

# **Task Management Flutter App with Back4App**

PREPARED BY:

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# Project Overview

This project is a **Flutter-based mobile application** that integrates with **Back4App (Parse Server)** to manage user authentication and task data via cloud storage.

The app allows users to:

- **Sign Up and Log In** using email and password
- **Persist user sessions** securely using Back4App's built-in session management
- **Create, Read, Update, and Delete (CRUD)** task records
- Filter tasks by **status** (All, Pending, In Progress, Completed)
- Log out from their account securely via a **drawer-based logout option**

# Project Overview

## ► Key Components:

- **Flutter (Frontend):** UI design, navigation, form handling, and API integration
- **Back4App (Backend):** User authentication and database operations using Parse SDK
- **Parse SDK:** Handles all interaction with the Back4App server including login, session, and object management

## ► Highlights:

- Clean and responsive UI with Material Design components
- Form validation for both login/signup and task creation
- Effective error handling with SnackBars and field-level validation
- Modular code with separation of concerns for services and UI
- Code is ready for GitHub/GitLab upload and academic evaluation

# Features

## 1) User Authentication:

- Sign Up, Login, Session Management

## 2) CRUD Operations:

- Add, View, Update, Delete tasks

## 3) UI/UX:

- Modern design, Drawer with logout, Filtering, Validation

# Architecture of the Solution

## 1. Frontend: Flutter (Client-Side)

- ❖ Built using the **Flutter SDK** and **Dart programming language**.
- ❖ Handles:
  - **UI Rendering:** Login, signup, task lists, forms, filters, dialogs
  - **User Input Validation:** Ensures data (like email, password, task fields) is correct before submission
  - **Navigation & Session Flow:** Transitions between login, task pages, and logout
  - **State Management:** StatefulWidget and internal state for forms and task filtering

# Architecture of the Solution

## 2. Backend: Back4App (Parse Server)

- ❖ Hosted on **Back4App**, using a **Parse Server** instance.
- ❖ Manages:
  - **User Accounts**: Registration, login, session tokens
  - **Task Data (CRUD)**: Stores and serves task records (title, description, due date, status, owner)
  - **Session Persistence**: Uses `ParseUser.currentUser()` to keep users logged in across sessions

# Flow Summary

- 1) User launches the app → sees Login or is auto-logged in
- 2) On login/signup → session token is saved and user navigates to task list
- 3) Tasks are queried using Parse SDK based on user ownership
- 4) CRUD operations update the cloud database in real time
- 5) Logout clears session and returns the user to login screen

# User Authentication

## ❑ Sign Up (Registration)

- The user enters their **username, email, and password**.
- The app calls: `ParseUser().signUp()`
- Back4App Creates a new user object in the. generates a **session token**
- Stores the user credentials securely in the cloud
- If successful, a confirmation is shown and the user is directed to the login screen.



# User Authentication

## ❑ Login

- The user enters **email/username and password**
- The app calls: `ParseUser().login()`
- Back4App: Verifies credentials against the stored
- Returns a **session token** if successful
- The app stores this session allowing the user to remain logged in.

# User Authentication

## ❑ Session Management

- When the app starts, it checks for an existing logged-in user: `ParseUser.currentUser()`
- If a user is found, they are automatically redirected to the main screen (task list).
- This allows **persistent login sessions** across app launches.

## ❑ Logout

- The user can log out from the app, which calls: `ParseUser().logout()`
- This invalidates the current session token and removes the local user session, forcing re-authentication.

