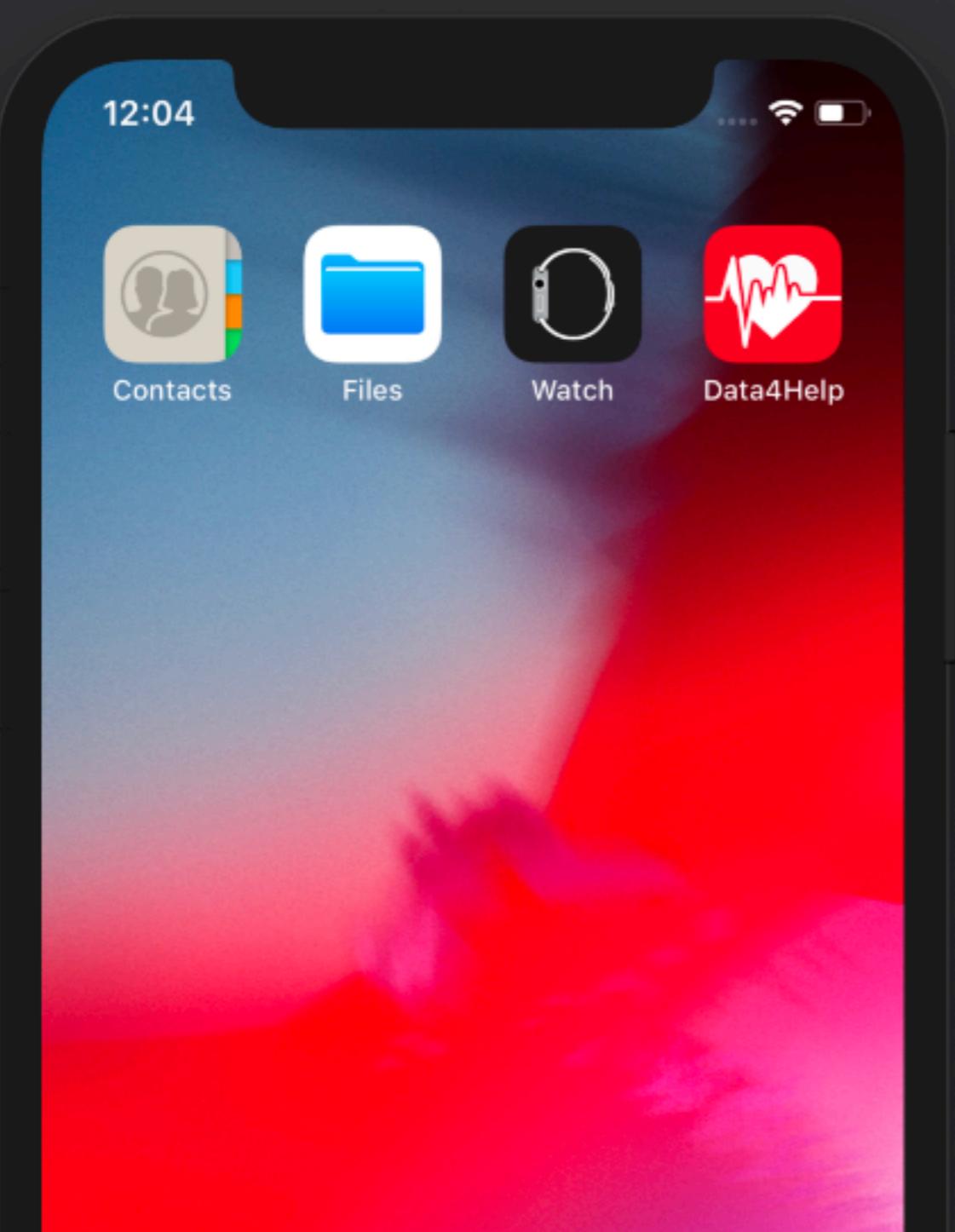


Data4Help



Software Engineering 2
A.A. 2018-2019

Francesco Lorenzo, Luca Molteni, Virginia Negri

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Overview



What is Data4Help?

Data4Help

- Keep track of your health conditions
- Share your position and health data
- Request and monitor individuals
- Review your health status



AutomatedSOS

- Call an ambulance when your health status is critical



Track4Run

- Organise, join and spectate a run



Goals

Single Users

- Single Users can have their data monitored by Third Parties for medical purposes.
- Single Users can visualise a summary of their health status.
- Whenever a users health status becomes critical, an ambulance is sent to his location.
- Runners can enrol in an existing run.

Third Parties

- Third Parties can access data of those Single Users who granted their permission.
- Third Parties can access data of anonymous groups of users.
- Organisers can create and manage runs.



Who needs Data4Help?



