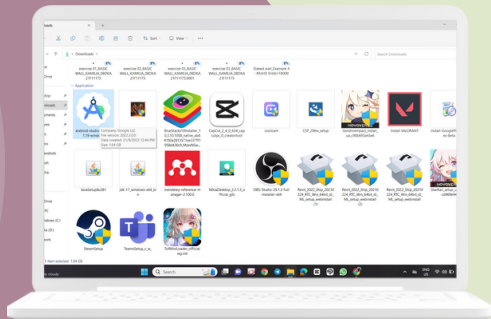


6. Click to enter page jdk 17

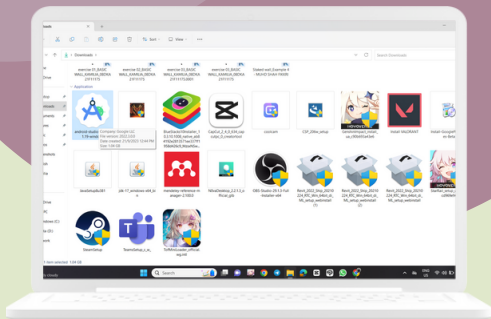




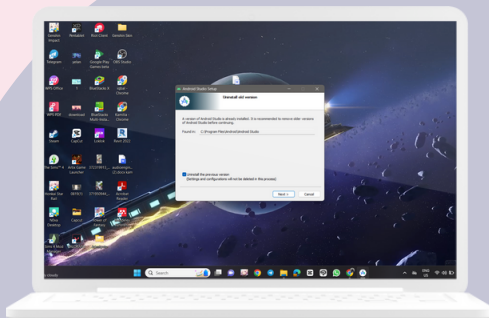
10. After finishing,  
downloading android  
studio will be saved in a  
file

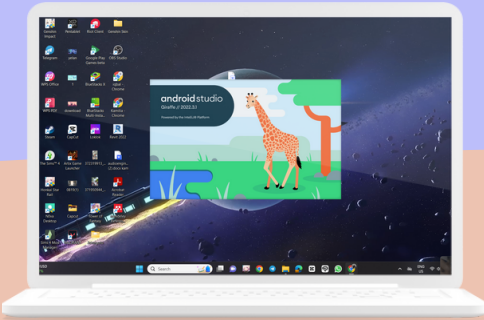


11. Click on the android  
studio file for running  
and download the file  
on the inside



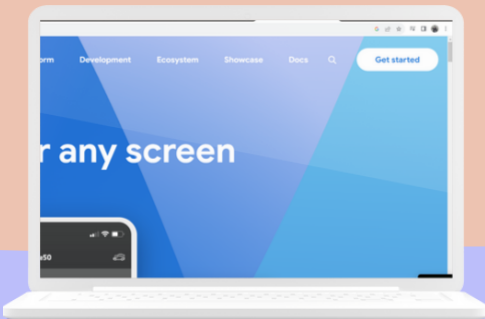
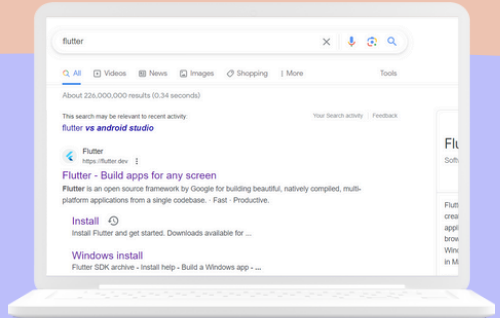
12. Click next button  
to continue  
downloading android  
studio





