Project Progress Week 10

Automated School Bus System (ASBS) in Malaysia

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INTRODUCTION

SchoolNow is a system consisting of three mobile applications developed for a school transportation company or operator that provides bus or van services for primary and secondary school students. The system is designed to support centralized management of school transportation operations, including route planning, student monitoring, and monthly transportation fee management. It enables parents to make payments through the application while allowing drivers and administrators to track, manage, and monitor transportation activities digitally.

The first application, SchoolNow, is intended for parents and students. It allows parents to monitor their child's transportation status, view the live location of the assigned driver during active pickup or drop-off sessions (from home to school and from school to home), and manage monthly transportation payments. Students can scan and record their boarding status when boarding or alighting from the bus or van, ensuring accurate attendance and safety tracking throughout each transportation session.

The second application, SchoolNow: Driver, is designed for drivers employed by the transportation company or operator. This application enables drivers to view assigned students, schools, and service areas, as well as to execute daily transportation services. The system assists drivers in generating optimized travel routes based on the operator's starting location, assigned student pickup points, and designated schools. Drivers can monitor student boarding status in real time, provide live location updates to parents during active services, and manage digital records related to transportation operations.

The third application, SchoolNow: Admin, is intended for company administrators or operators. This application allows administrators to centrally manage all core entities within the system, including schools, buses, drivers, parents, and students. Administrators can assign buses and drivers, configure service areas and school coverage, verify drivers, manage system settings such as operator location, and oversee overall transportation and payment data to ensure safe, accurate, and efficient operation of the school transportation service.

Works Completed and App Screenshot:

Apps Icon

Figure 1 App Icons for SchoolNow and SchoolNow: Driver

School Now: Driver

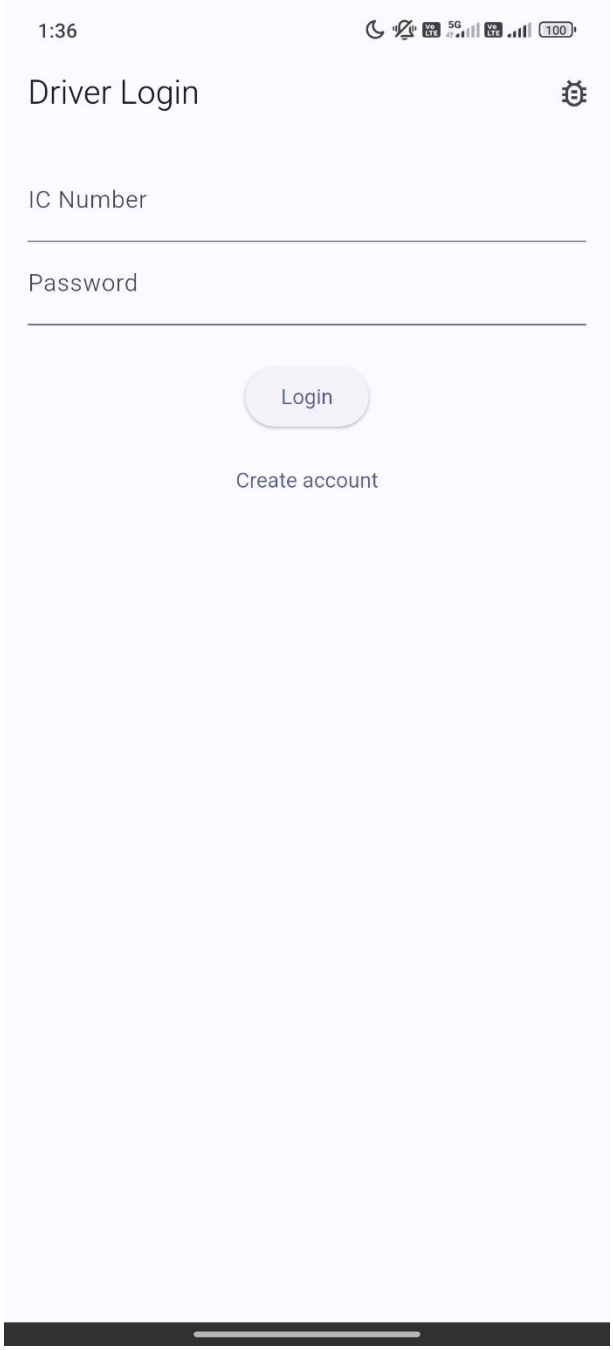

Figure 2 Login Page of SchoolNow:Driver

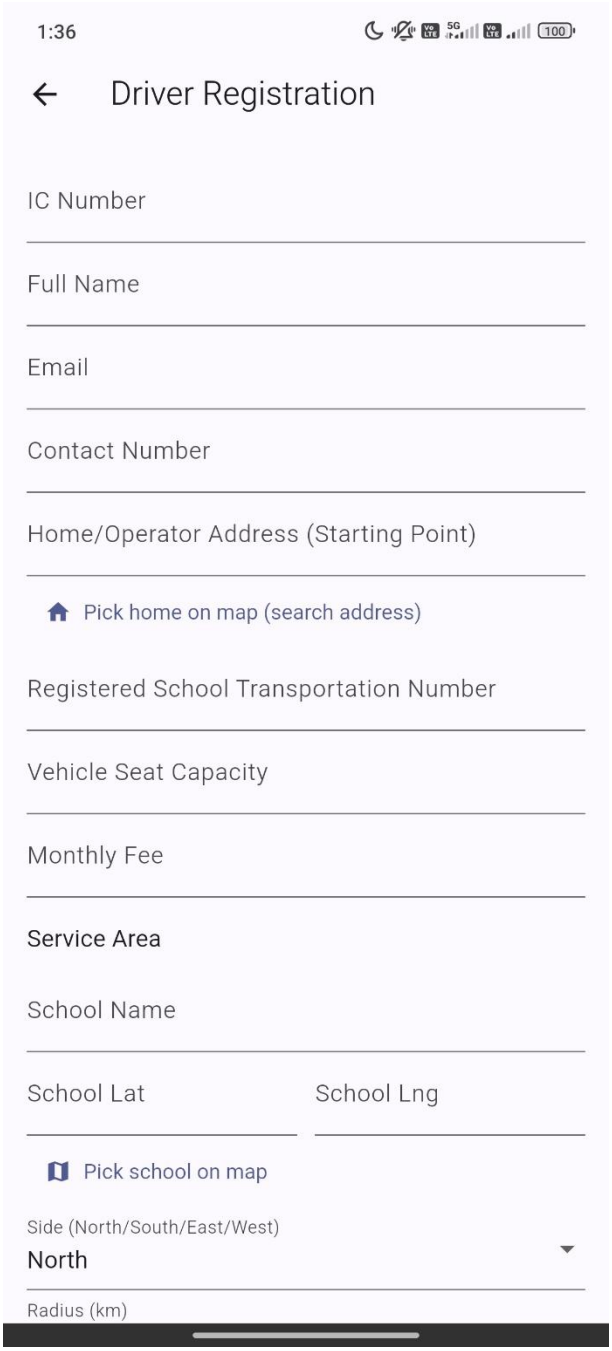

Figure 3 Register Page

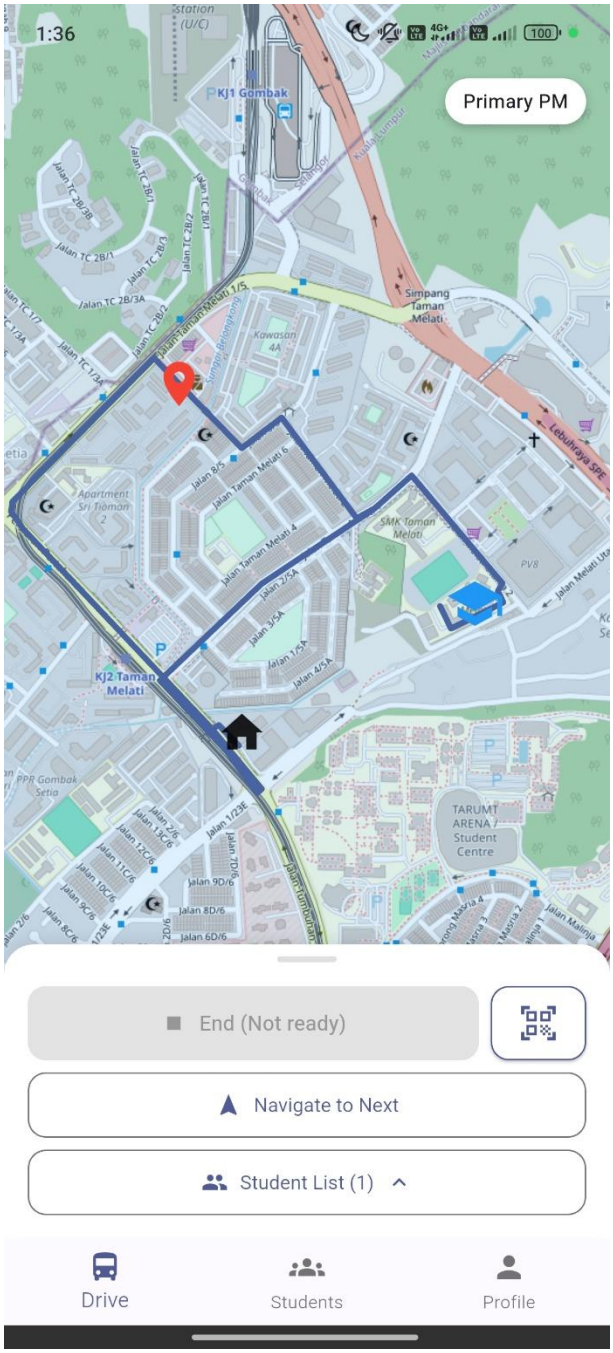

Figure 4 Navigation Page, where the driver knows where to pickup students

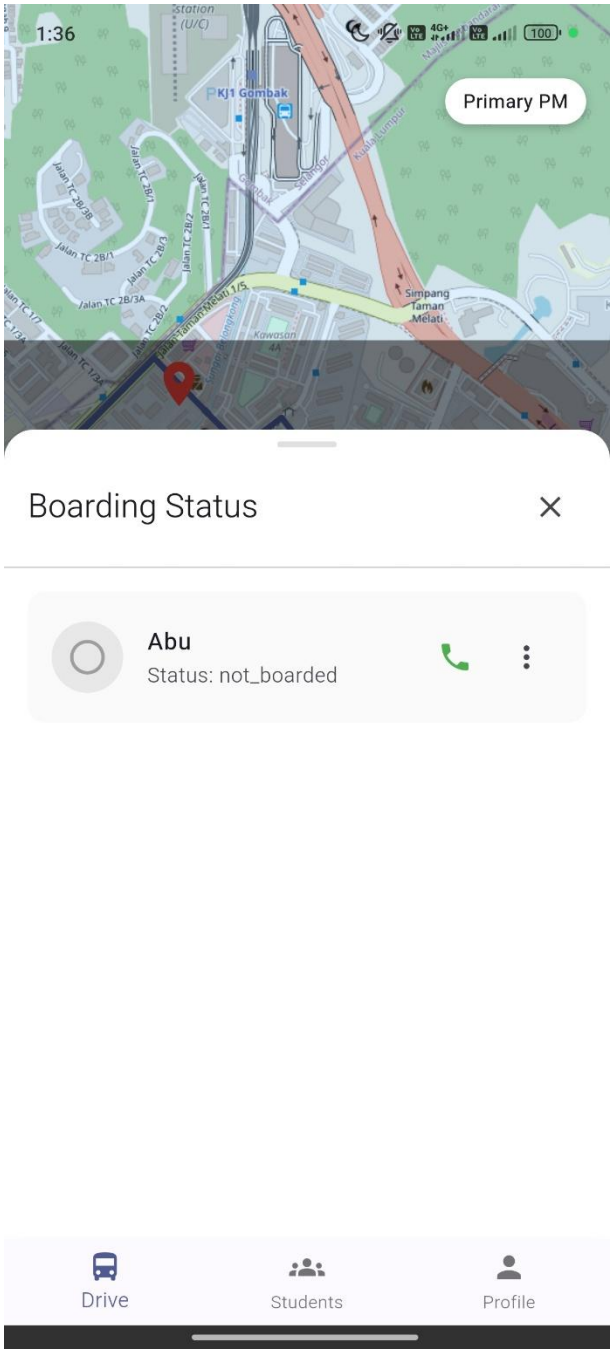

Figure 5 Students' Boarding Status overlay, where the driver know the list of student they need to pickup for this session and their status