Antonio can prevent a heart attack in his everyday runs

San Raffaele hospital can research on young adults' sleeping hours

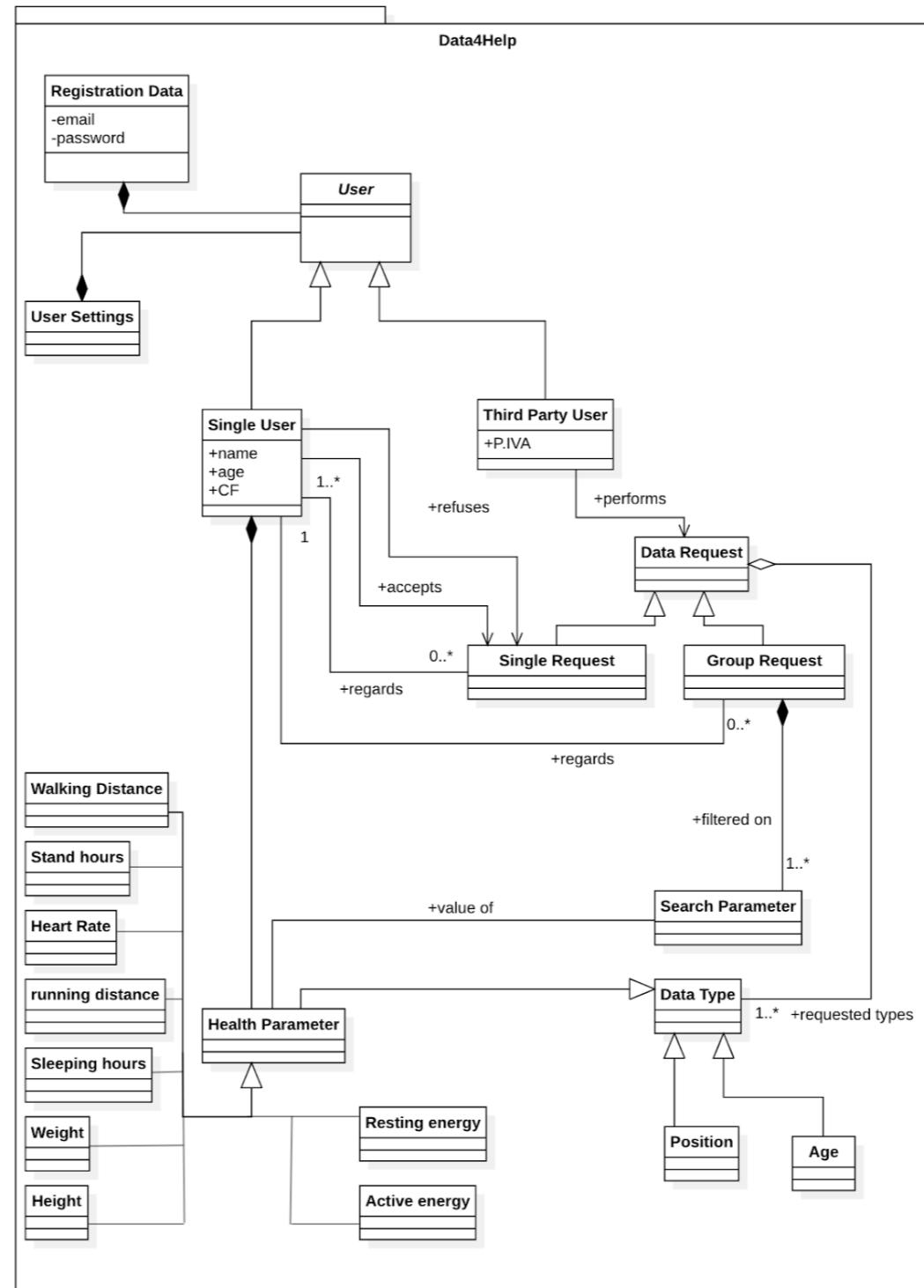


Keep track of runners during the Polimi run

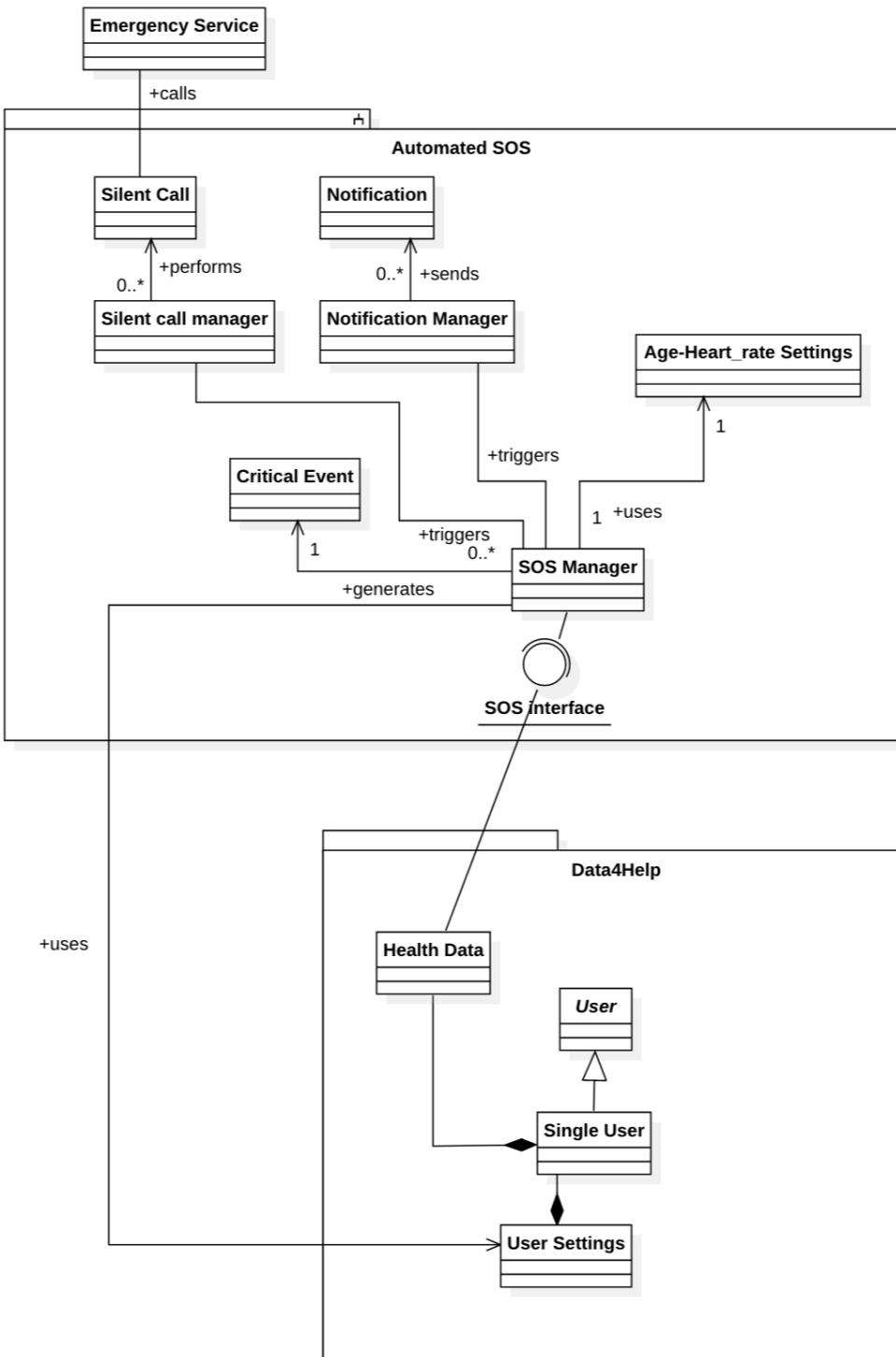
Verify the effectiveness of a new treatment



