Open-Soft

Inter IIT Tech Meet

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Agenda

InfoX

- Problem Statement
- Our Approach
- Features
- User Interface
- System Architecture and Diagram
- Tools and Libraries Used

3RD INTER IIT TECHMEET 2015 KHARAGPUR

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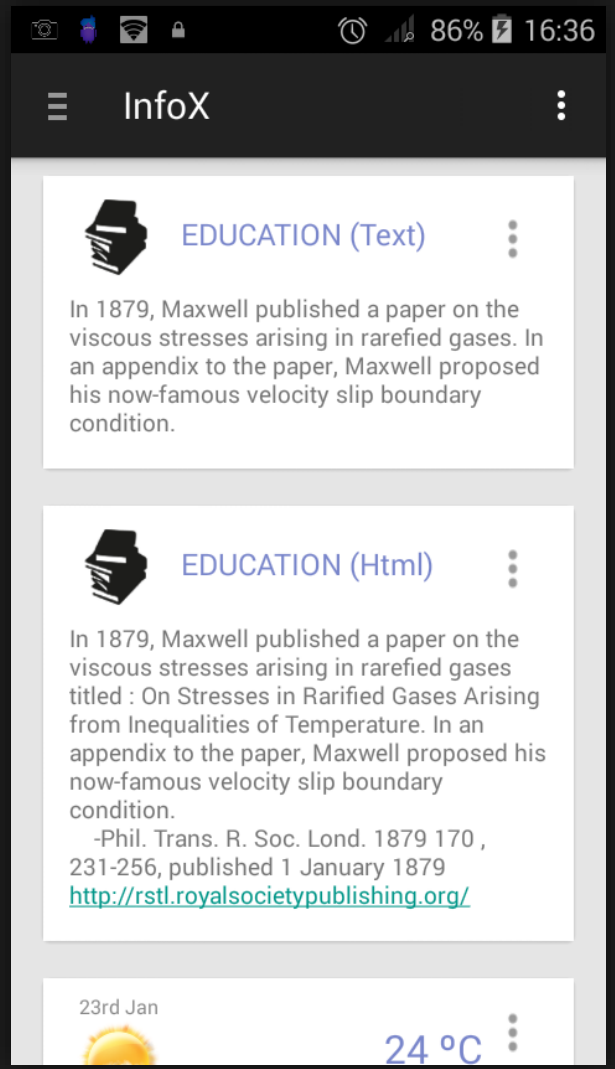
Problem Statement

- Powering rural regions through smartphones with sparse or limited network connections.
- Mobile phones penetration has increased significantly in rural India over past few years.
- However phones have sporadic data connection (1-4 hrs. of connectivity) with an average speed of 56 Kbps.
- Under such constraints one has to provide rich text content like Weather, Educational content , videos (size : 3 – 8 MB) and audio.

Agenda

Our Approach

- Android Application (62% global market share)#
  - Easily Accessible
    - 20 billion text messages sent daily worldwide
    - 93 million "**selfies**" snapped each day
    - 1.5 trillion steps tracked per day
    - Phones are checked at least 100 billion times each day
  - Cost
    - ~6000₹ with latest OS
  - Development
    - Cross-Platform Support
    - Easy Debugging (Emulated / USB)



Google I/O 2014

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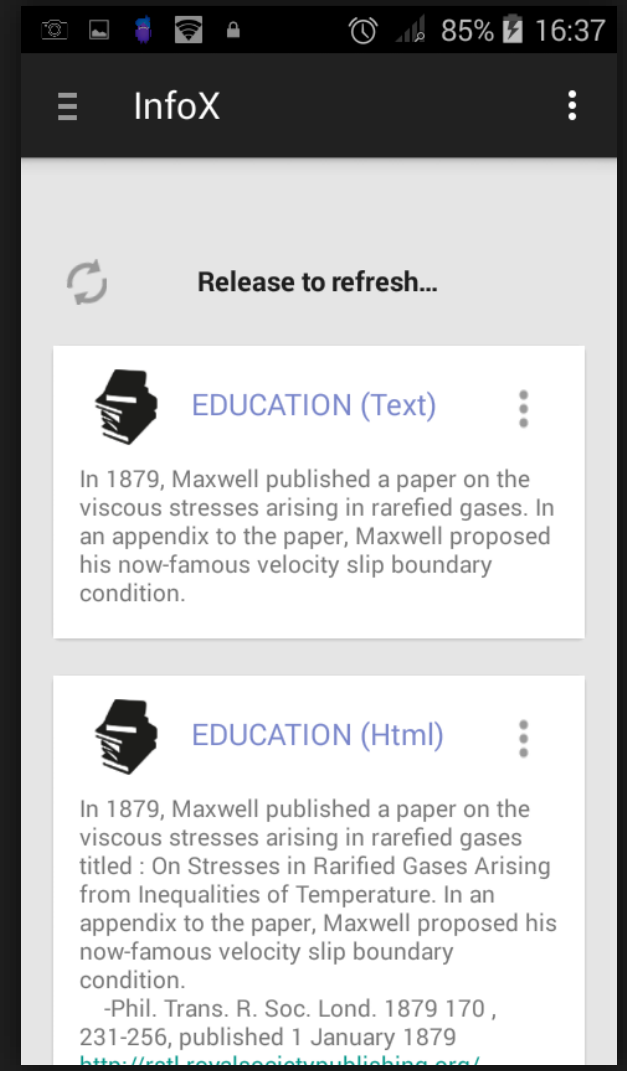
Our Approach

- Content delivery :
  - Through 2G /3G - Net Connectivity



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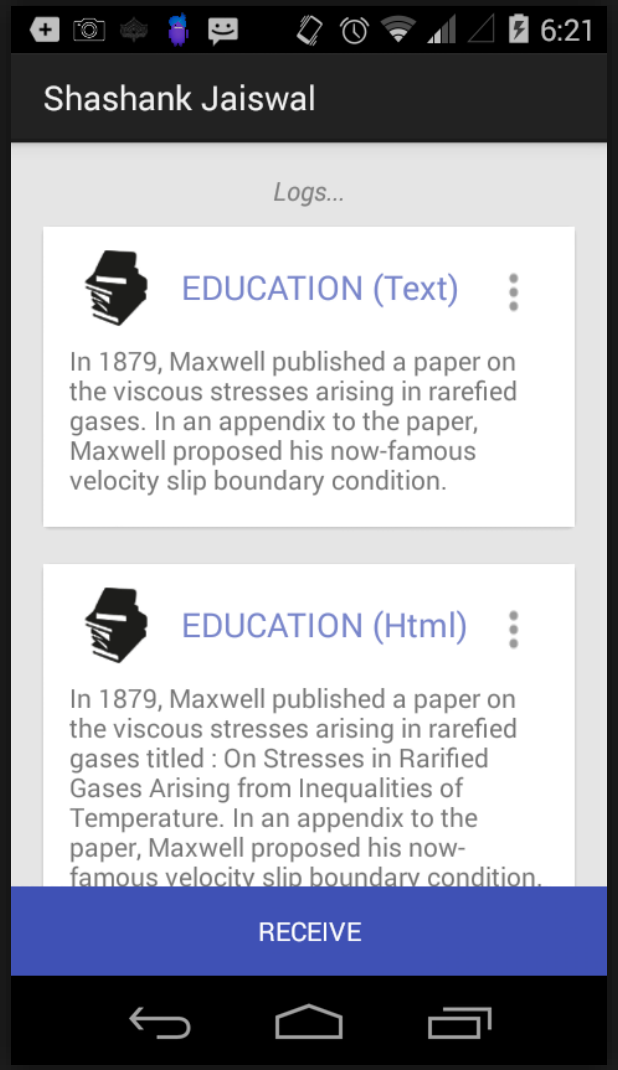
Our Approach