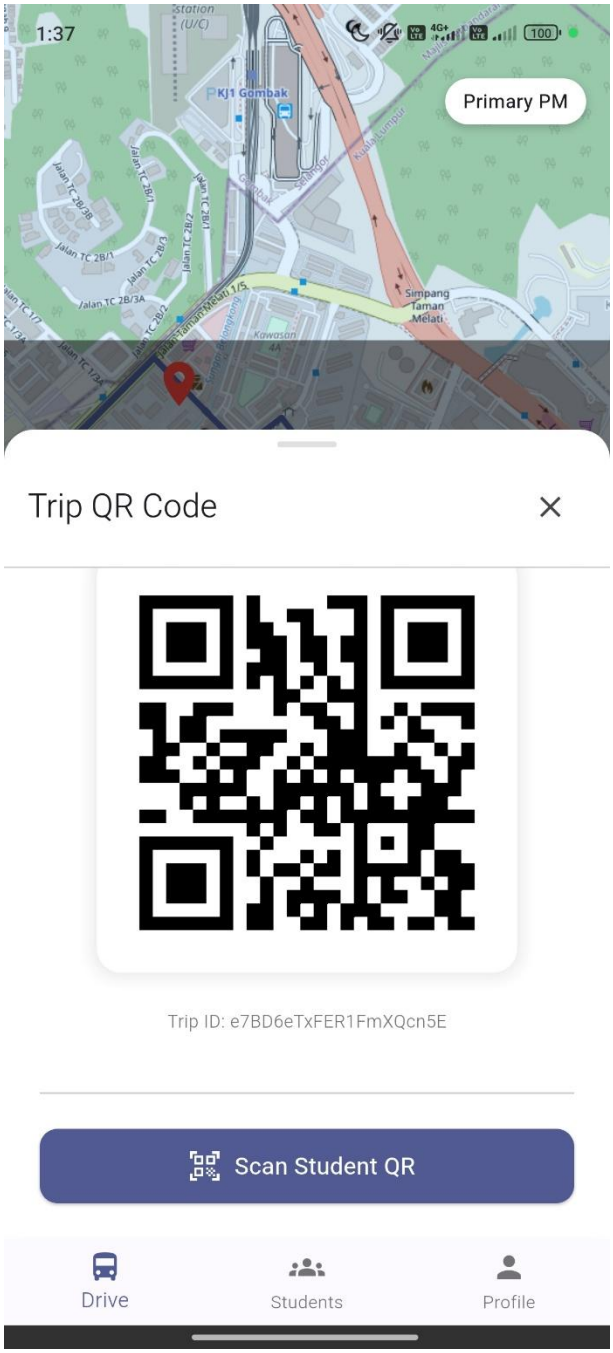

Figure 6 QR Code overlay where Student can scan the QR to update status and Driver can use camera to scan student's QR

