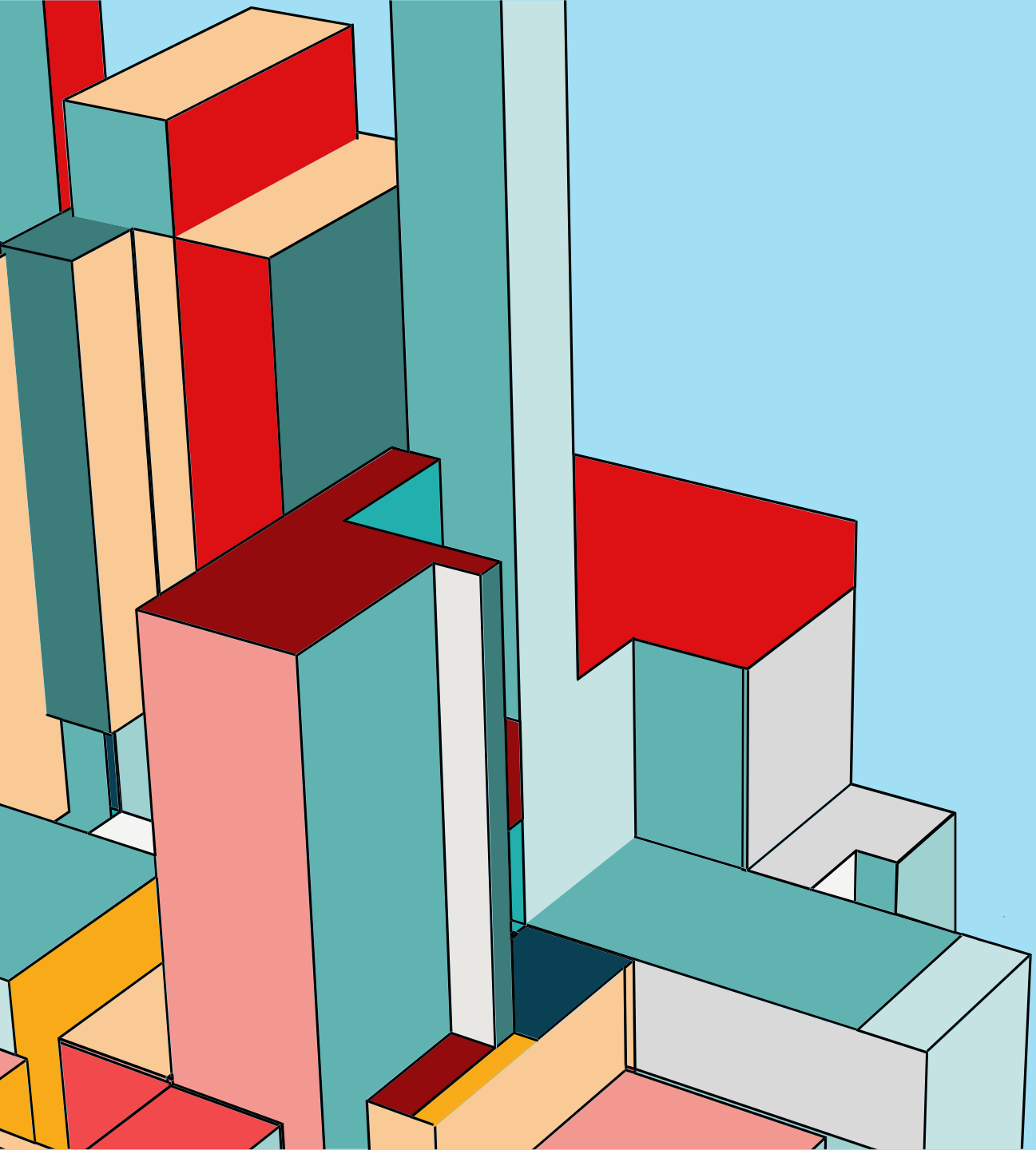
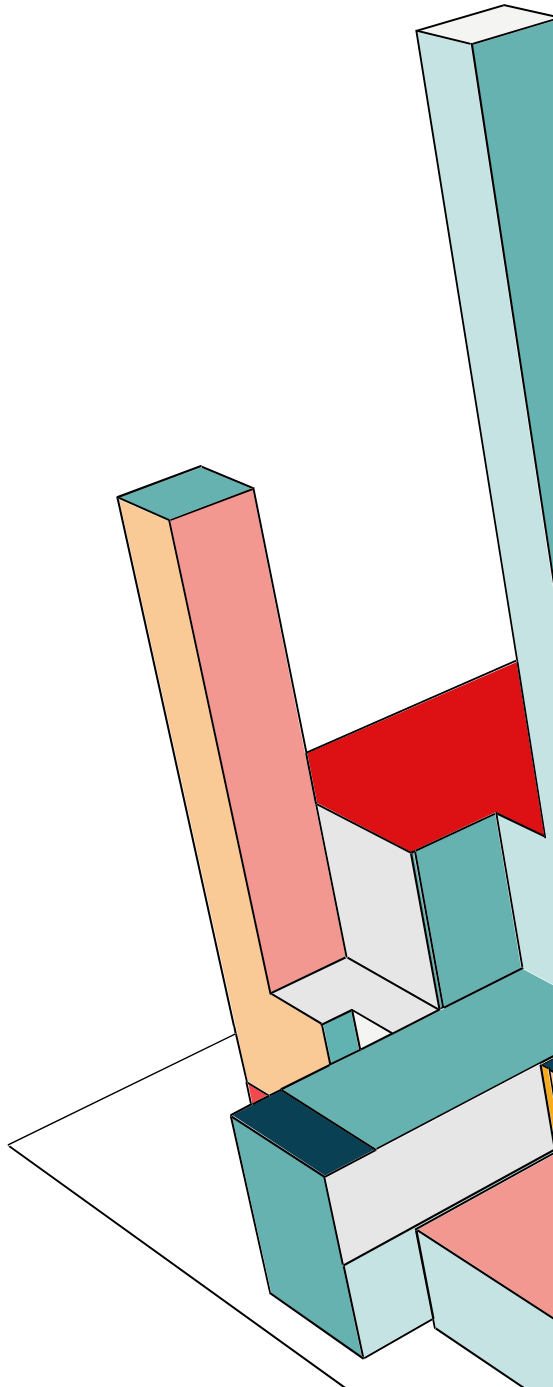