- Content delivery :
  - Through 2G-Net Connectivity
  - Peer to Peer Network Connectivity
    - All the contacts in a user device who also use the same application serves as a list of potential peers for that particular user.
    - Our idea is based on the concept of fetch and share i.e.
      - Once a device gets some data its peers need not to fetch the same data again.
      - And similarly if that device needs data and it is with one of his peers he need not to download it from server again.



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Our Approach

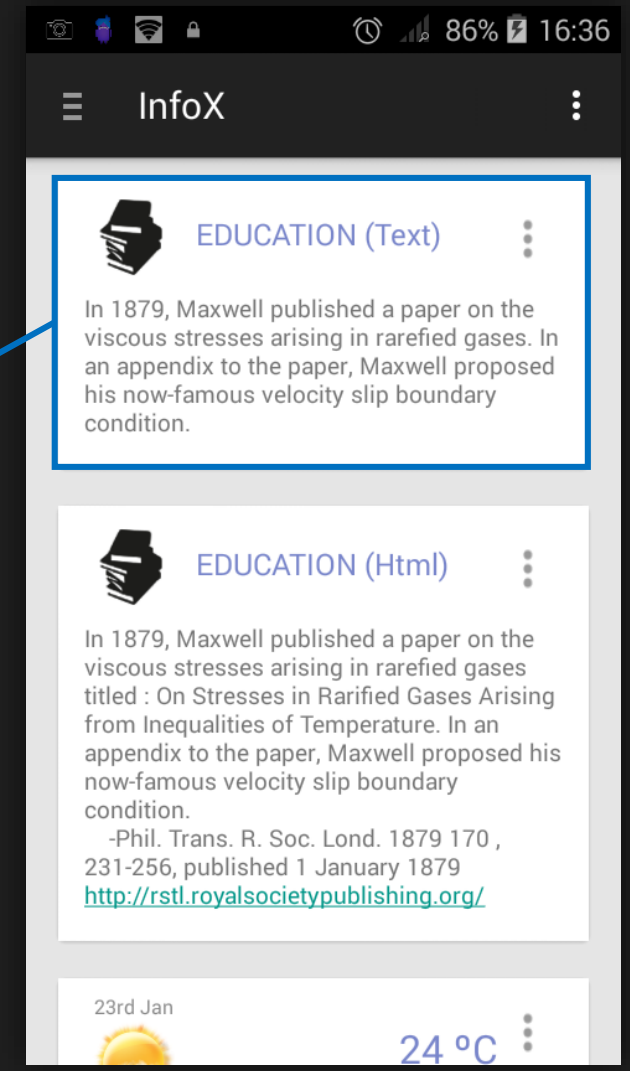
- Content delivery :
  - Peer to Peer Network Connectivity

content_id

1. Unique
2. Same on server Db and local Db

time_expiry

1. Local expired content gets deleted when user reconnects to server.
2. Content on the server is also deleted after expiry.



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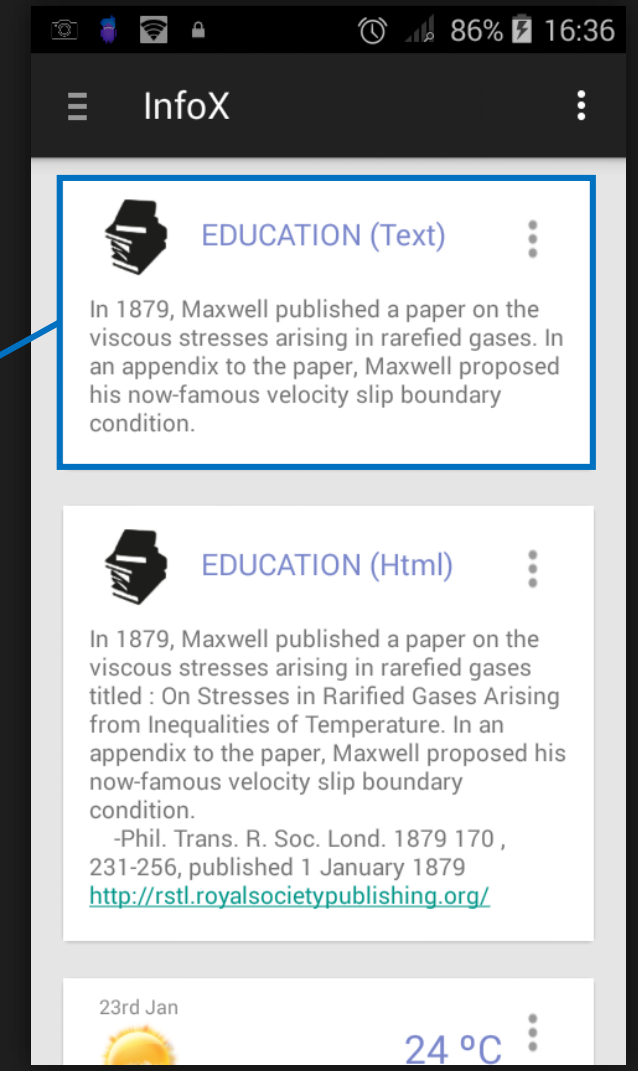
Features: A closer look

```
content_id : 1

time_expiry : 20150201232425

file_name : “”

time_added : 20150101232425

lang_id : “EN”

content_type_id : “tile_education”

category_id : “EDU”

file_path : “ < Content > ”
```