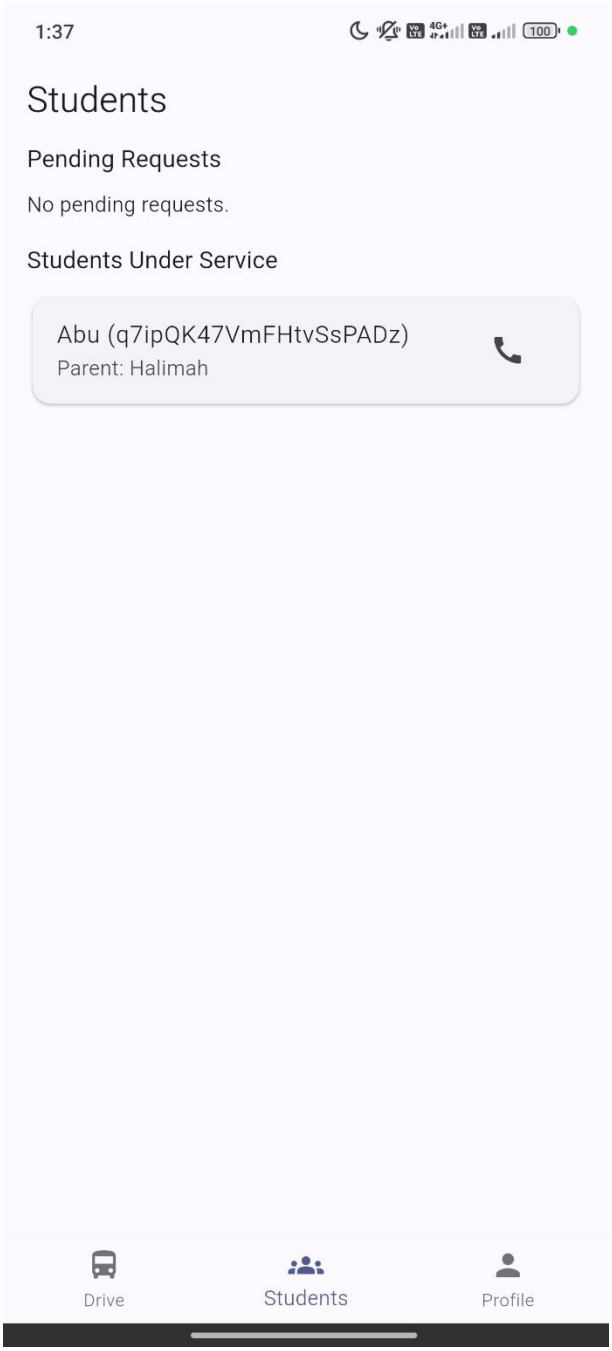

Figure 7 Student's list page

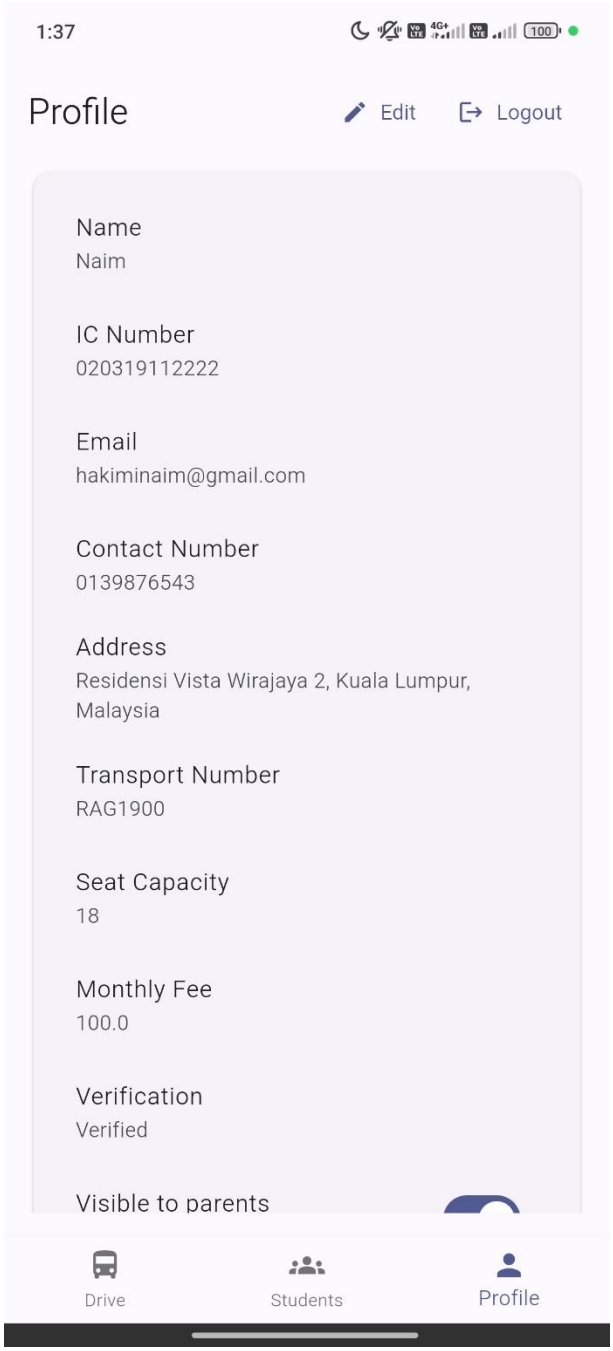

Figure 8 Driver's Profile Page

SchoolNow: Parents and Students

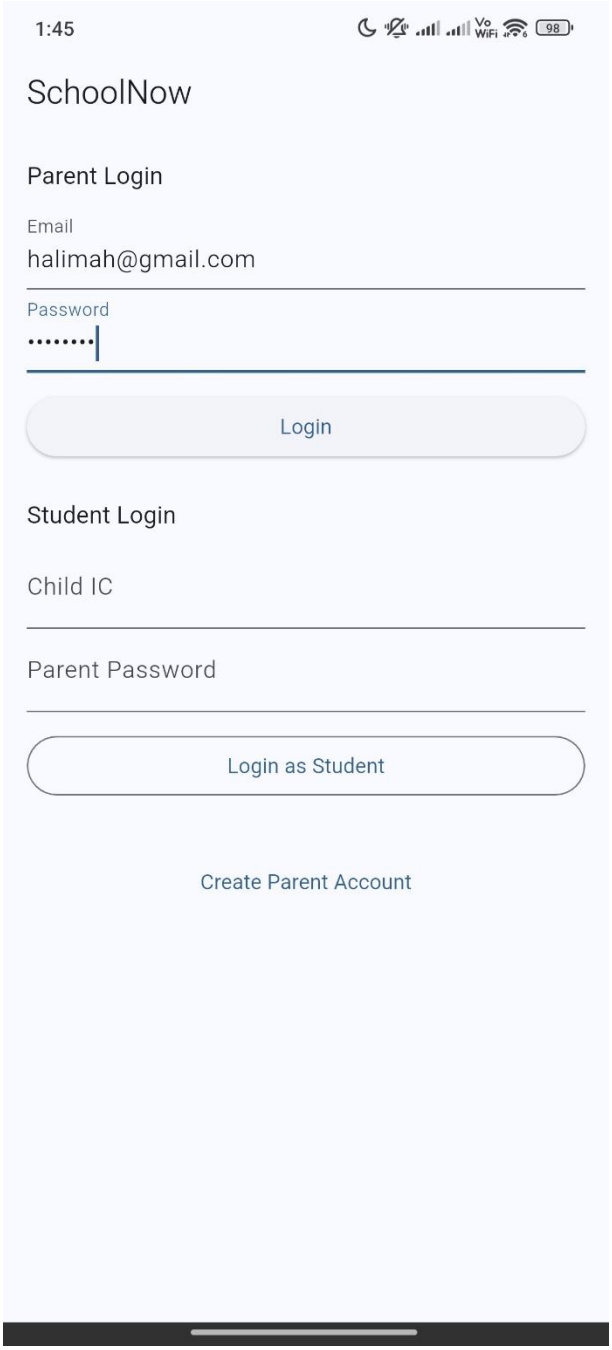