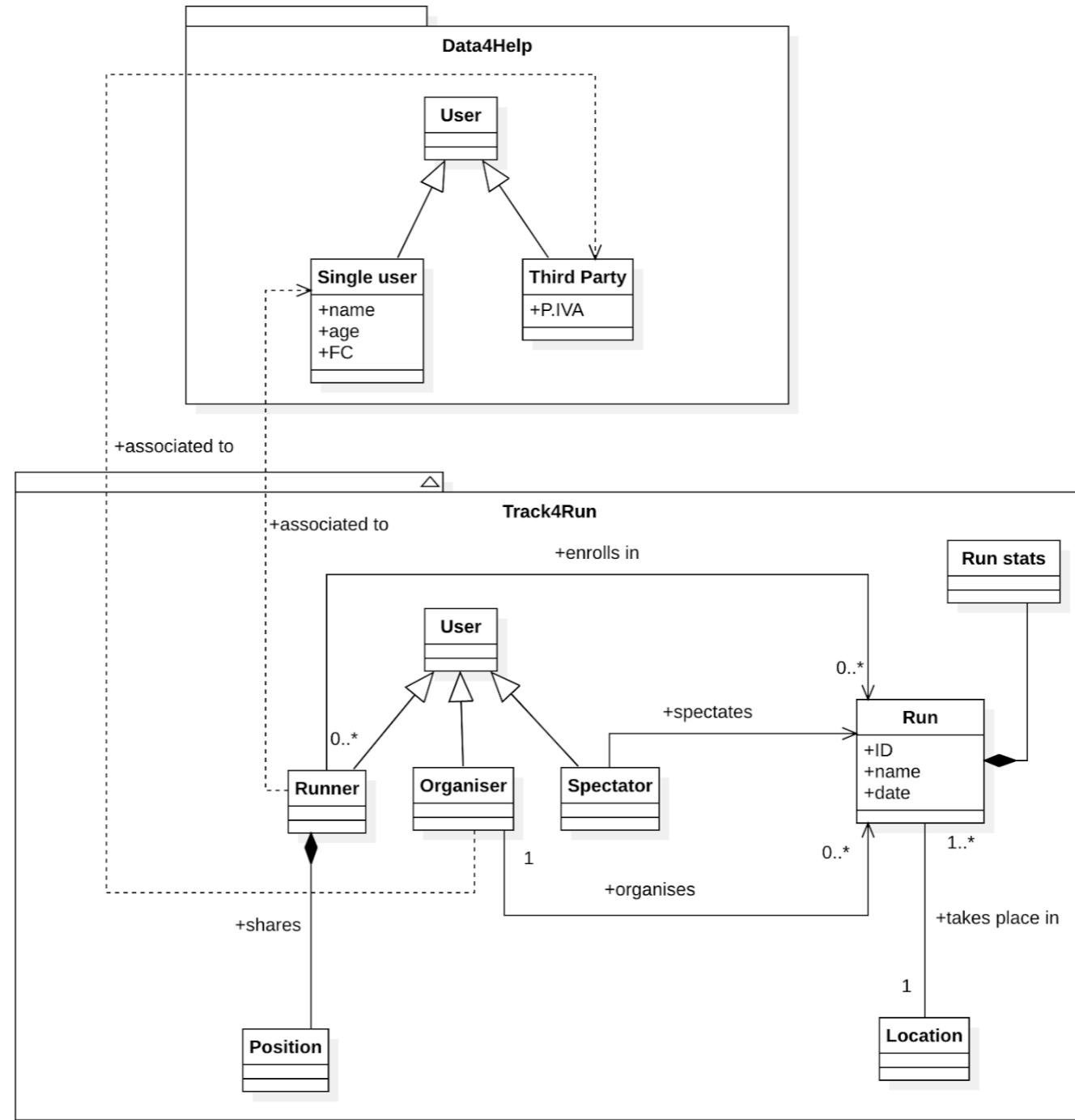
Data4Help: Class Diagram



AutomatedSOS: Class Diagram



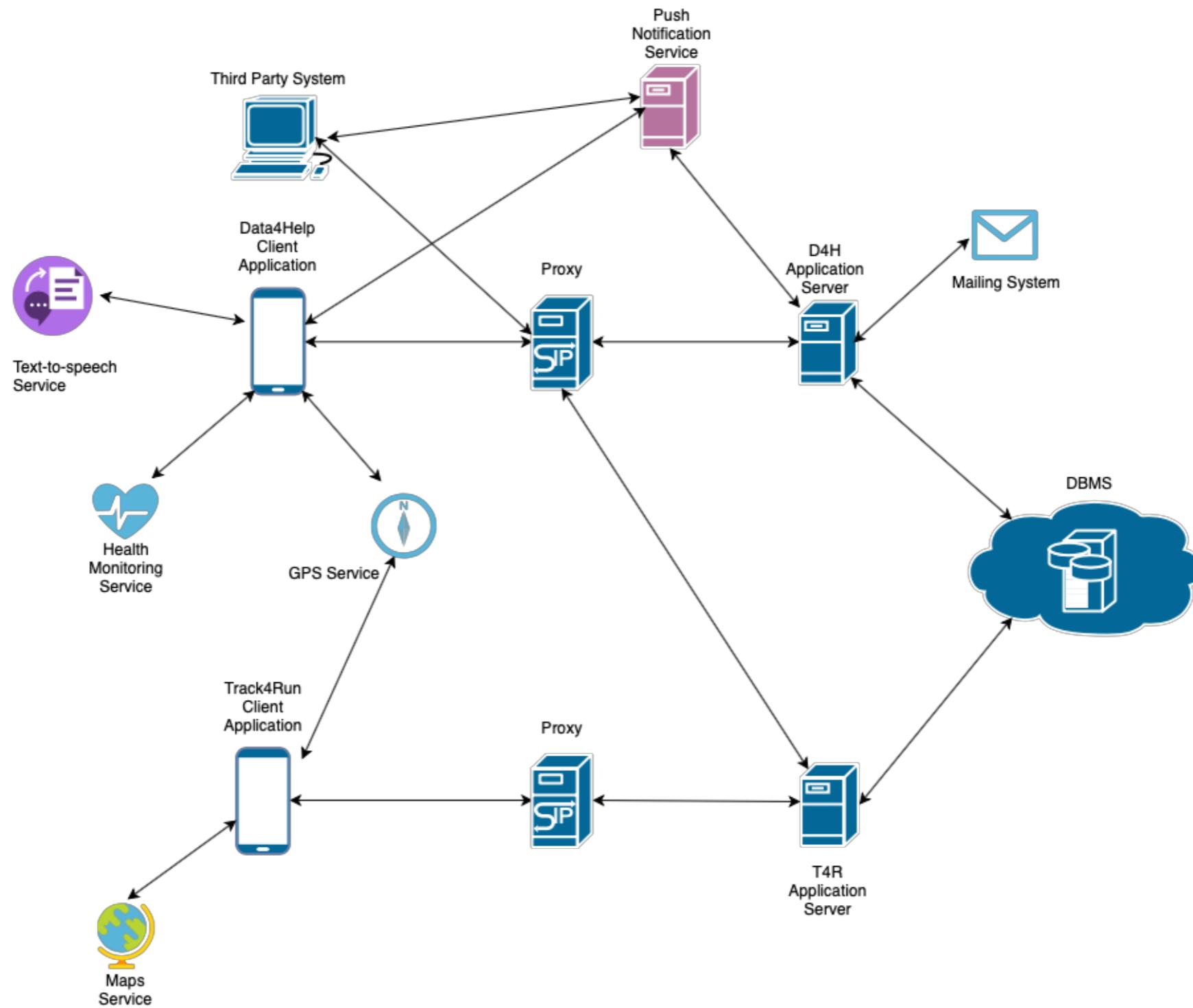
Track4Run: Class Diagram



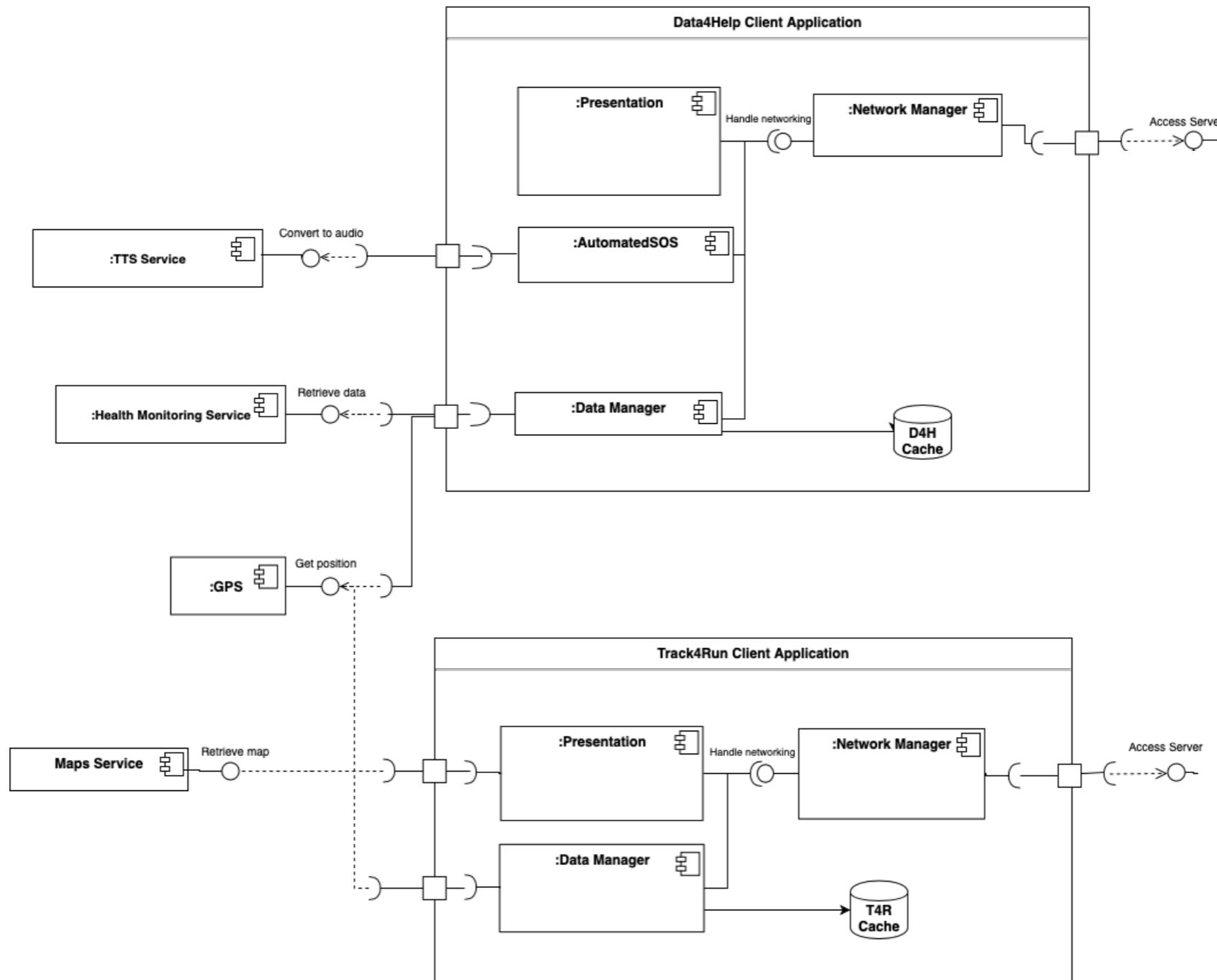