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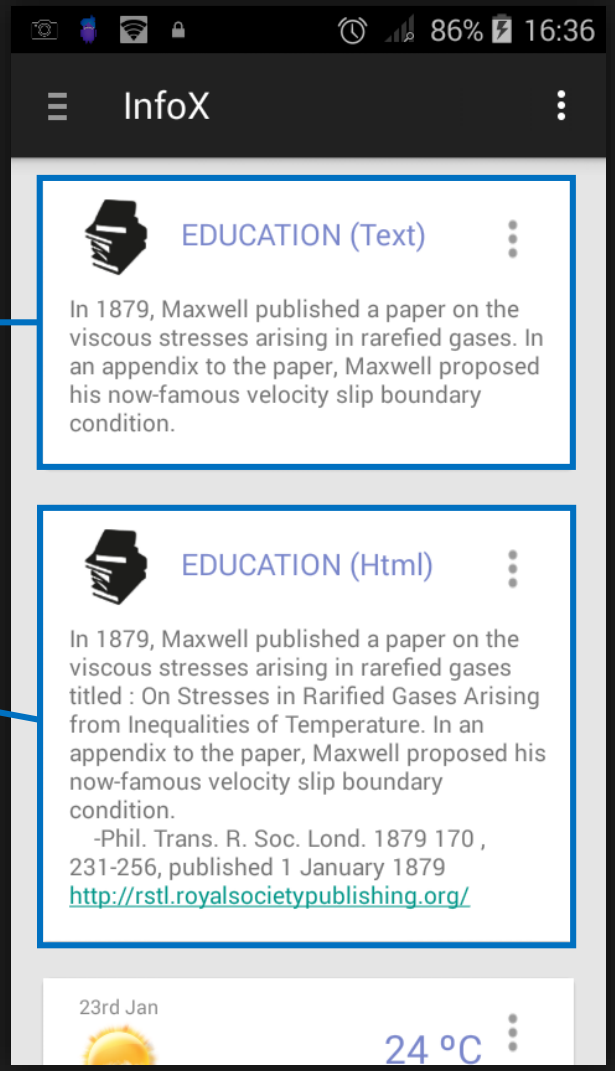
Features: A closer look

- Inbuilt Utilities :
  - Text Reader
  - HTML Parser



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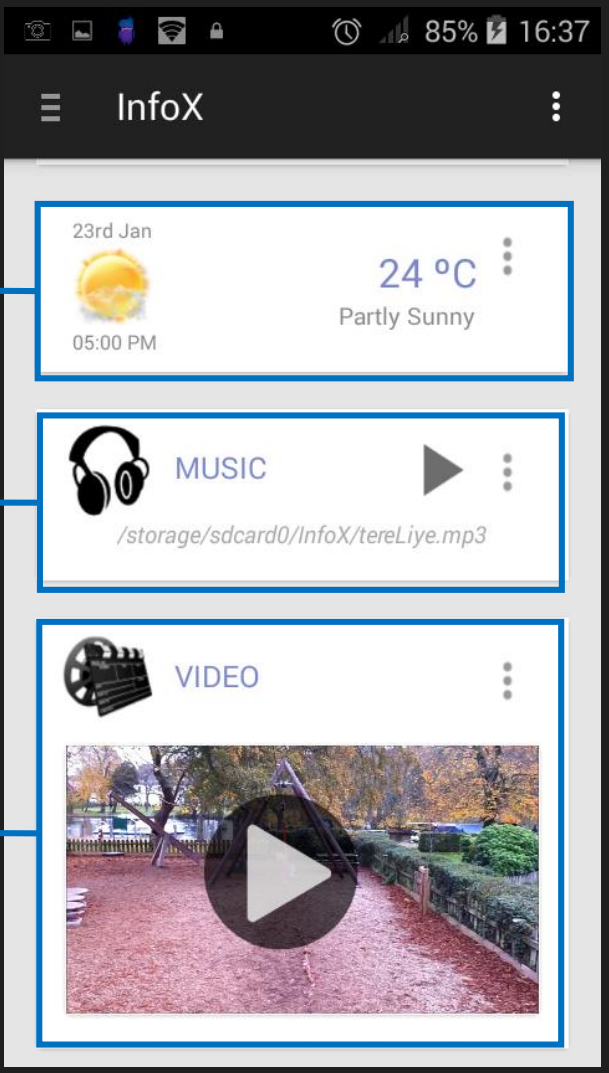
Features: A closer look

- Inbuilt Utilities :
  - Weather Content Reader
  - Audio Content Renderer
  - Video Content Renderer



Features: A closer look

- Inbuilt text, html, audio, video, weather readers.
- Ability to set user preferences for different categories of content and fetch data from the server on that basis.
- Automatic connection to the backend server for fetching content whenever internet connection is available.
- Ability to share data among peers
  - to minimize dependence of the devices on the server and
  - also efficient resource utilization.
- The device advertises its own presence on Wi-Fi interfaces as well as performs automatic discovery of nearby peers.

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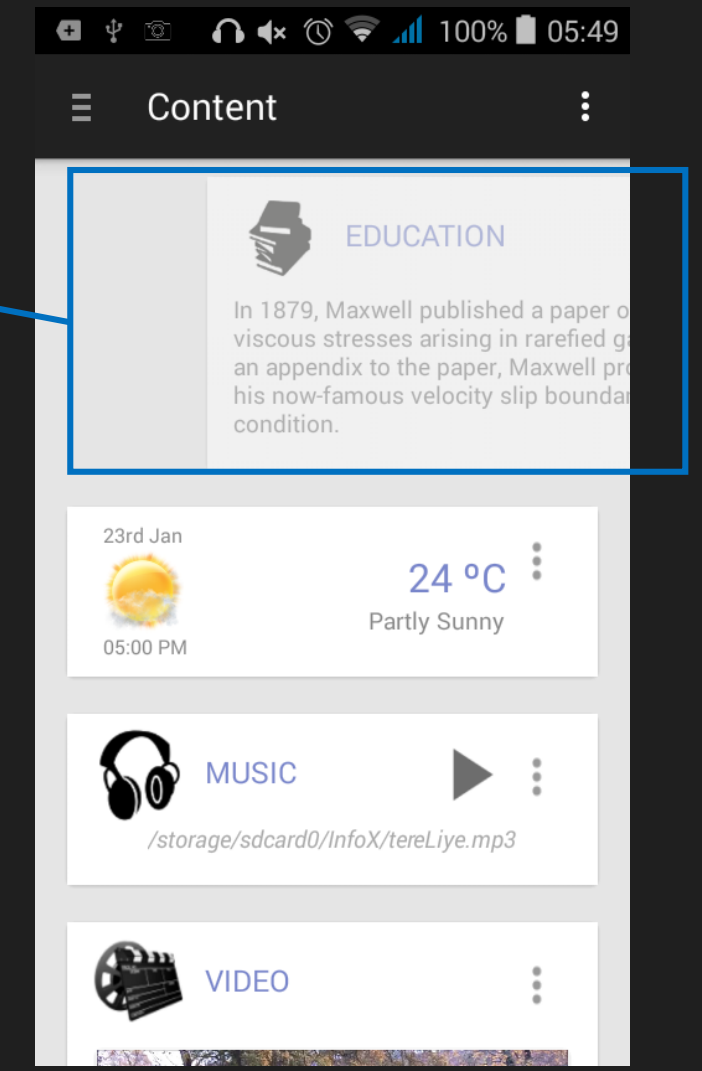
Interactive and Intuitive User Interface