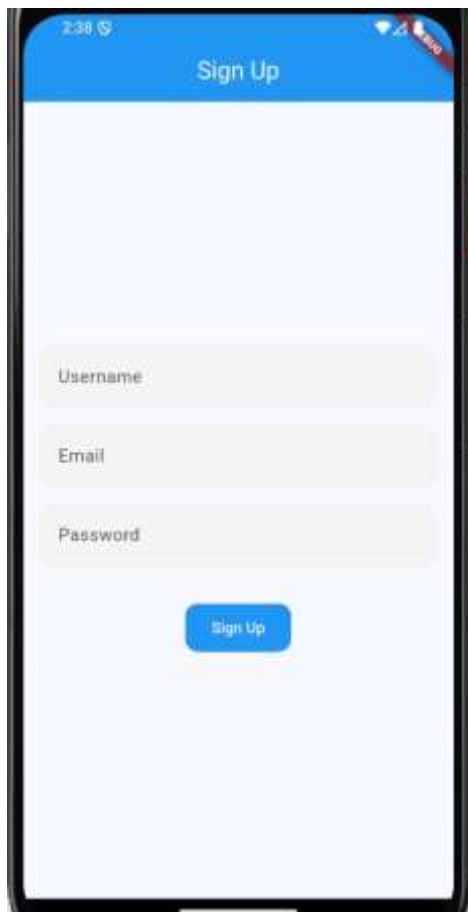
# Tools & Frameworks

- ❖ Flutter (Frontend)
- ❖ Dart (Programming Language)
- ❖ Back4App (Backend as a Service)
- ❖ Parse SDK for Flutter
- ❖ GitHub for version control

# Key Challenges & Solutions

- ❖ Session Handling: Handled with `ParseUser.currentUser()`
- ❖ Error Handling: User-friendly `SnackBars`
- ❖ Task Filtering: Dynamic dropdown + fetch

# Sign Up Screenshots



2:38

Sign Up

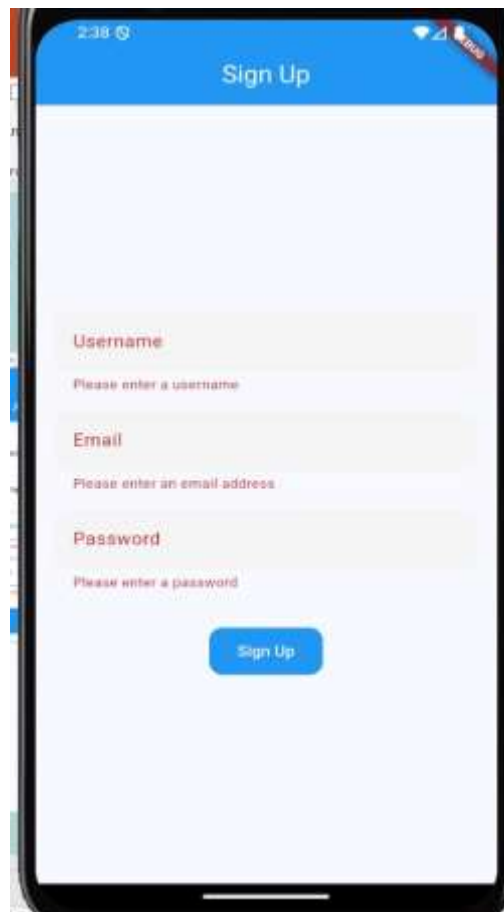
Username

Email

Password

Sign Up

This screenshot shows the initial 'Sign Up' screen. It features a blue header with the title 'Sign Up' and a status bar at the top showing the time 2:38. Below the header, there are three empty text input fields for 'Username', 'Email', and 'Password'. At the bottom, there is a blue button labeled 'Sign Up'.