Design Strategy



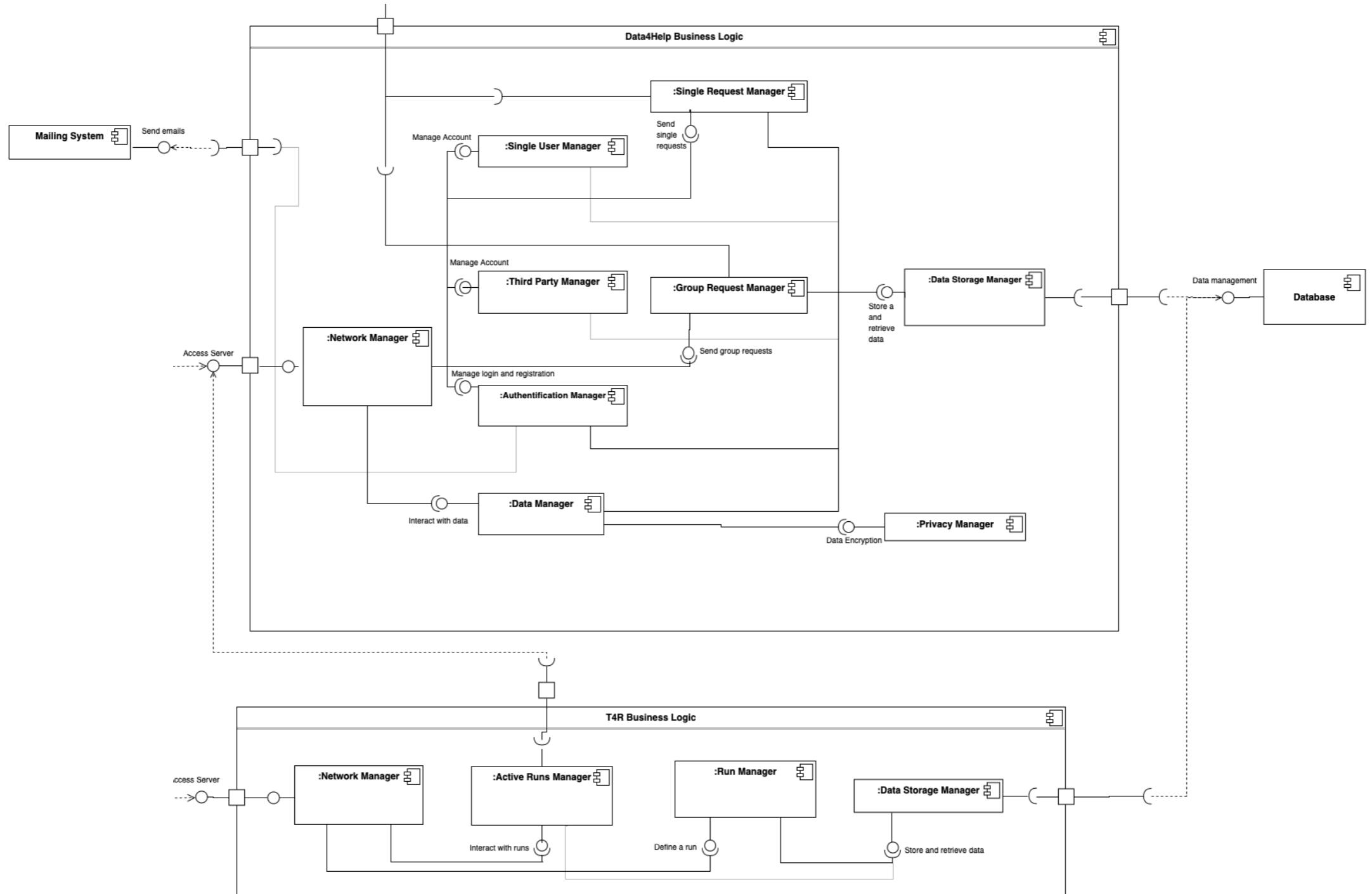
Macro-architecture



Frontend components



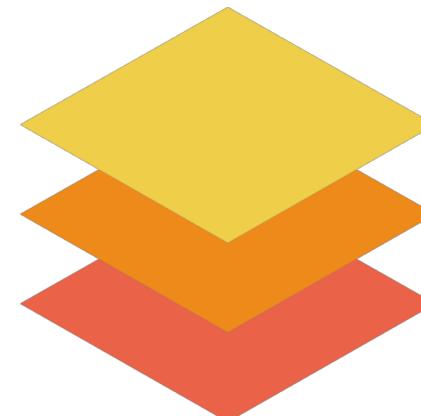
Backend components



Architectural patterns