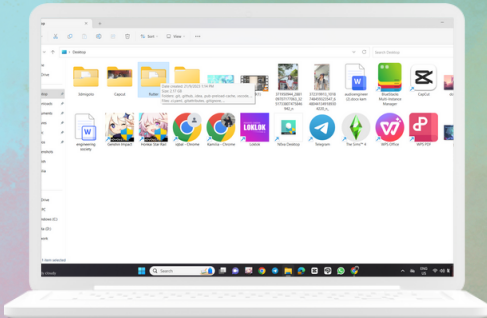
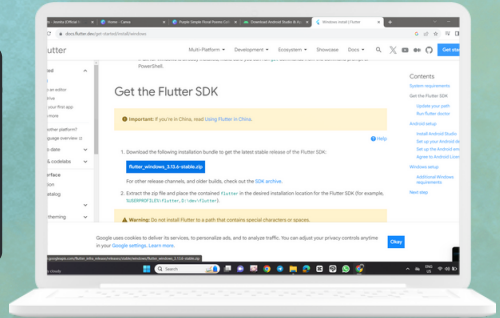
13. When finished downloading it will continue to bring to the front page of android studio

14. After that, download the flutter framework to complete the coding work



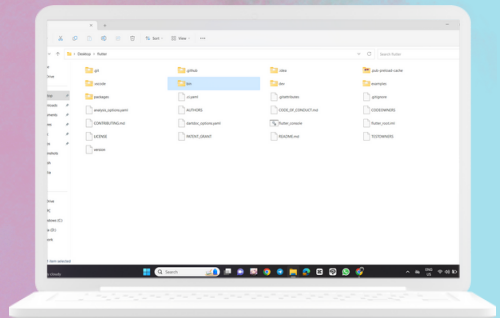
15. Click on the website to download the software

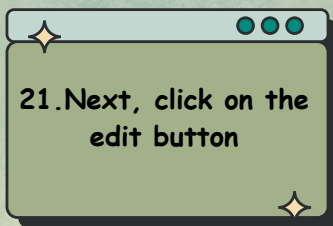
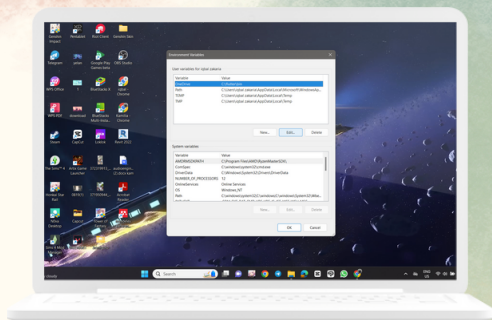
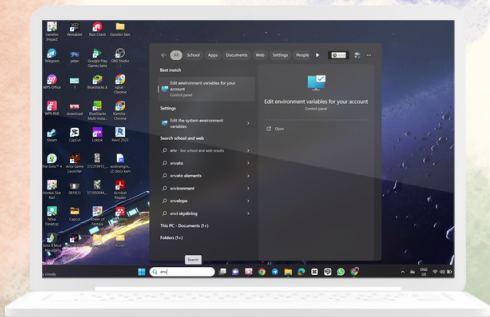
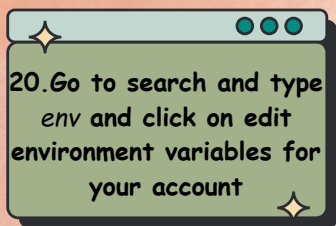
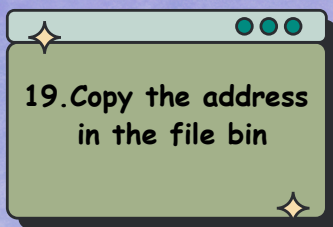
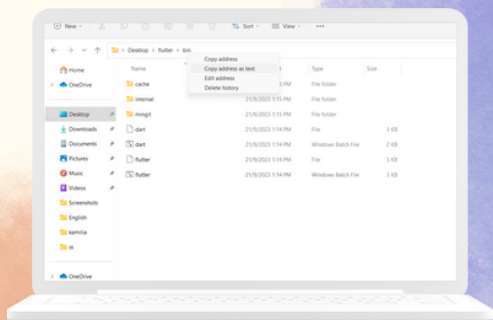
16. After entering the website, click on the blue button to download the flutter framework