- Swipe to Delete Temporarily / Permanently



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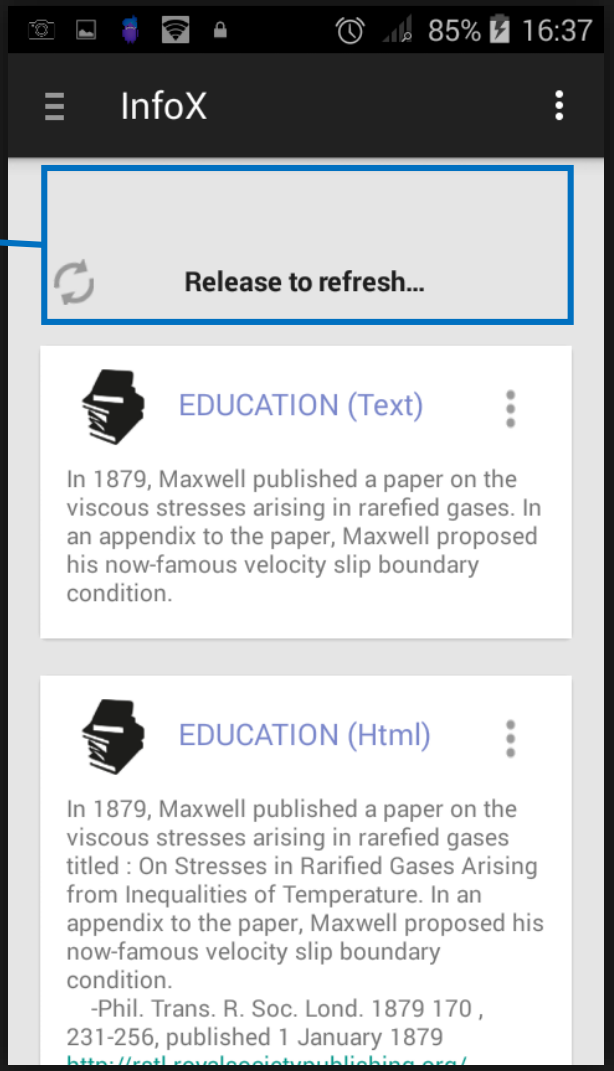
Interactive and Intuitive User Interface

- Pull and Release to Refresh



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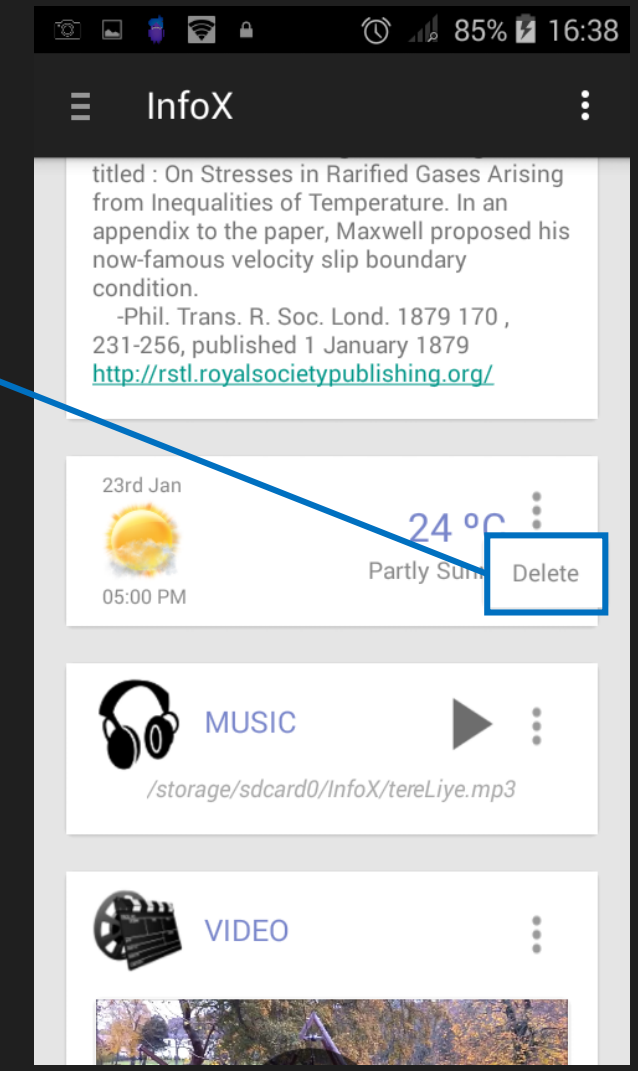
Interactive and Intuitive User Interface

- Dropdown associated with each content



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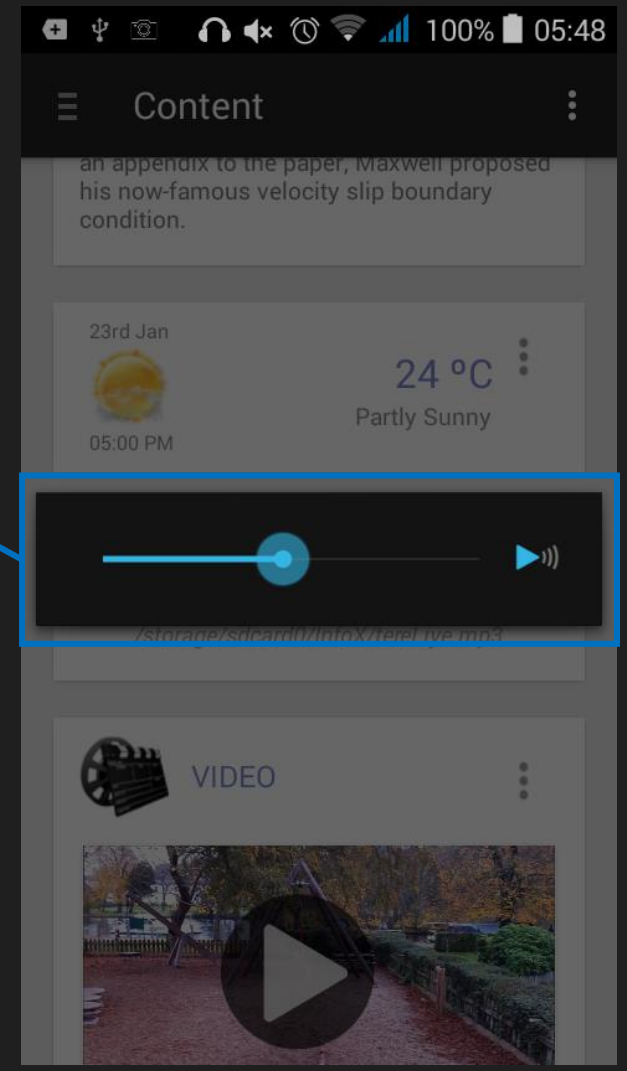
Interactive and Intuitive User Interface