FIRE BASE

SUBMITTED BY
RAHULRAJ PS

TEAM 3
GUIDE – SIJI B

•RDBMS works well with structured data (tables, rows, and columns), but it struggles with handling large amounts of unstructured data like multimedia files.
•Querying, storing, and retrieving random or large-scale data efficiently can be difficult in RDBMS.



AGENDA

- RDBMS works well with structured data (tables, rows, and columns), but it struggles with handling large amounts of unstructured data like multimedia files.
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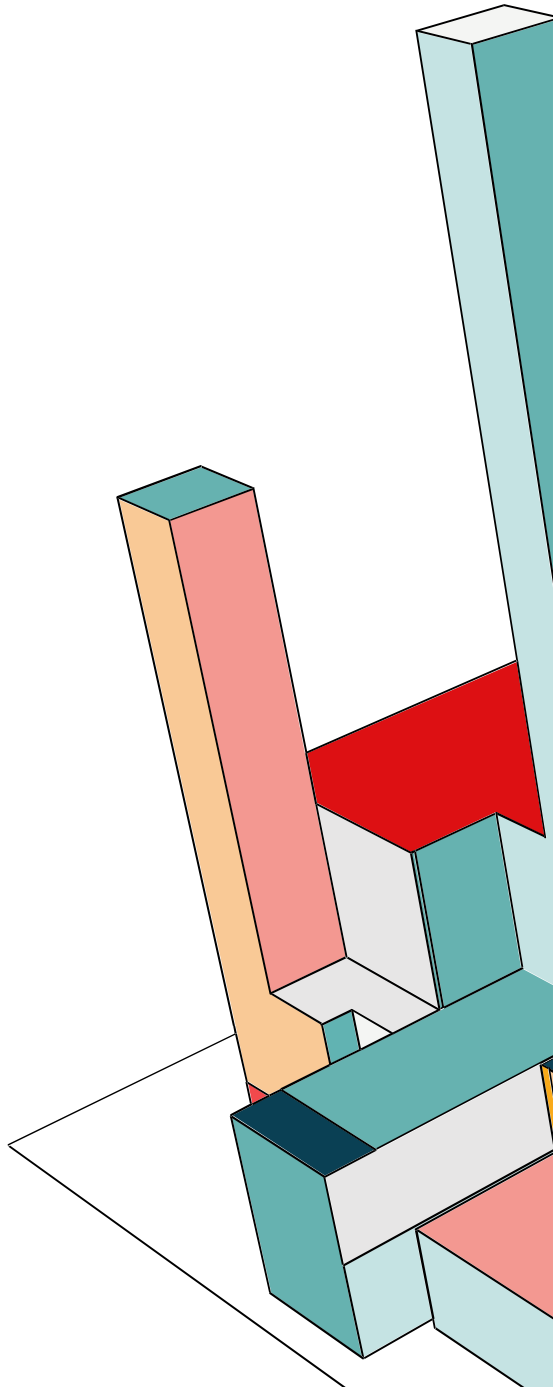