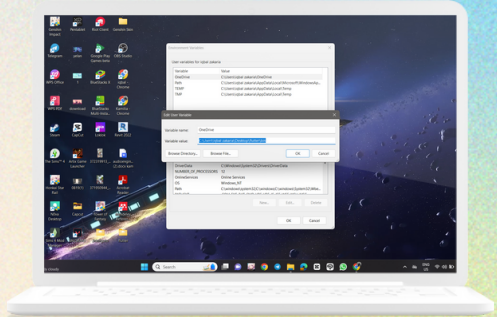
17. When finished downloading it will be saved in the file section on the desktop

18. Open the file and click on the happy BIN to see the data in the file

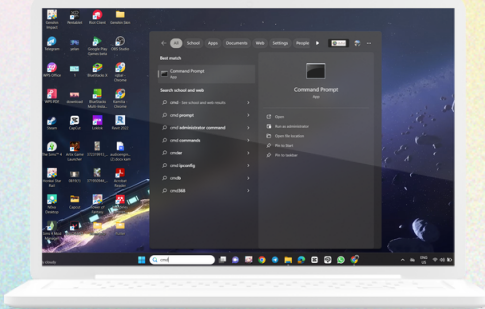




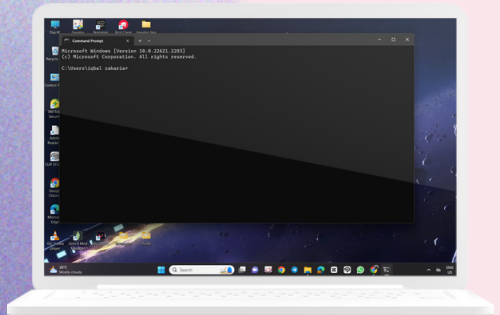
22. Then, paste the address that was copied earlier



23. Then go to the search section again and type `cmd` and click in the command prompt



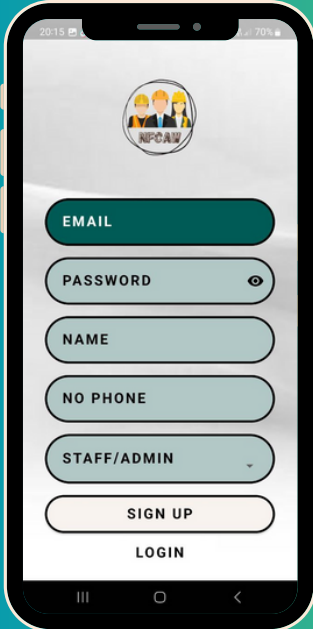
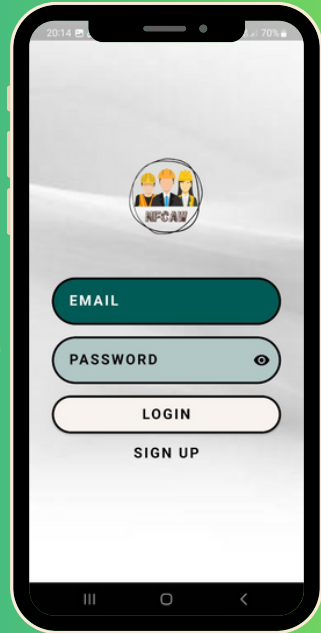
24. Type `flutter` to test whether flutter has been installed in the device or not