- Audio Content Rendering



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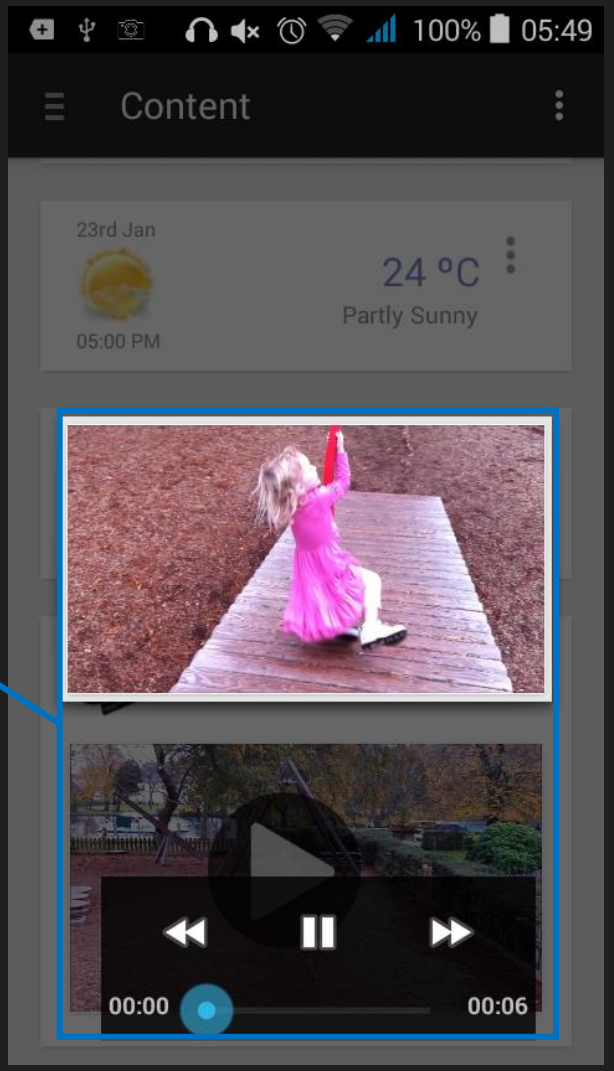
Interactive and Intuitive User Interface

- Video Content Rendering



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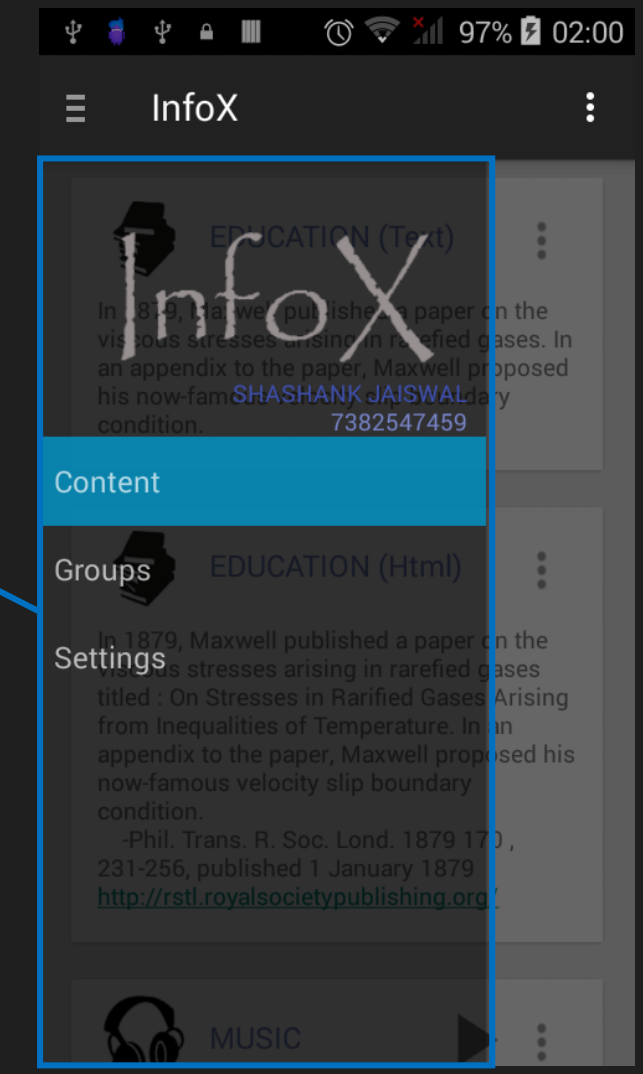
Interactive and Intuitive User Interface