2:38

Sign Up

Username

Please enter a username

Email

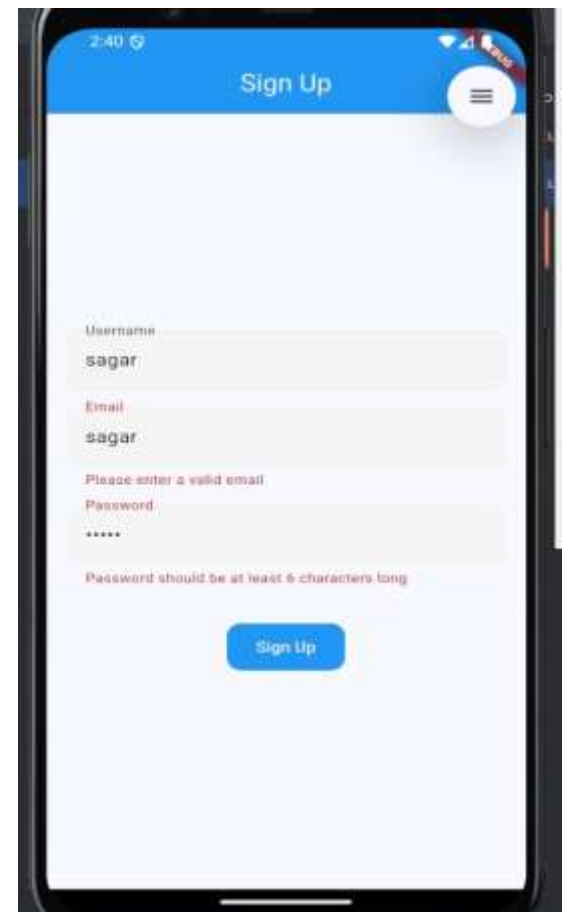
Please enter an email address

Password

Please enter a password

Sign Up

This screenshot shows the 'Sign Up' screen with validation errors. The 'Username', 'Email', and 'Password' fields are highlighted with red borders. Below each field, there is a red error message: 'Please enter a username' for Username, 'Please enter an email address' for Email, and 'Please enter a password' for Password. The blue 'Sign Up' button remains at the bottom.



2:40

Sign Up

Username

sagar

Email

sagar

Please enter a valid email

Password

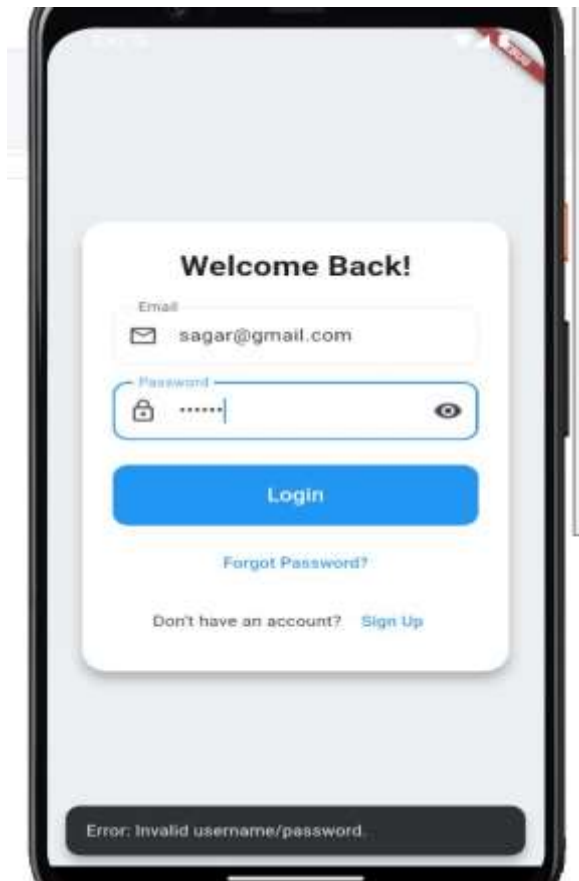
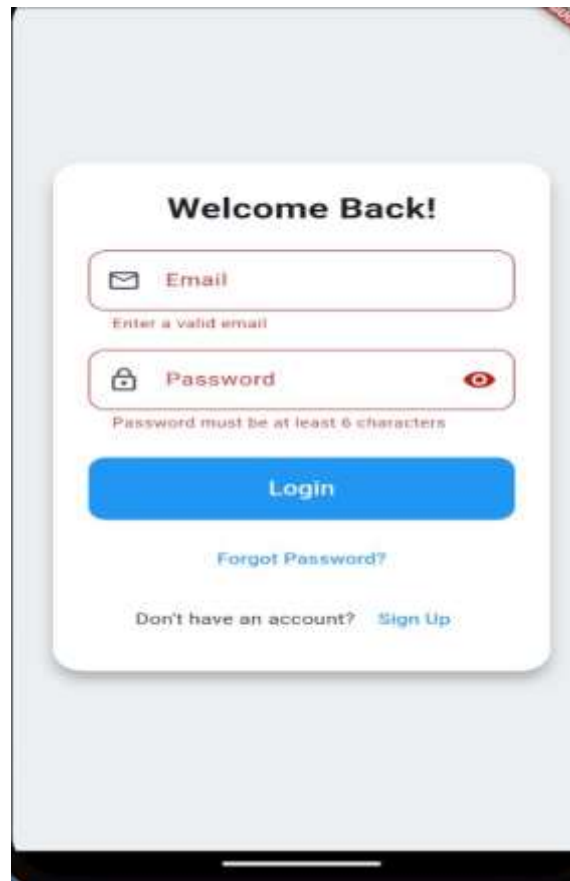
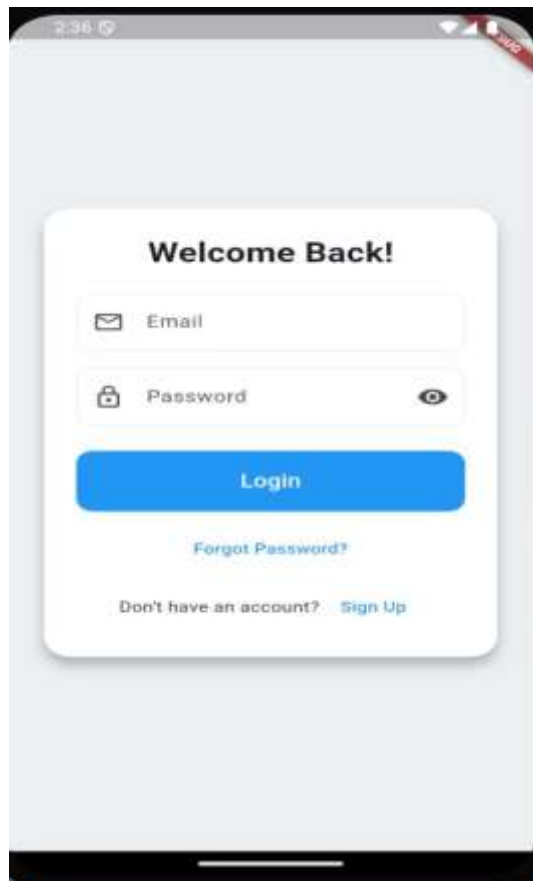
\*\*\*\*\*