- **Multi-tier**

- ✓ Separation of concerns
- ✓ Maintainability



- **MVCS**

- ✓ Decoupling
- ✓ Maintainability



- **REST**

- ✓ Standardisation
- ✓ Stateless



Implementation



Technologies

Frontend

iOS



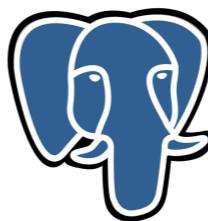
Backend



Express 



Database



PostgreSQL



AWS RDS

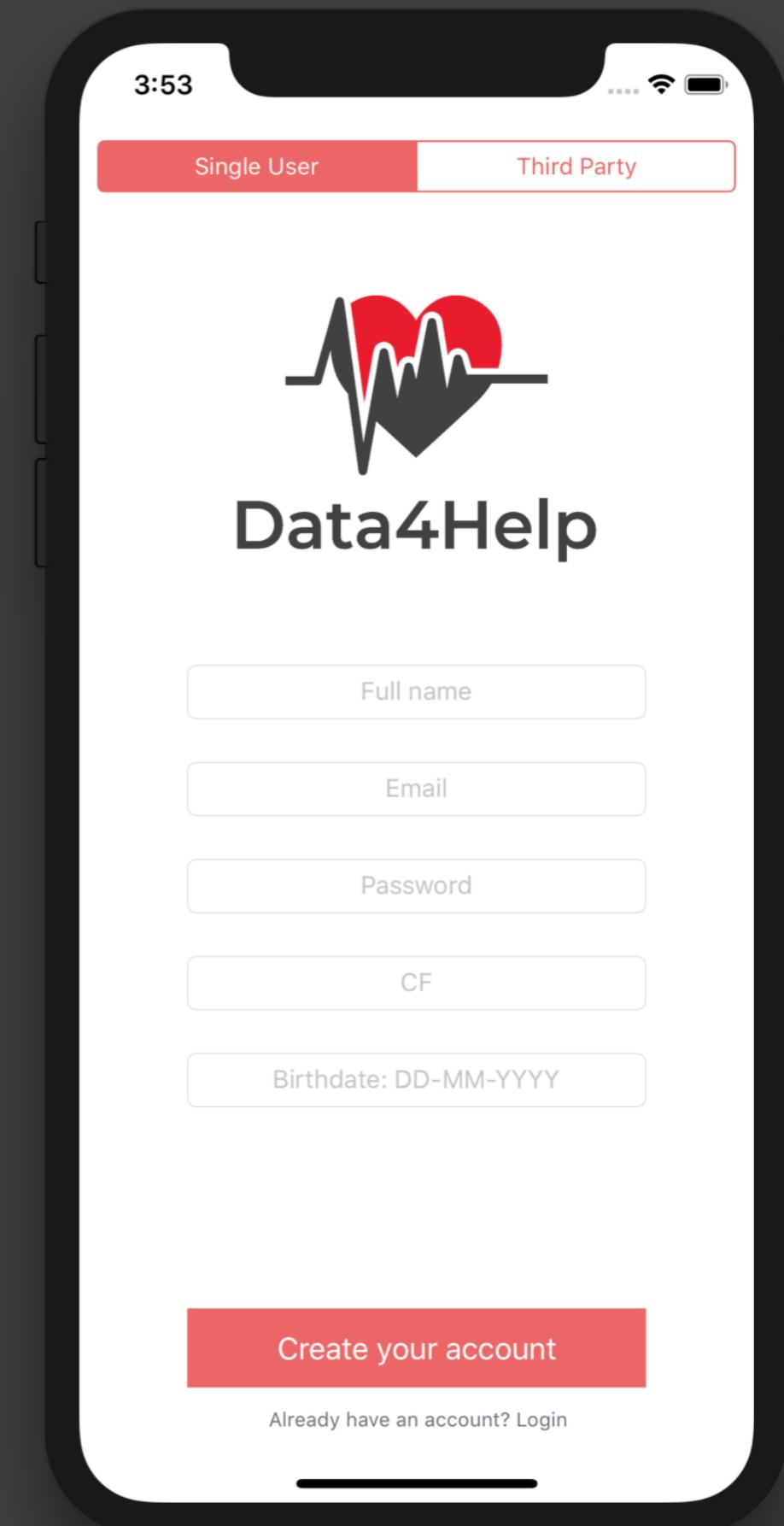
Deployment



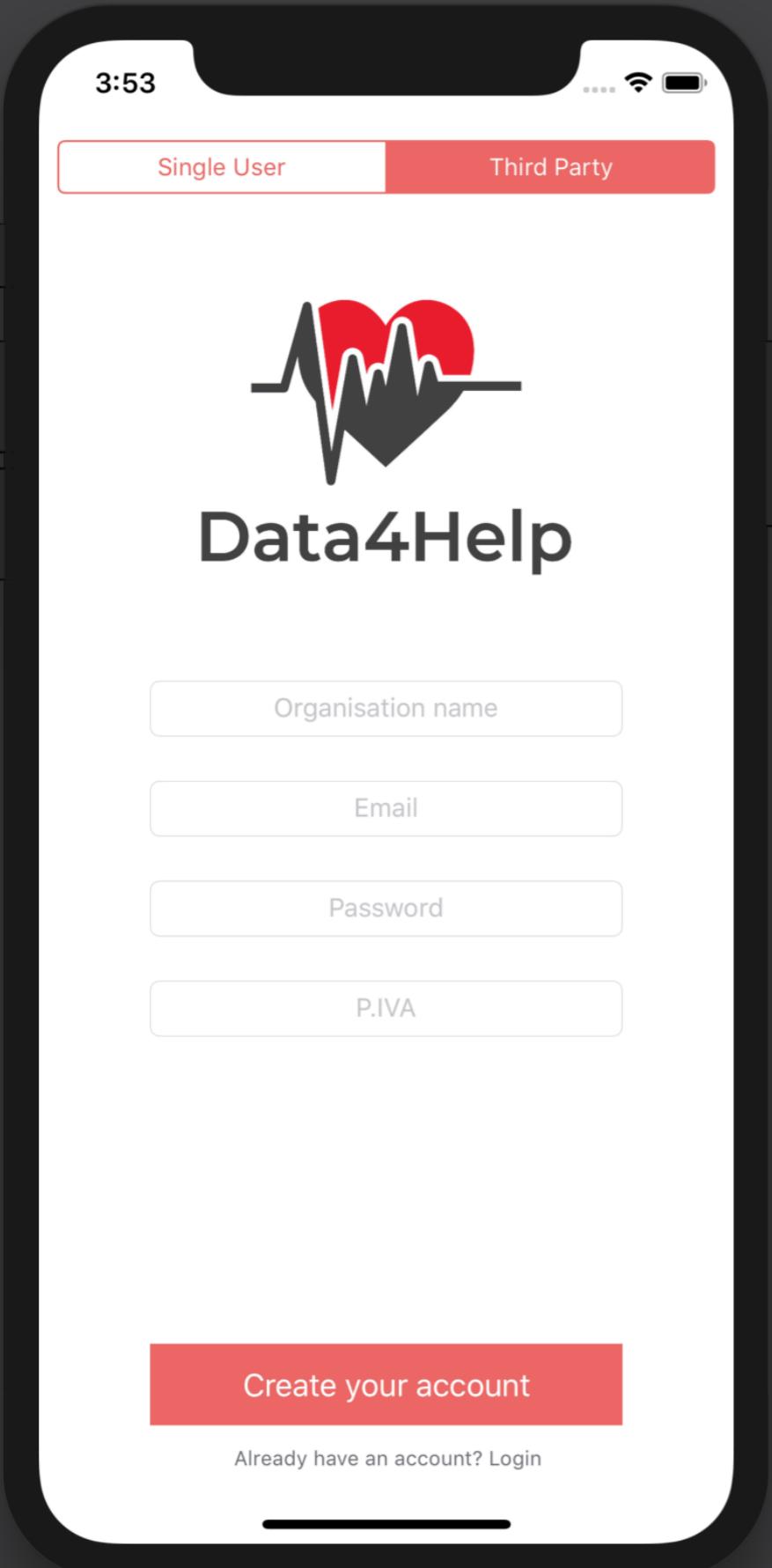