### 3.3 HOW TO USE NFCAW APPLICATIONS

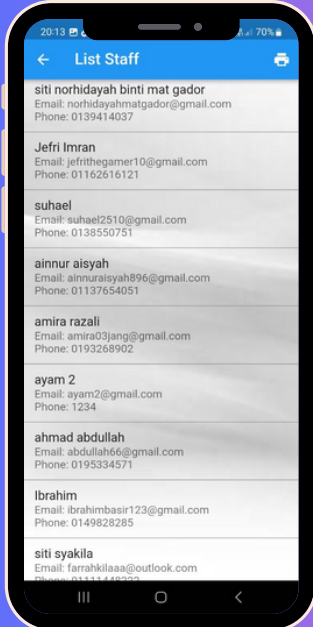
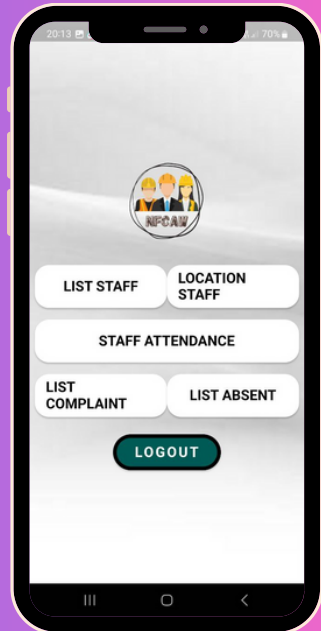
This is the main display after opening the NFCAW application



Before logging in you need to register first  
Enter your email, phone number, name and password to register

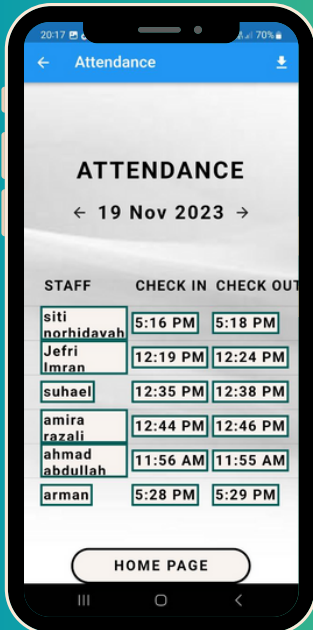
## ADMIN DISPLAY

This is a display for  
admin on the home  
screen



This display shows the list of  
employees and the  
information of employees  
who are in the company.

This display shows the location of each employee who successfully check in the system.



This display shows the employee's name, and check-in and check-out times for the day's attendance.

**This display shows  
all the complaint  
files for the day.**

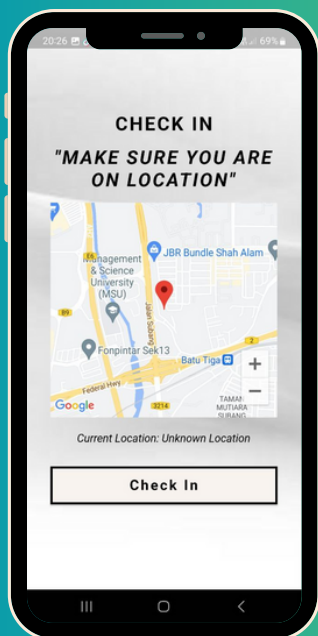
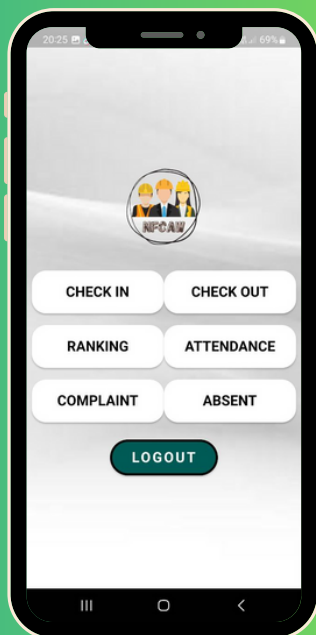


**This display shows the  
file of the reasons for the  
employee's absence from  
work on that day.**



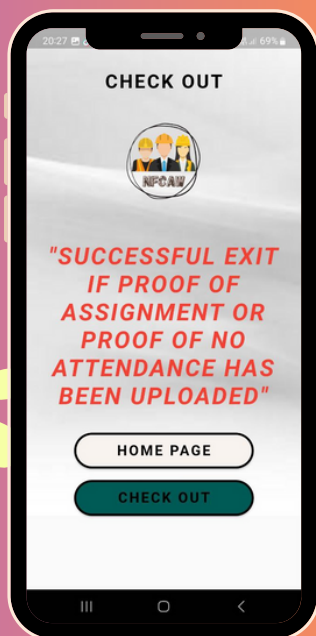
## STAFF DISPLAY

This is the display  
for employees on  
the main screen.