Password should be at least 6 characters long

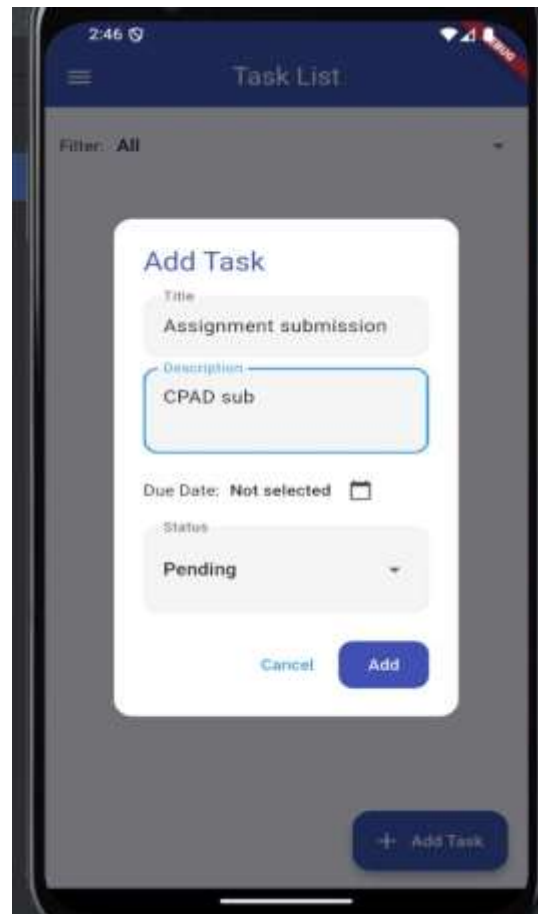
Sign Up

This screenshot shows the 'Sign Up' screen with a menu icon (three horizontal lines) in the top right corner. The 'Username' field is filled with 'sagar'. The 'Email' field is filled with 'sagar' and has a red error message 'Please enter a valid email' below it. The 'Password' field is filled with six asterisks '\*\*\*\*\*' and has a red error message 'Password should be at least 6 characters long' below it. The blue 'Sign Up' button is at the bottom.