Figure 9 SchoolNow login page

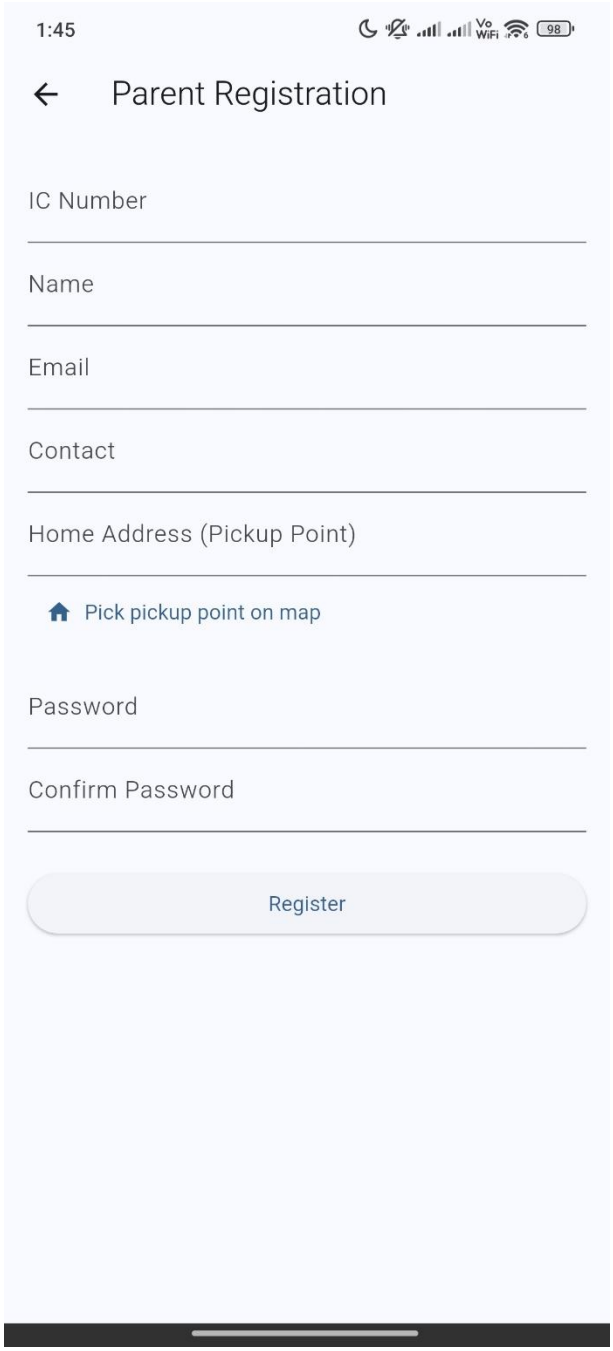

Figure 10 Parents registration page

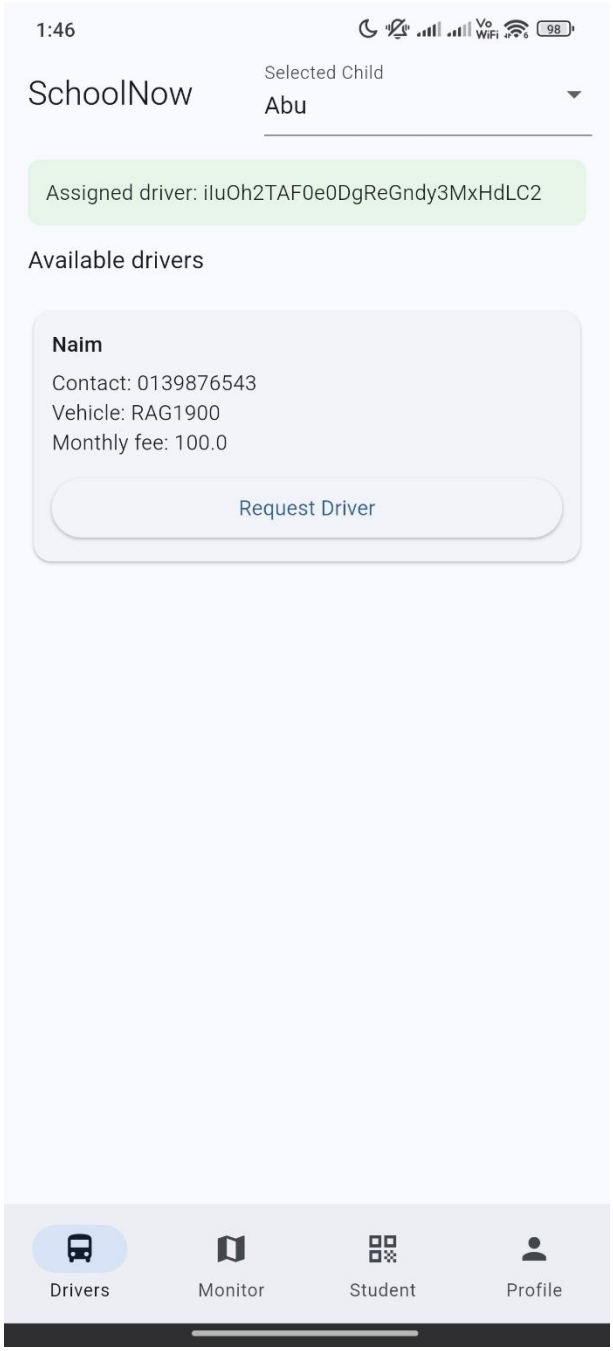

Figure 11 Drivers list page, where Parents can choose which driver to choose for their kids