Amazon EC2



REGISTER



iPhone XS - 12.1



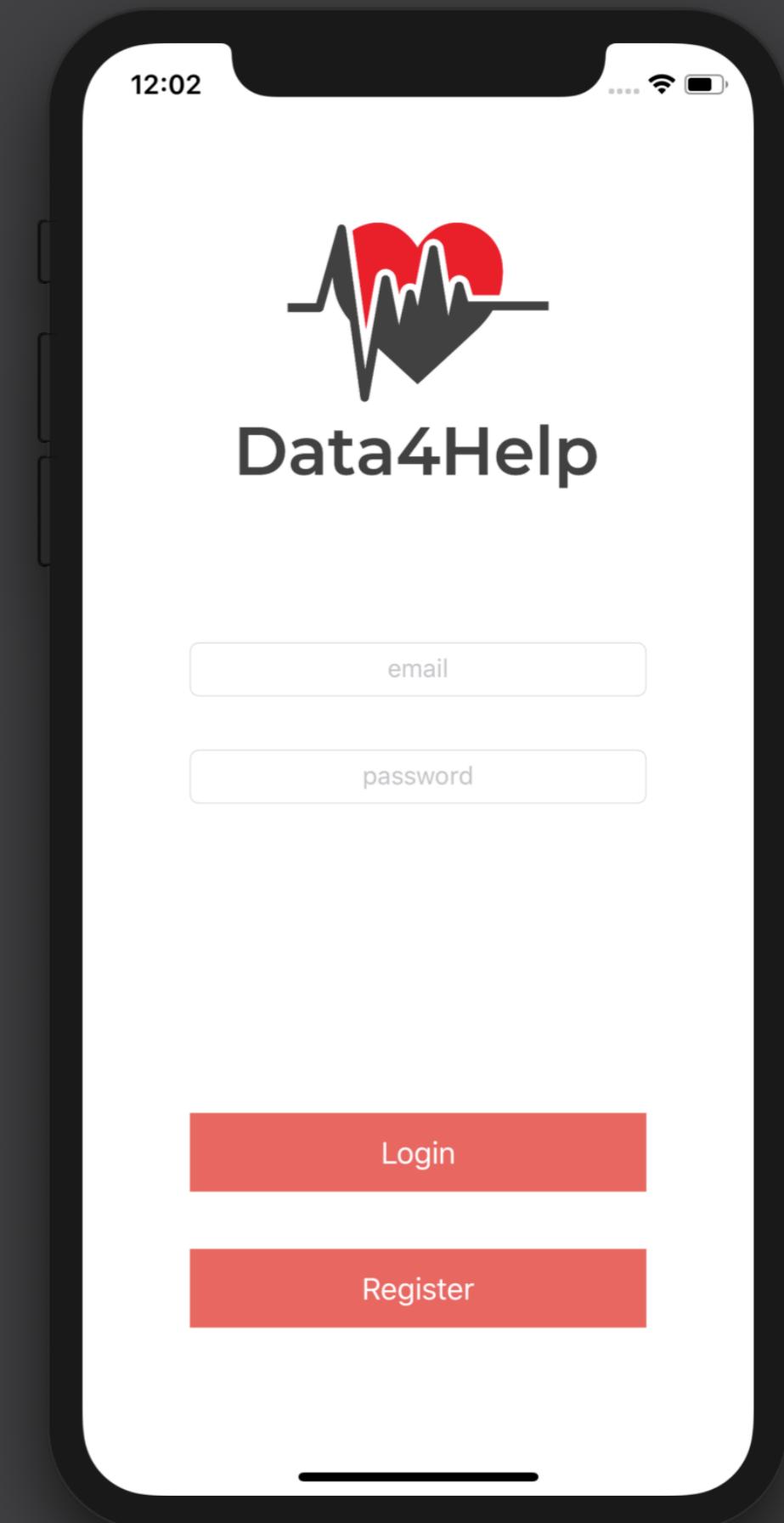
REGISTER

Create your account

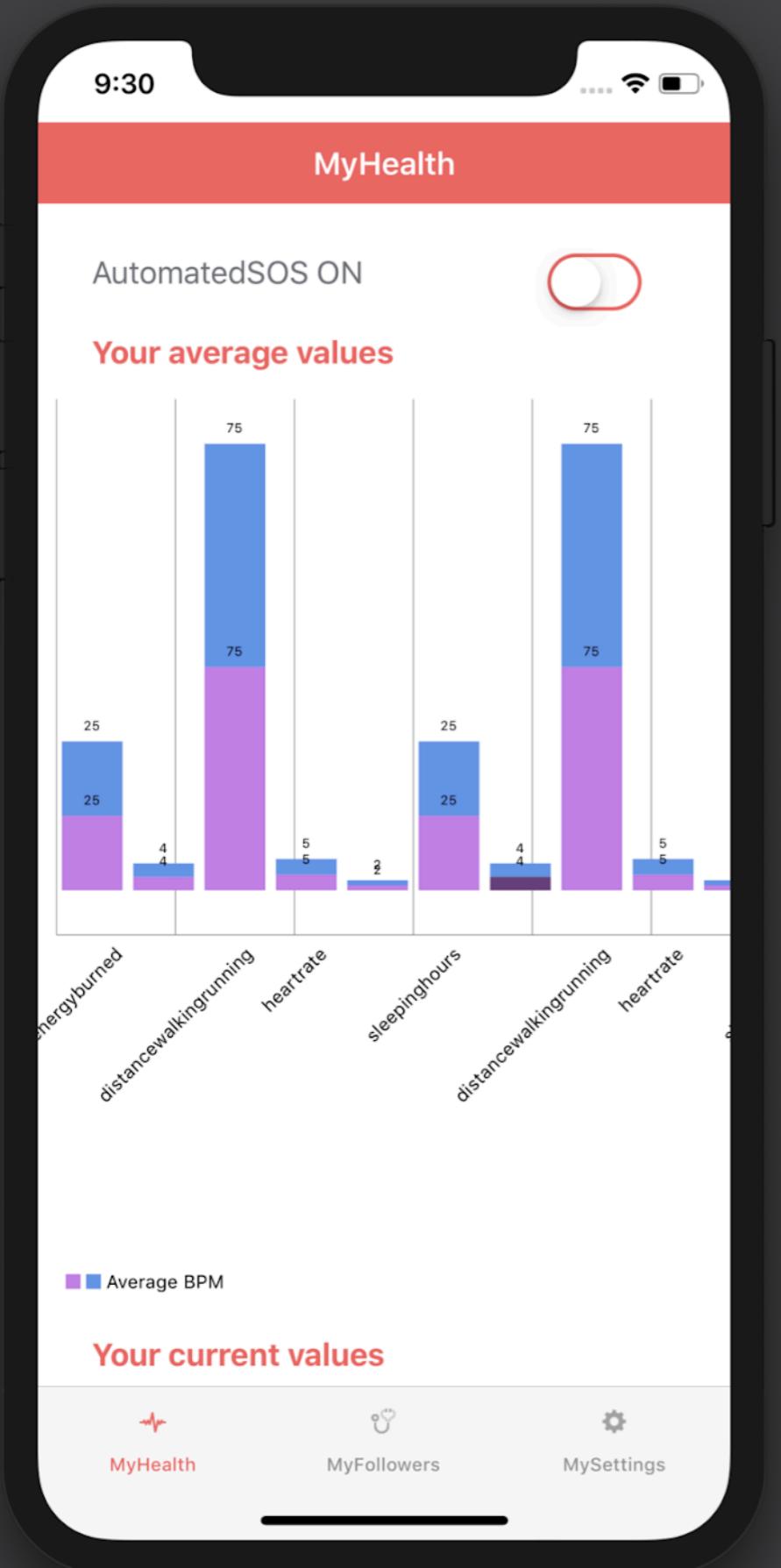
Already have an account? [Login](#)