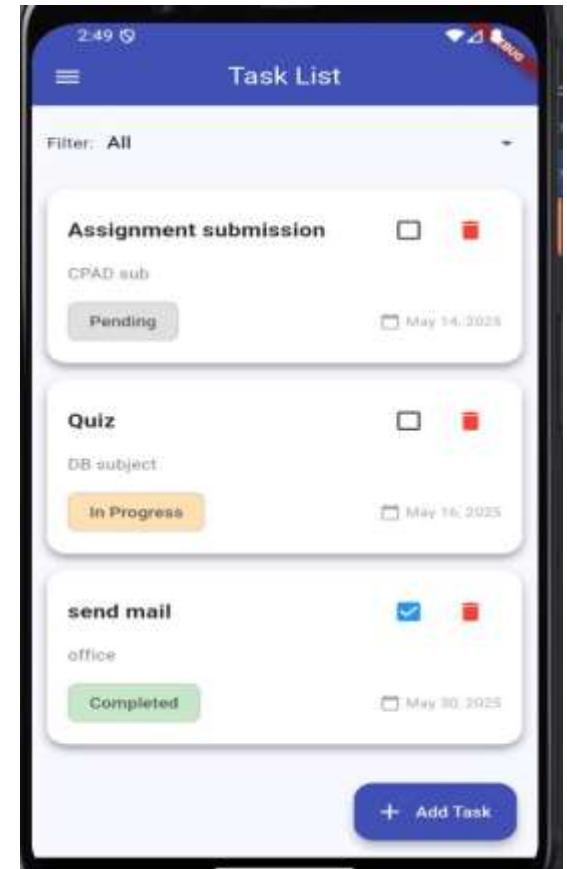
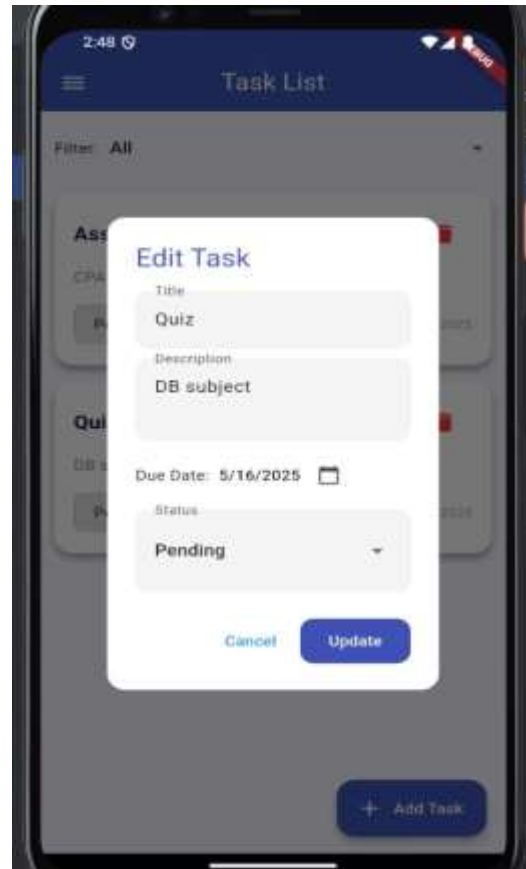
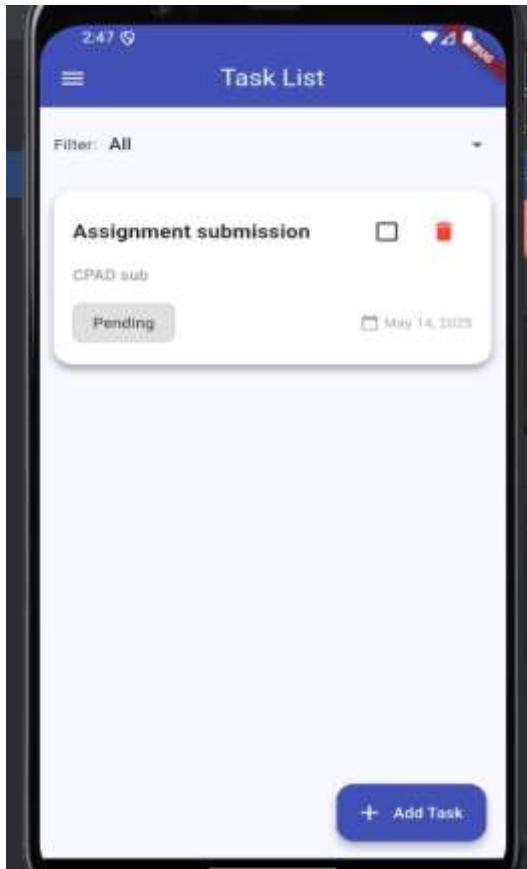
# Log-in Screenshots