Figure 12 Monitor page, where the parents can monitor driver's live location

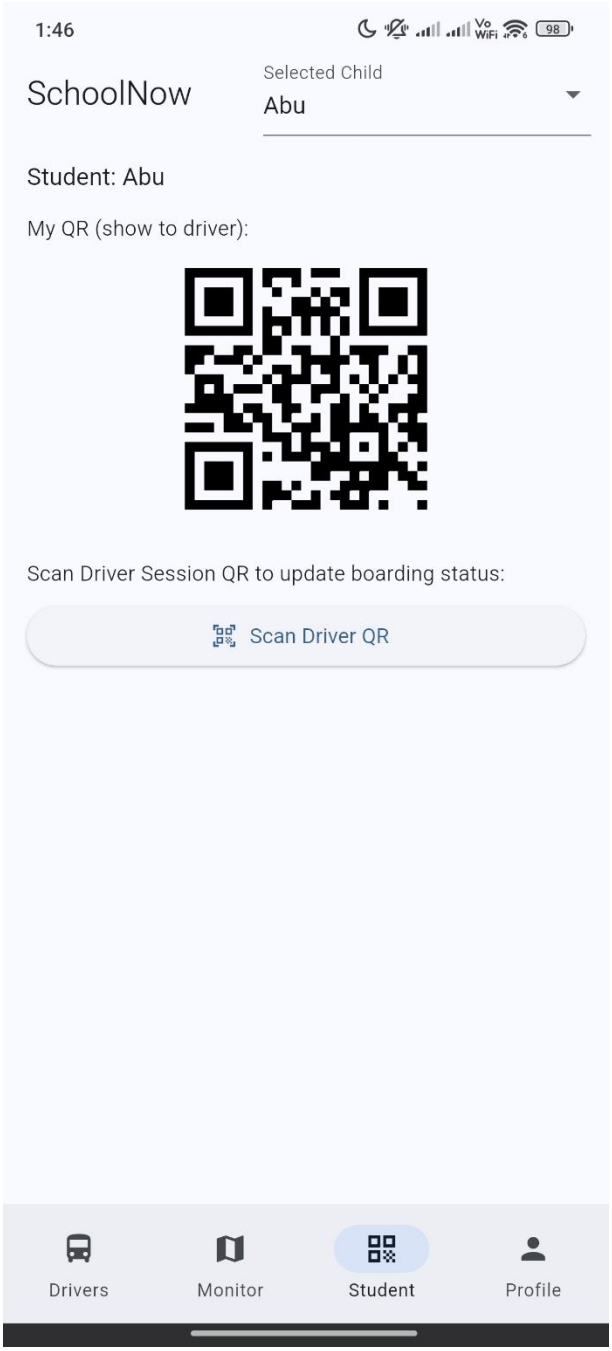

Figure 13 Student's QR that can be screenshot and printed and drivers can scan

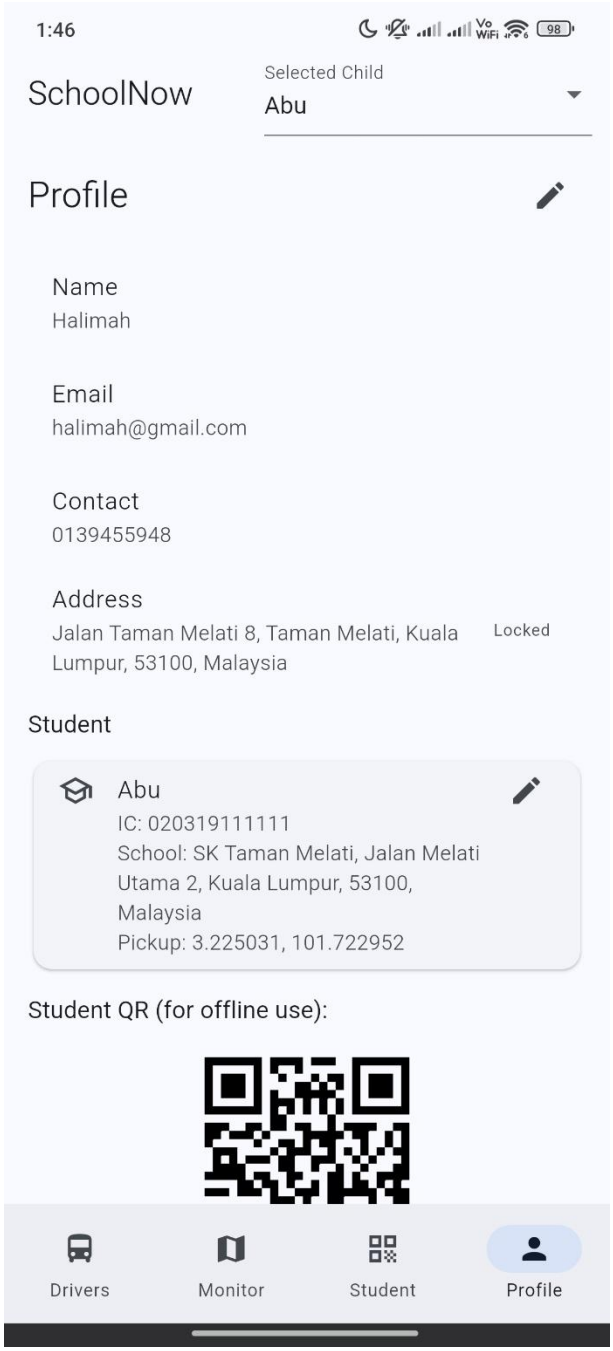

Figure 14 Parent's and student's profile page

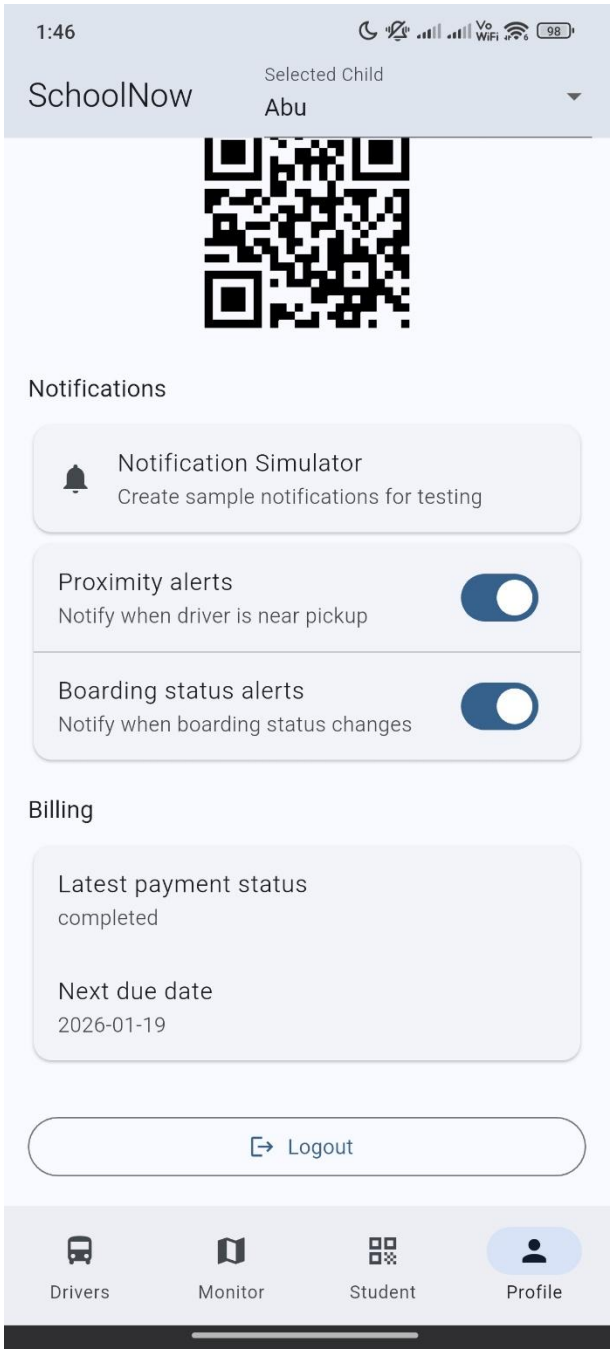

Figure 15 Parents and students' profile page: Billing status

Code Implementation

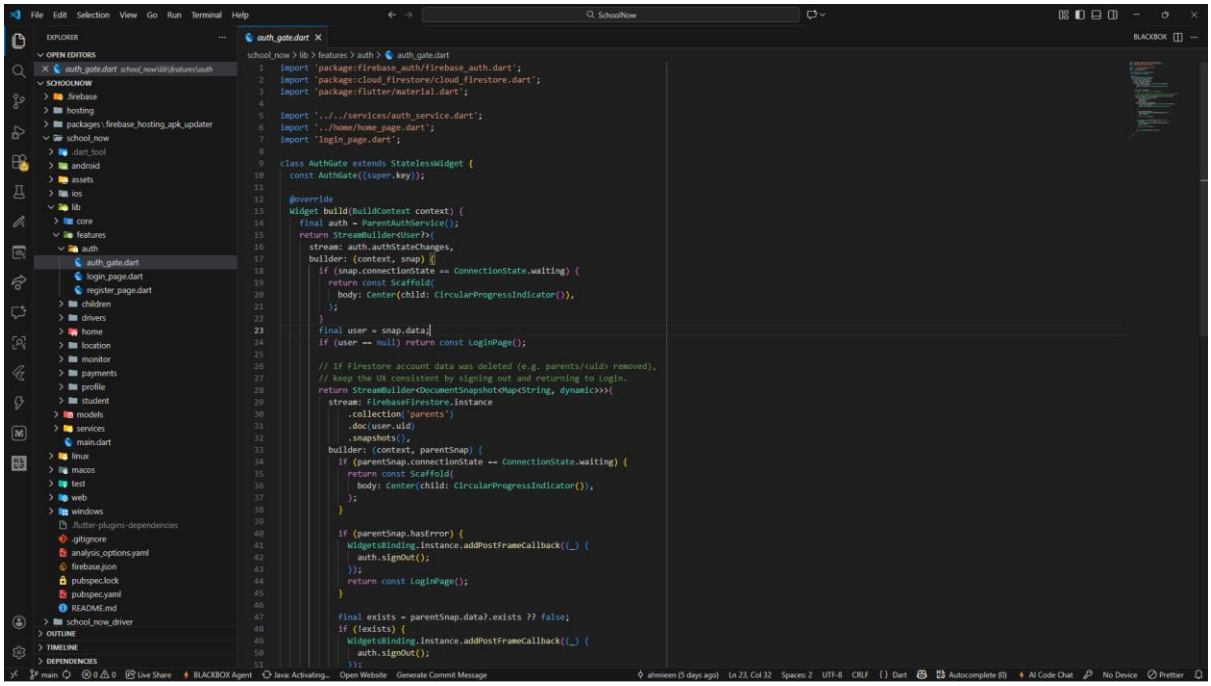

Figure 16 Code on VSCode

Firebase Console

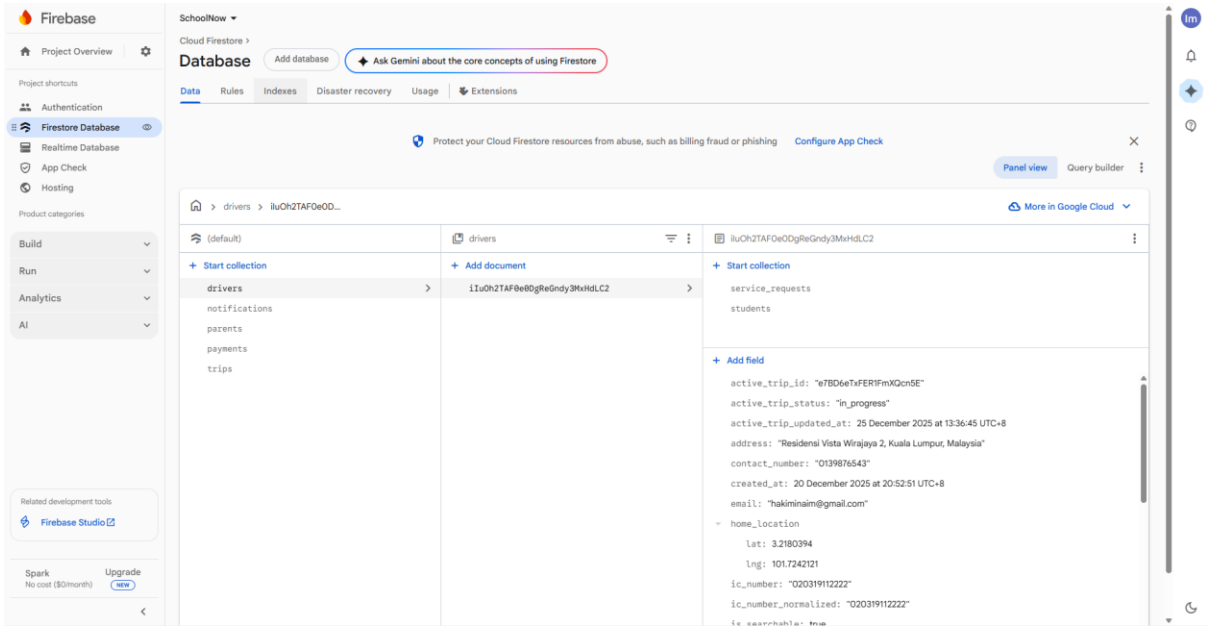

Figure 17 Firebase console

Functional Requirements and Tasks Completed:

BusNow Driver: Driver-side App			
FR ID	**Functional Requirements**	**Status**	**Person-in-Charge**
FR-D1	**Driver Registration: Driver is allowed to register an account**	**Done**	**Naim**
FR-D1.1	Provide a user-friendly interface for the bus driver.	Done	Naim
FR-D1.2	Registered drivers shall be placed under pending verification	Done	Naim
FR-D1.3	The driver shall not be visible to parents until verified by admin	Done	Naim
FR-D2	**Driver Login: Driver is allowed to log in**	**Done**	**Na'im**
FR-D2.1	Driver shall log in using IC number and password	Done	Na'im
FR-D2.2	The system shall authenticate the driver using Firebase	Done	Na'im
FR-D2.3	The system shall display login success or failure message	Done	Na'im
FR-D2.4	Upon successful login, the driver shall access Drive, Students, and Profile tabs	Done	Na'im
FR-D3	**The system shall support driver service execution**	**Done**	**Na'im**
FR-D3.1	The system shall display the driver's service area on the map	Done	Na'im
FR-D3.2	The system shall display students scheduled for pickup	Done	Na'im
FR-D3.3	Drivers may be assigned to multiple schools of the same type	Done	Na'im