- Side Panel for Easier Navigation



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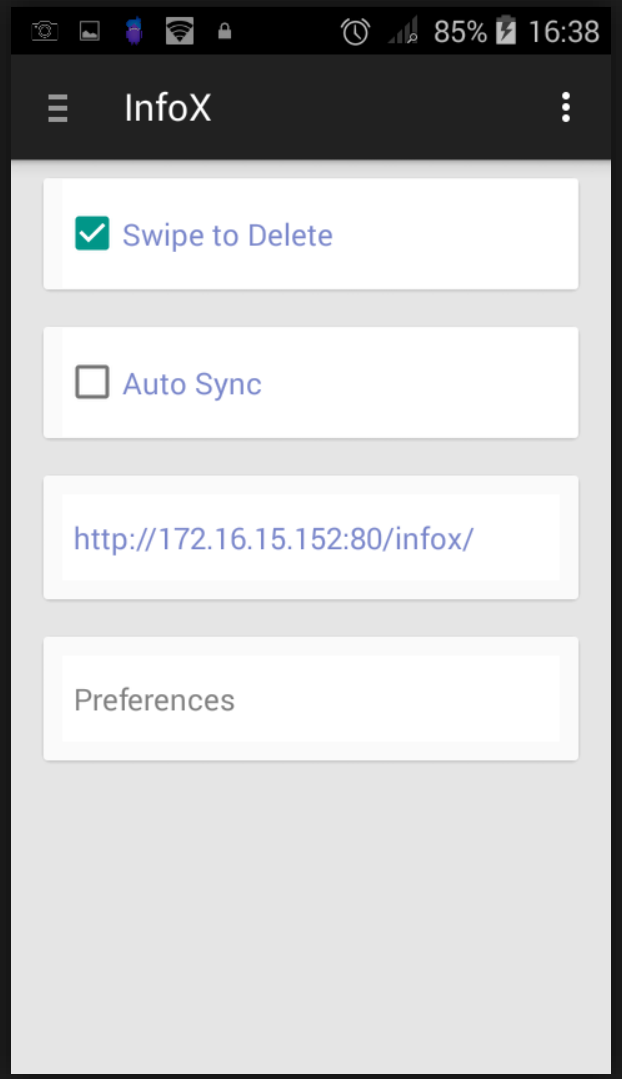
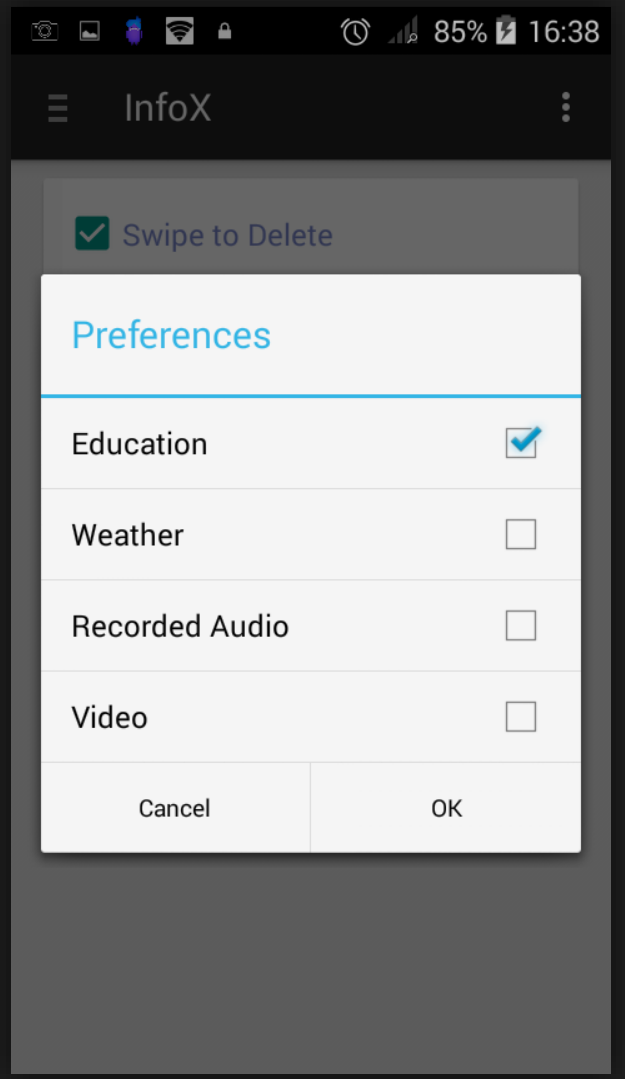
Interactive and Intuitive User Interface

- Settings Page
- Preferences Page





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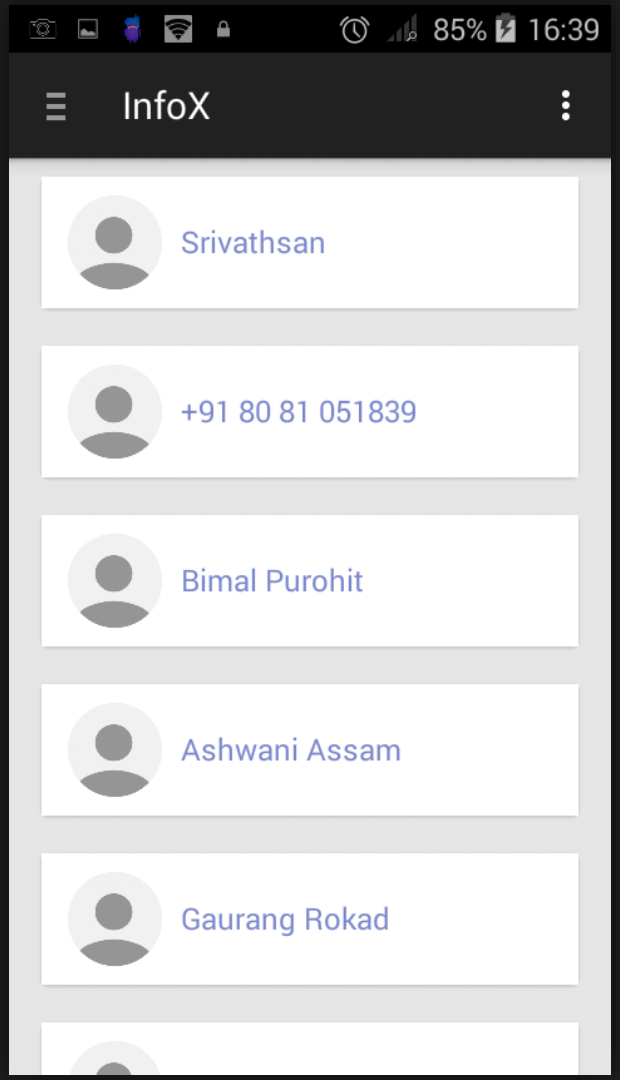
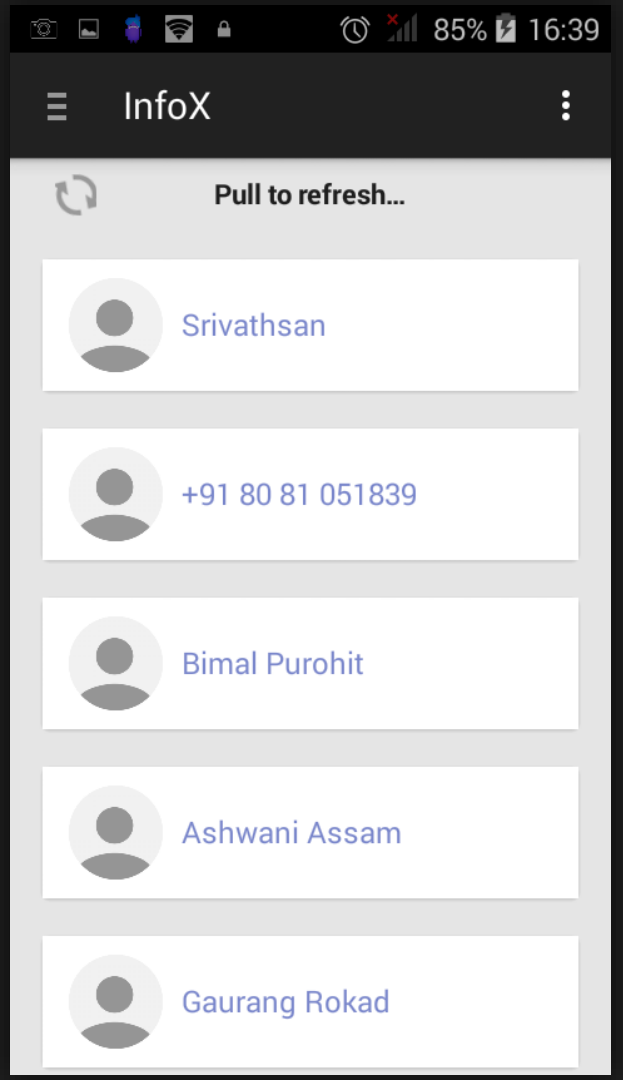
Interactive and Intuitive User Interface