# My Task Screenshots

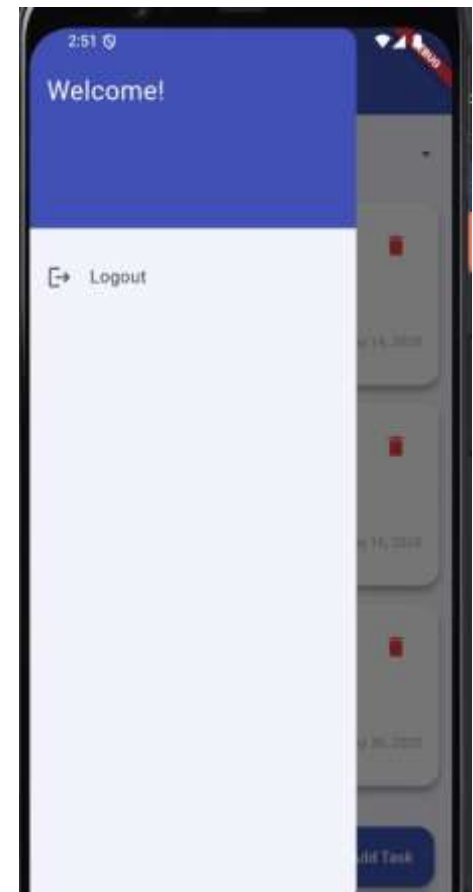
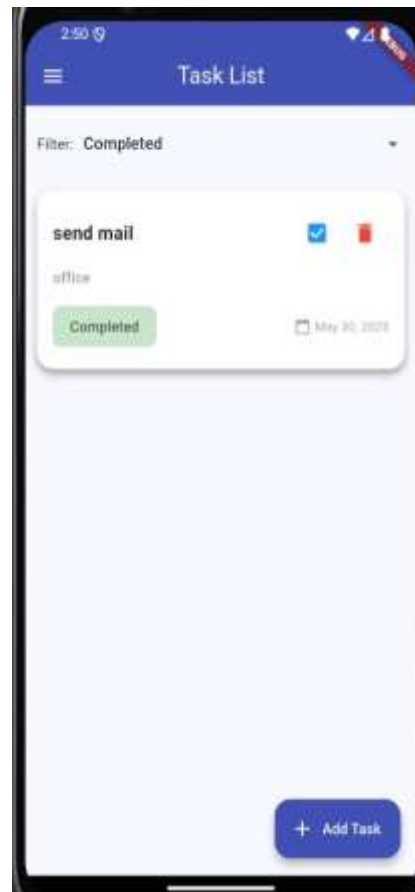


# My Task Screenshots





# My Task Screenshots



# Back4App DB Screenshots

back4app

TaskManagementApp

Database

LINE	LINE	DESCRIPTION	DueDate	Status	QML	IsDone
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2	2	2	2	2	2	2
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back4app

TaskManagementApp

Database

updatedAt	authData	username	createdAt	password	email
11 May 2018 at 09:11	(updated from)	sagaa	11 May 2018 at 09:11	(hidden)	sagaa@gmail.com

# Links

✓ Repo link: Github

✓ Demo video link: YouTube



Thank you

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