FR-D3.4	In morning session (going to school), route shall start from operator address	Done	Na'im
FR-D3.5	Morning session destination shall be the last assigned school	Done	Na'im
FR-D3.6	In return session (back from school), route shall start from the first assigned school	Done	Na'im
FR-D3.7	Return session destination shall be operator address	Done	Na'im
FR-D3.8	The system shall navigate through all student pickup points in sequence	Done	Na'im
FR-D3.9	The system shall allow service start only at 6:00am (morning), 1:30pm (primary), or 3:00pm (secondary)	Done	Na'im
FR-D3.10	Parent shall be able to view live driver location during active service	Done	Na'im
FR-D3.11	The system shall display a QR code for boarding verification	Done	Na'im
FR-D3.12	The system shall update boarding status when QR is scanned	Done	Na'im
FR-D3.13	Once a student boards, their map pin shall be removed	Done	Na'im
FR-D3.14	The driver may mark student as absent and proceed	Done	Na'im
FR-D3.15	Arrival button shall update student status to arrived	Done	Na'im
FR-D3.16	Driver may stop service once all students are dropped	Done	Na'im
FR-D4	**Driver is allowed to manage assigned students**	**Done**	**Na'im**
FR-D4.1	The system shall display a message if no students are assigned	Done	Na'im
FR-D4.2	Driver shall view list of assigned students	Done	Na'im
FR-D4.3	Driver shall view student and parent details	Done	Na'im
FR-D4.4	Driver shall approve or reject new service requests	Done	Na'im
FR-D4.5	Rejected requests shall trigger refund to parent	Done	Na'im
FR-D5	**Driver is allowed to manage profile**	**Done**	**Na'im**
FR-D5.1	Driver shall view profile information	Done	Na'im
FR-D5.2	Driver shall edit profile information	Done	Na'im
FR-D5.3	Driver shall log out from the system	Done	Na'im