- Contact List
- Pull to Refresh Contact List





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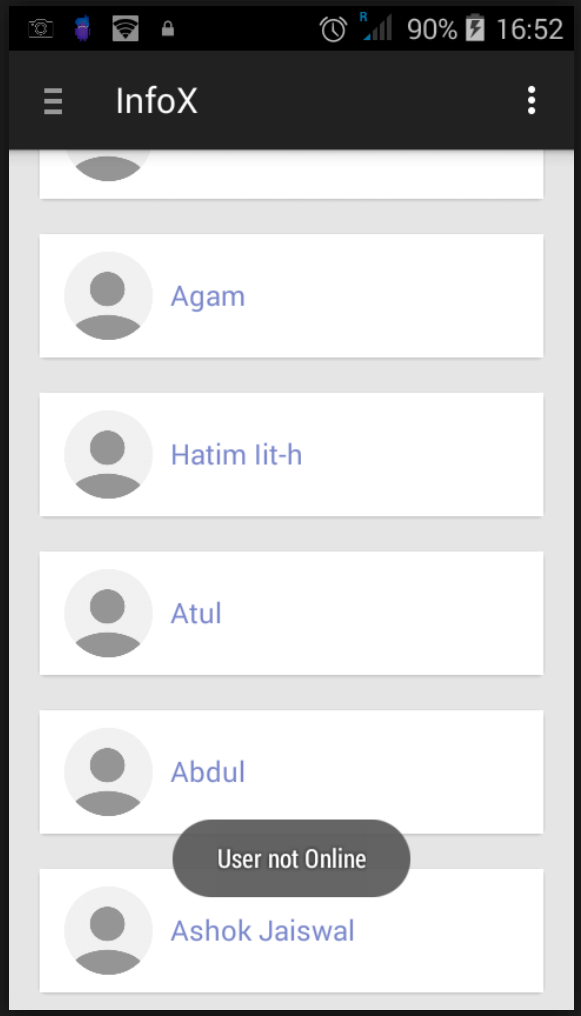
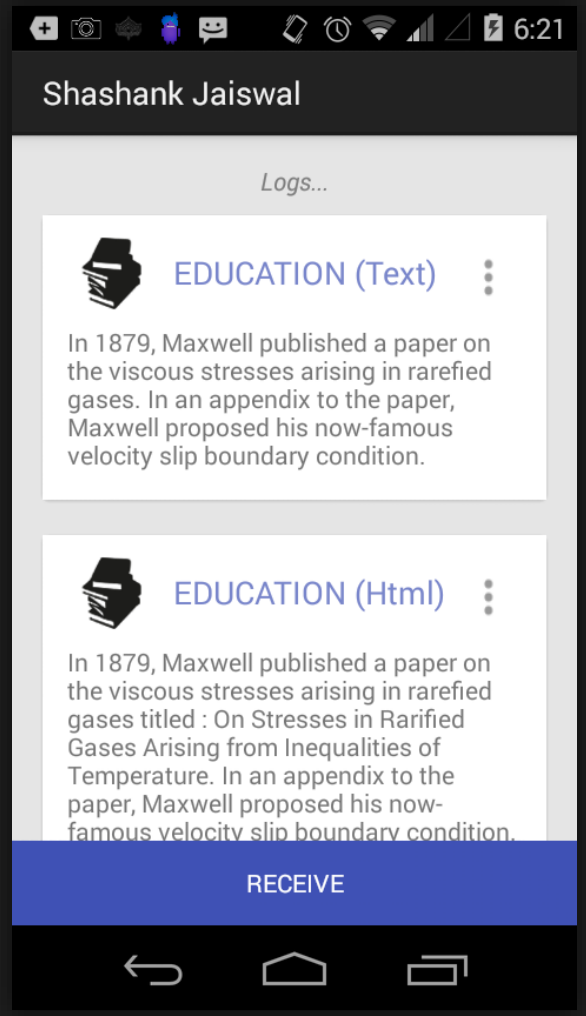
Interactive and Intuitive User Interface

- Tap to Communicate
  - User not nearby
  - User nearby





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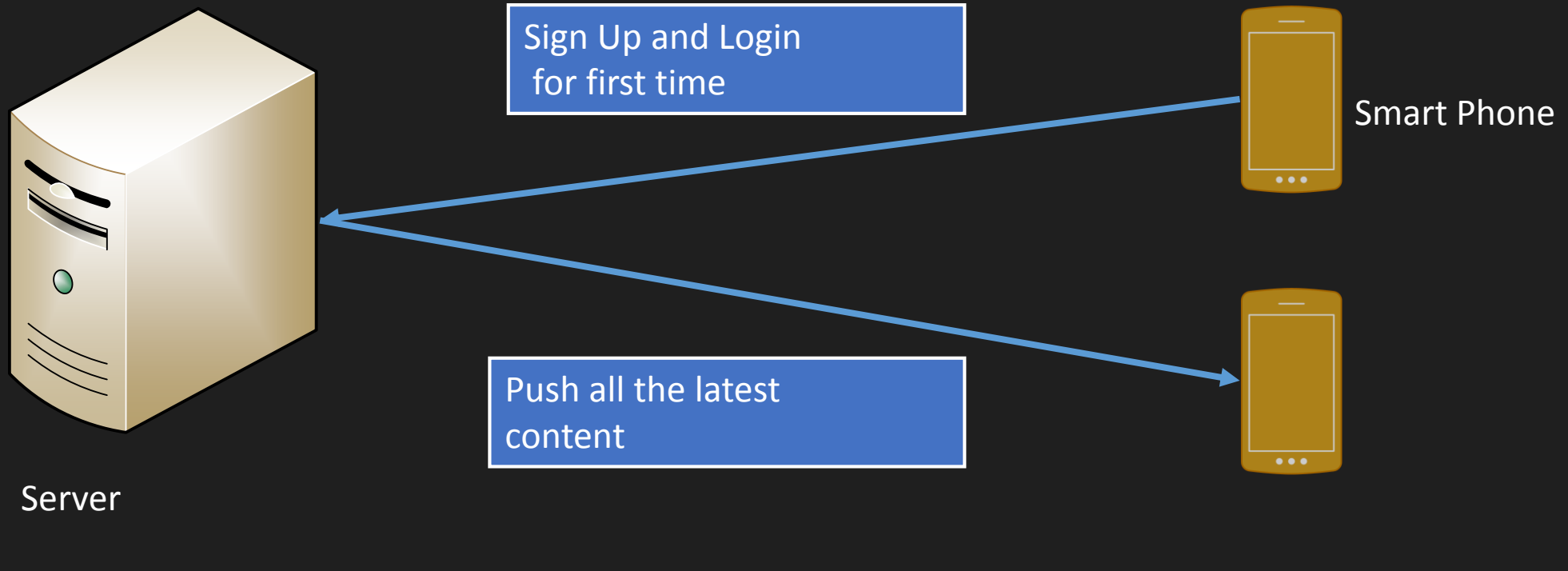
System Diagram