- Firebase is a **NoSQL cloud-based database** that allows developers to store and manage large amounts of real-time data efficiently.
- It is **faster** than RDBMS when dealing with dynamic, unstructured, and multimedia content

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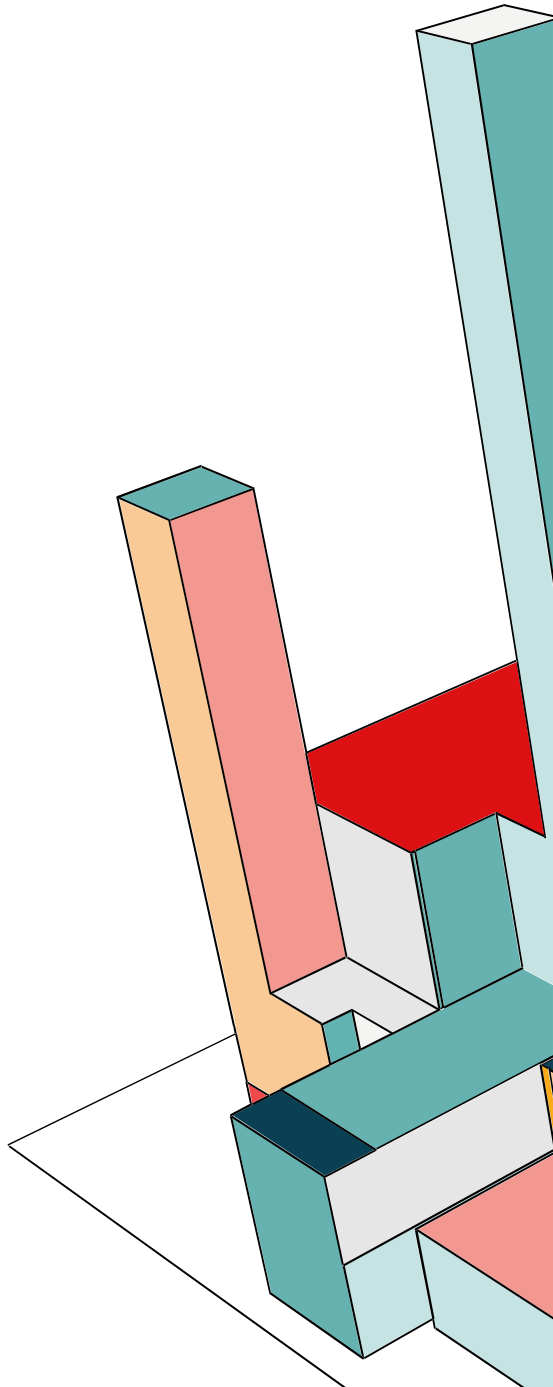


How Firebase Analytics Works

1.Tracks User Behavior

1. It automatically collects **basic events** like app installs, app opens, and user engagement.
2. Developers can also define **custom events** (e.g., when a user makes a purchase, watches a video, or clicks a button).