BusNow: Parents and Students Side app			
FR ID	**Functional Requirements**	**Status**	**Person-in-Charge**
FR-P1	**Parent is allowed to register an account**	**Done**	**Amin**
FR-P1.1	Parent shall register using IC number, name, email, contact number, home address, and password	Done	Amin
FR-P1.2	Parent shall add one or more children	Done	Amin
FR-P1.3	Child data shall include name and IC number	Done	Amin
FR-P1.4	School selection shall be from existing schools added by admin	Done	**Amin**
FR-P1.5	Parent shall log in using IC and password	Done	Amin
FR-P1.6	Student shall log in using IC and parent's password	Done	Amin
FR-P2	**Parent is allowed to log in**	Done	Amin
FR-P2.1	Parent shall log in using IC and password	Done	Amin
FR-P2.2	System shall display login result	Done	Amin
FR-P2.3	Upon success, parent shall access Monitor, Drivers, and Profile tabs	Done	Amin
FR-P3	**Parent is allowed to select driver**	**Done**	**Amin**
FR-P3.1	Parent shall select child	Done	Amin
FR-P3.2	System shall list available verified drivers in service area	Done	Amin
FR-P3.3	Parent shall view driver details including monthly fee	Done	Amin
FR-P3.4	Parent shall proceed to payment	Done	Amin
FR-P3.5	Driver approval is required before service starts	Done	Amin
FR-P3.6	One student shall only have one active driver	Done	Amin
FR-P4	**Parent is allowed to monitor service**	**Done**	**Amin**
FR-P4.1	Parent shall see message if no driver is assigned	Done	Amin
FR-P4.2	Parent shall monitor selected child	Done	Amin
FR-P4.3	Parent shall view live driver location	Done	Amin
FR-P4.4	Parent shall view boarding status	Done	Amin
FR-P5	**Parent is allowed to manage profile**	**Done**	**Amin**
FR-P5.1	Parent shall view profile	Done	Amin
FR-P5.2	Parent shall edit profile except address after service starts	Done	Amin
FR-P5.3	Parent shall manage children information	Done	Amin
FR-P5.4	Parent shall print student QR if needed	Done	Amin
FR-P5.5	Parent shall receive notifications	Done	Amin
FR-P5.6	Parent shall receive fee renewal reminders	Done	Amin
FR-S1	**Student is allowed to log in**	**Done**	**Amin**
FR-S1.1	Student shall log in using IC and parent's password	Done	Amin
FR-S1.2	System shall show login result	Done	Amin
FR-S1.3	Student shall access home page upon success	Done	Amin
FR-S2	**Student is allowed to manage boarding**	**Done**	**Amin**
FR-S2.1	Student shall scan driver QR to update boarding status	Done	Amin

BusNow Driver: Admin			
FR ID	**Functional Requirements**	**Status**	**Person-in-Charge**
FR-A1	**Admin is allowed to log in to the system**		Hanif
FR-A1.1	The system shall allow admin to log in using a fixed username and password		Hanif
FR-A1.2	Admin authentication credentials shall be stored and authenticated using Firebase		Hanif
FR-A1.3	The system shall display a success or failure message after login		Hanif
FR-A1.4	The system shall allow admin to change the username and password within the Admin app		Hanif
FR-A2	**Admin is allowed to manage schools**		Hanif
FR-A2.1	The system shall allow admin to create a new school		Hanif
FR-A2.2	Each school shall have an auto-generated unique ID		Hanif
FR-A2.3	School data shall include school name, school type (primary or secondary), and address		Hanif
FR-A2.4	The system shall allow admin to select school location (latitude and longitude) by searching and choosing on a map		Hanif
FR-A2.5	The system shall allow admin to view all schools		Hanif
FR-A2.6	The system shall allow admin to update school information		Hanif
FR-A2.7	The system shall allow admin to delete a school		Hanif
FR-A3	**Admin is allowed to manage buses**		Hanif
FR-A3.1	The system shall allow admin to create a new bus		Hanif
FR-A3.2	Each bus shall use plate number as a unique identifier		Hanif
FR-A3.3	Bus data shall include plate number and seating capacity		Hanif
FR-A3.4	The system shall allow admin to view bus information		Hanif
FR-A3.5	The system shall allow admin to update bus information		Hanif
FR-A3.6	The system shall allow admin to delete a bus		Hanif
FR-A4	**Admin is allowed to manage drivers**		Hanif
FR-A4.1	The system shall allow admin to create a new driver		Hanif
FR-A4.2	Driver data shall include IC number, name, email, contact number, password, and monthly fee		Hanif
FR-A4.3	The system shall allow admin to assign a bus to a driver		Hanif
FR-A4.4	The system shall allow admin to assign one or more schools to a driver		Harun
FR-A4.5	Assigned schools shall be of the same school type (primary or secondary only)		Harun
FR-A4.6	The system shall allow admin to define the driver's service area by selecting a map location and service radius		Harun
FR-A4.7	The system shall allow admin to update driver information		Harun
FR-A4.8	The system shall allow admin to delete driver information		Harun
FR-A5	**Admin is allowed to verify drivers registered via the Driver app**		Harun
FR-A5.1	The system shall display a list of drivers pending verification		Harun
FR-A5.2	The system shall allow admin to review driver registration details including monthly fee		Harun
FR-A5.3	The system shall allow admin to assign a bus to the driver		Harun
FR-A5.4	The system shall allow admin to assign one or more schools of the same type to the driver		Harun
FR-A5.5	The system shall allow admin to define driver service area using map and radius		Harun
FR-A5.6	The system shall allow admin to verify or reject the driver		Harun
FR-A5.7	Only verified drivers shall be visible in the Parent application		Harun
FR-A6	**Admin is allowed to manage parents and students**		Harun
FR-A6.1	The system shall allow admin to create parent accounts		Harun
FR-A6.2	The system shall allow admin to create student accounts under parents		Harun

FR-A6.3	Student school selection shall only allow existing schools added by admin		Harun
FR-A6.4	The system shall allow admin to view parent and student records		Harun
FR-A6.5	The system shall allow admin to update parent and student information		Harun
FR-A6.6	The system shall allow admin to delete parent or student records		Harun
FR-A7	**Admin is allowed to manage system settings**		Harun
FR-A7.1	The system shall allow admin to update the operator bus starting address		Harun
FR-A7.2	The system shall allow admin to update operator location by selecting on a map		Harun