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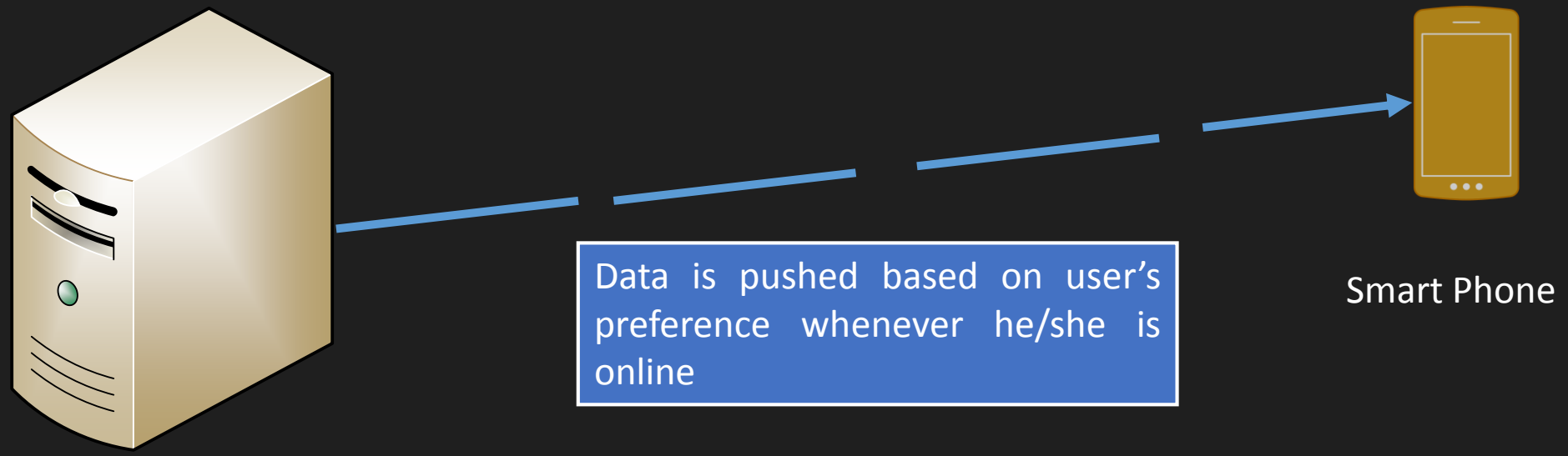
System Diagram

- At a later time when user logs in



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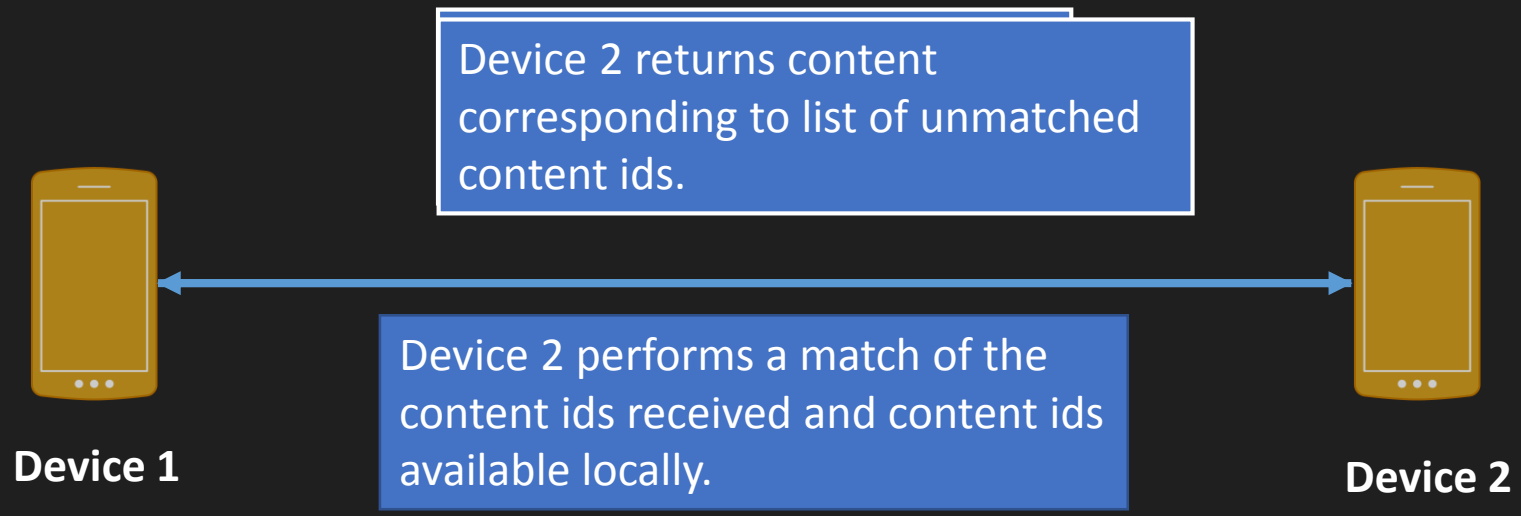
System Diagram

- File Sharing when users are in vicinity



Note : Device 1 wants to receive data from Device 2

Agenda

Tools and Libraries Used

- Apache web server
- My SQL database
- SQL Lite database at the phone
- All Joyn open source framework by All Seen Alliance
- Modified Pull to Refresh open source library by *chrisbanes*
- Android Developer Tools

Have a nice day!