Press check-in and scan  
on the NFC and the  
employee's check-in time  
will be entered into the  
system.

Press checks out and scan on NFC and when the employee leaves, it will be out into the system.



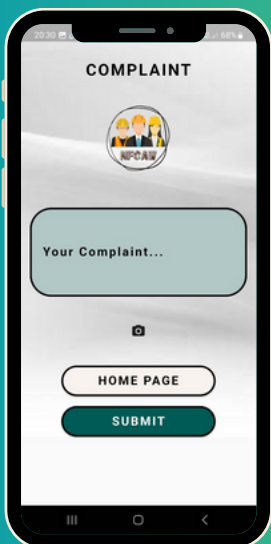
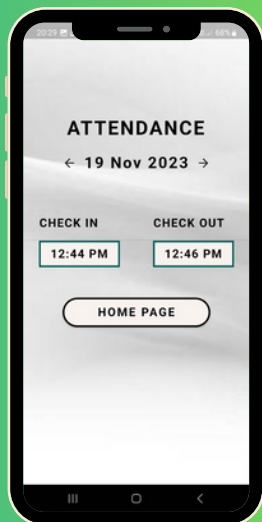
20:28 68%

User List

User ID	Absent Days
siti norhidayah binti mat gador	13
ayam 2	13
siti syakila	13
kindin	13
amran	13
khairil akram	13
adminn	13
amin	13
ama	13
Farrah kilaa	13
ayam	13
Kamilia Arifa	13
admin	13

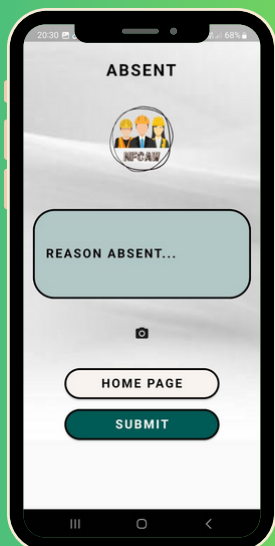
This display serves to identify employees who are often absent from work will be in the top position.

This is the display for the check-in and check-out time for the day after scanning the NFC sticker.



This is a space for employees to make any work-related complaints or any damage that occurs in the work area.

This is a space for the employee to write the reason for absence on that day.





# **CHAPTER 4:**

# **RESEARCH ACTIVITY**

# **PICTURES**

# **PROJECT IMPLEMENTATION**

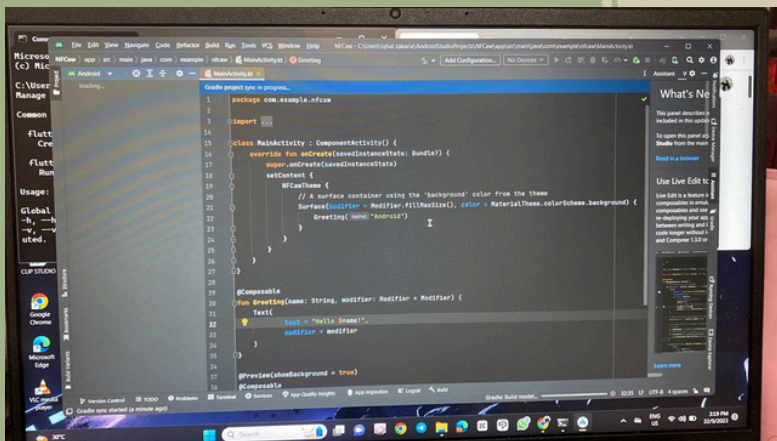
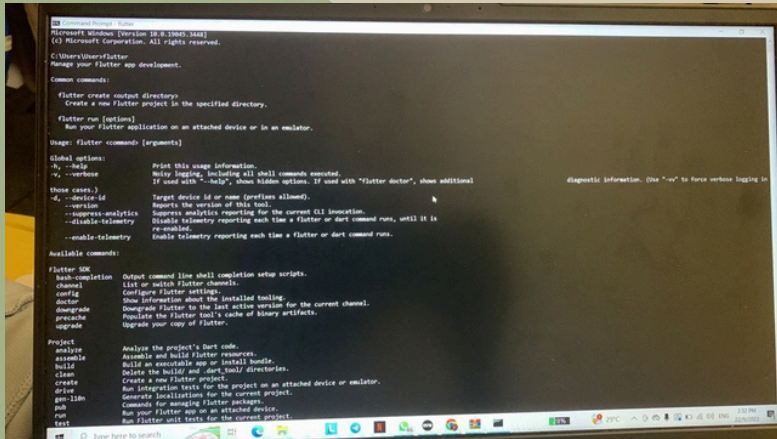
## **ACTIVITIES**