2.Provides Insights

1. Firebase Analytics generates **reports** to help developers understand:
    1. How many users are using the app
    2. How long users stay in the app
    3. Which app features are used the most
    4. Where users drop off (leave the app)

3.Helps with Decision Making

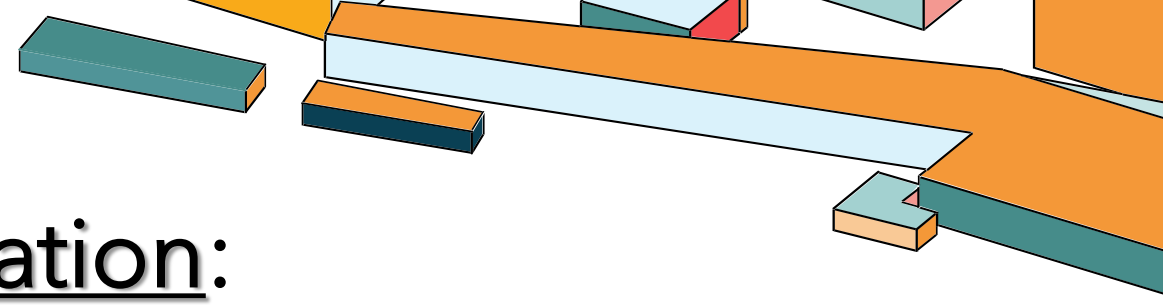
1. Developers can analyze the data to **improve app performance** and **optimize marketing campaigns**.
2. Example: If Analytics shows that most users leave after reaching a certain screen, developers can fix issues on that screen to improve retention.

Firebase Authentication simplifies the process of adding **secure login** and **user management** to an application. Here's how it makes authentication easier for developers:

Traditional authentication requires developers to:

- Set up a database to store user credentials.
- Handle **password encryption and security** manually.
- Implement **session management** to keep users logged in.
- Create a user **verification and password reset** system.

SPEAKING IMPACT



With Firebase Authentication:

- Firebase provides a **pre-built, secure authentication system**.
- No need to manually handle **password hashing or encryption**– Firebase does it automatically.
- Firebase **manages user sessions** and keeps users logged in across app restarts.

CLOUD MESSAGING

Firebase Cloud Messaging (FCM) is a free cloud-based service that allows developers to send messages and notifications to Android, iOS, and web applications.
It helps businesses engage users by sending real-time messages, such as:

- Push notifications (e.g., "New message received!")
- In-app messages (e.g., "Special offer available!")
- Data messages (e.g., syncing app data in the background)

What is Firebase Cloud Messaging (FCM)?

Firebase Cloud Messaging (FCM) is a **free** cloud-based service provided by Google that allows apps to send **push notifications and messages** to users across multiple platforms (Android, iOS, and Web).

How FCM Works?

1. **App Registers with FCM**
    1. The mobile app (Android, iOS, or Web) registers with Firebase to receive messages.
    2. Firebase assigns a unique **token** to each device.
2. **Server Sends Message via Firebase**
    1. The app's backend (server) sends a request to Firebase with the message and the device token.
3. **Firebase Delivers the Message**
    1. Firebase **routes the message** to the targeted device **even if the app is closed or running in the background**.
4. **Device Receives Notification**
    1. The app **displays a notification** or **processes the message in the background** depending on the type of message.

The **Firebase Realtime Database** is a **cloud-based NoSQL database** that allows applications to store and sync data **in real-time** across multiple users and devices.

CRASHLYTICS

Crash reporting tool that help users to report the crash thereby developers can track and analyse and fix

PERFORMANCE MONITORING

Help to analyse the speed and performance of their app ,help to identify the slow operations ,network delays

TEST LAB

Test their android apps across variety of devices

Different screen,os version

USE CASES

Fast Login Process

Custom Welcome Back Screen

Gradual feature Rollouts

BENEFIT OF FIREBASE

Support real time syncing

Scale Automatically

Functions offline

DRAWBACK

Advanced query may require external tools

Need additional back end services for complex analytics

THANK YOU