# **DEMONSTRATION PRODUCT**



# THE USE OF FLUTTER AND CODING





# **CHAPTER 5:**

# **PRODUCT ACHIEVEMENT**

## International Level



## International Level



## Institution Level



## Institution Level



## Department Level







**SAMBUTAN HARI HARTA INTELEK NEGARA 2024**



## SAMBUTAN HARI HARTA INTELEK NEGARA 2024



## SAMBUTAN HARI HARTA INTELEK NEGARA 2024



# APPLICATION PRODUCT



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No Rujukan : AAS0001

Tarikh : 10 Jun 2024

Tuan,

**PENGESAHAN APLIKASI INOVASI: A NEAR-FIELD COMMUNICATION BASED ATTENDANCE SYSTEM FOR CONSTRUCTION WORKERS.**

Perkara di atas dengan hormatnya dirujuk.

2. Sukacita dimaklumkan pihak kami telah meneliti dan mengaplikasikan produk inovasi A NEAR-FIELD COMMUNICATION BASED ATTENDANCE SYSTEM FOR CONSTRUCTION WORKERS daripada pihak tuan. Pihak kami mendapati bahawa produk ini mampu mengurangkan masalah kehadiran yang dihadapi oleh pekerja khususnya bagi pekerja yang berada di tapak pembinaan.

3. Untuk itu, bagi meningkatkan nilai tambah produk inovasi ini, pihak kami mencadangkan beberapa penambahbaikan yang boleh dibuat seperti berikut:

- i- Penaiktaratan daripada segi sistem pangkalan data pada aplikasi yang dihasilkan
- ii- Penggunaan aplikasi yang menyeluruh oleh pekerja.

4. Semoga cadangan ini dapat memajukan lagi pembangunan produk pihak tuan.

Sekian,

Yang benar,

**ALPHA ACE SOLUTIONS** [202303023876 (CA0360398-H)]

.....  
Ts. AINARULL ASSIKIN BT ABDUL HADI  
DIRECTOR



# ACKNOWLEDGEMENT

First and foremost, we are deeply grateful to Allah S.W.T for granting us the strength and perseverance to successfully complete our final project within the given timeframe. This project, titled Near-Field Communication (NFC) Smart Attendance System, has been a significant endeavor for us, and its completion would not have been possible without the support and encouragement of many individuals.

We would like to extend our heartfelt appreciation to our supervisor, Ts. Dr. Ainul Haezah Binti Noruzman, for her invaluable guidance, unwavering support, and continuous supervision throughout the course of this project. Her insightful feedback and encouragement have been instrumental in helping us navigate challenges and stay focused on our objectives.

Our deepest thanks also go to our beloved parents and family members for their endless support, patience, and encouragement, which have been a constant source of motivation for us.

We are equally grateful to our colleagues and friends who contributed to the development of this project. Your collaboration, assistance, and willingness to share your expertise have been incredibly helpful.

To everyone who played a part in our journey—thank you. Your generosity, encouragement, and belief in us have made a profound impact, and we are truly appreciative of your contributions.



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