iPhone XS - 12.1

LOGIN



iPhone XS - 12.1

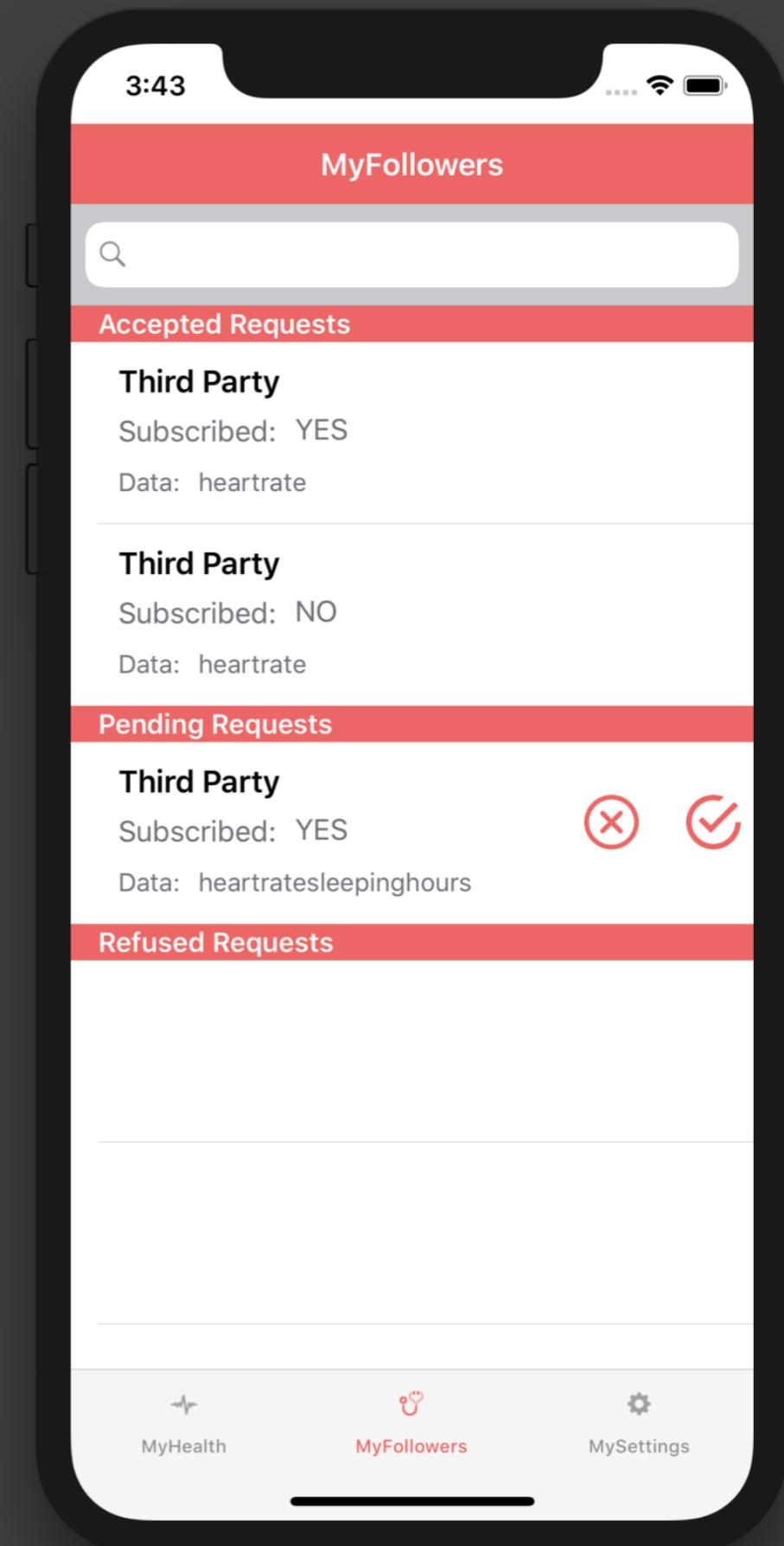


HEALTH MONITORING



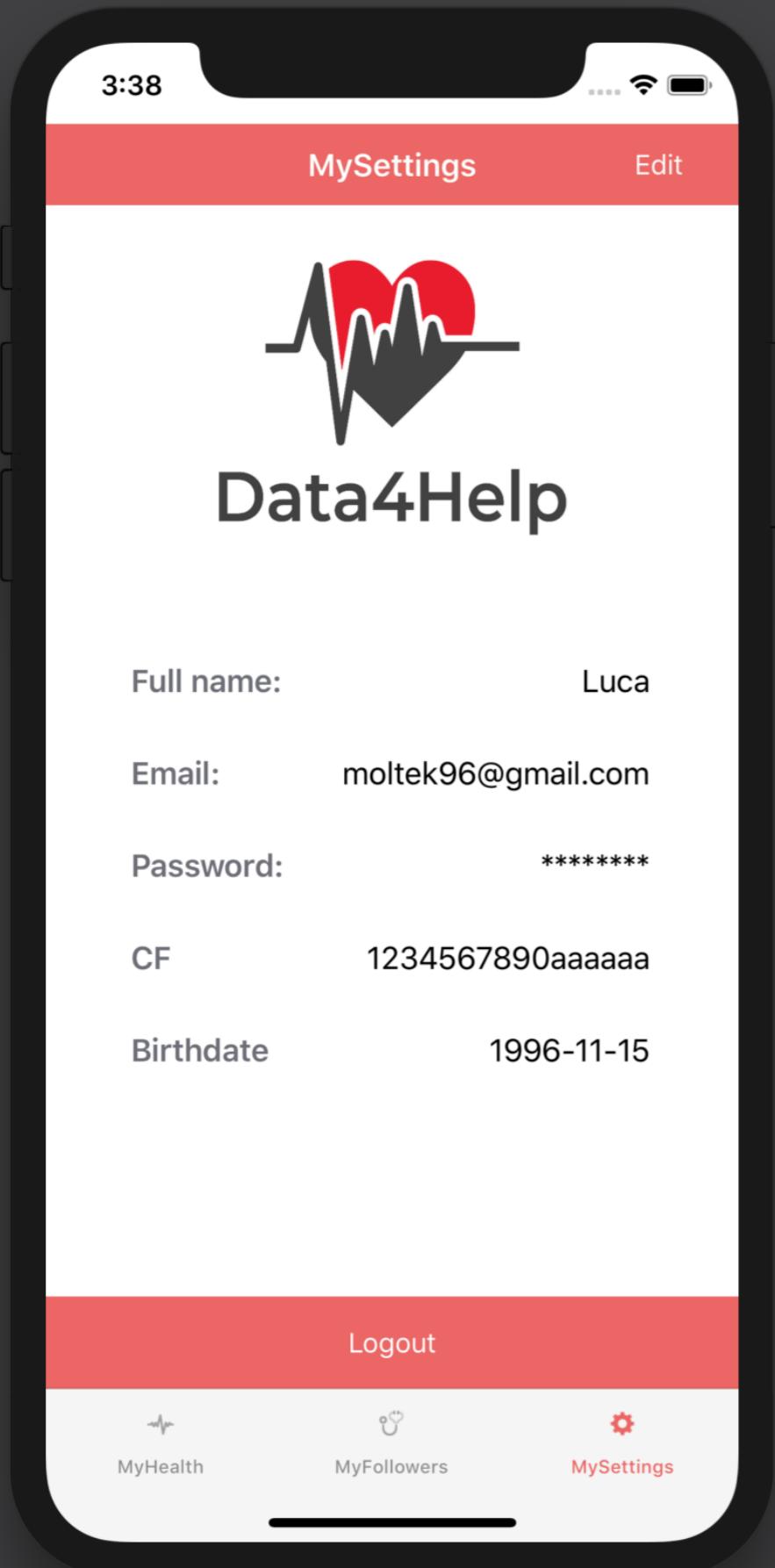
iPhone XS - 12.1

MANAGE REQUESTS



iPhone XS - 12.1

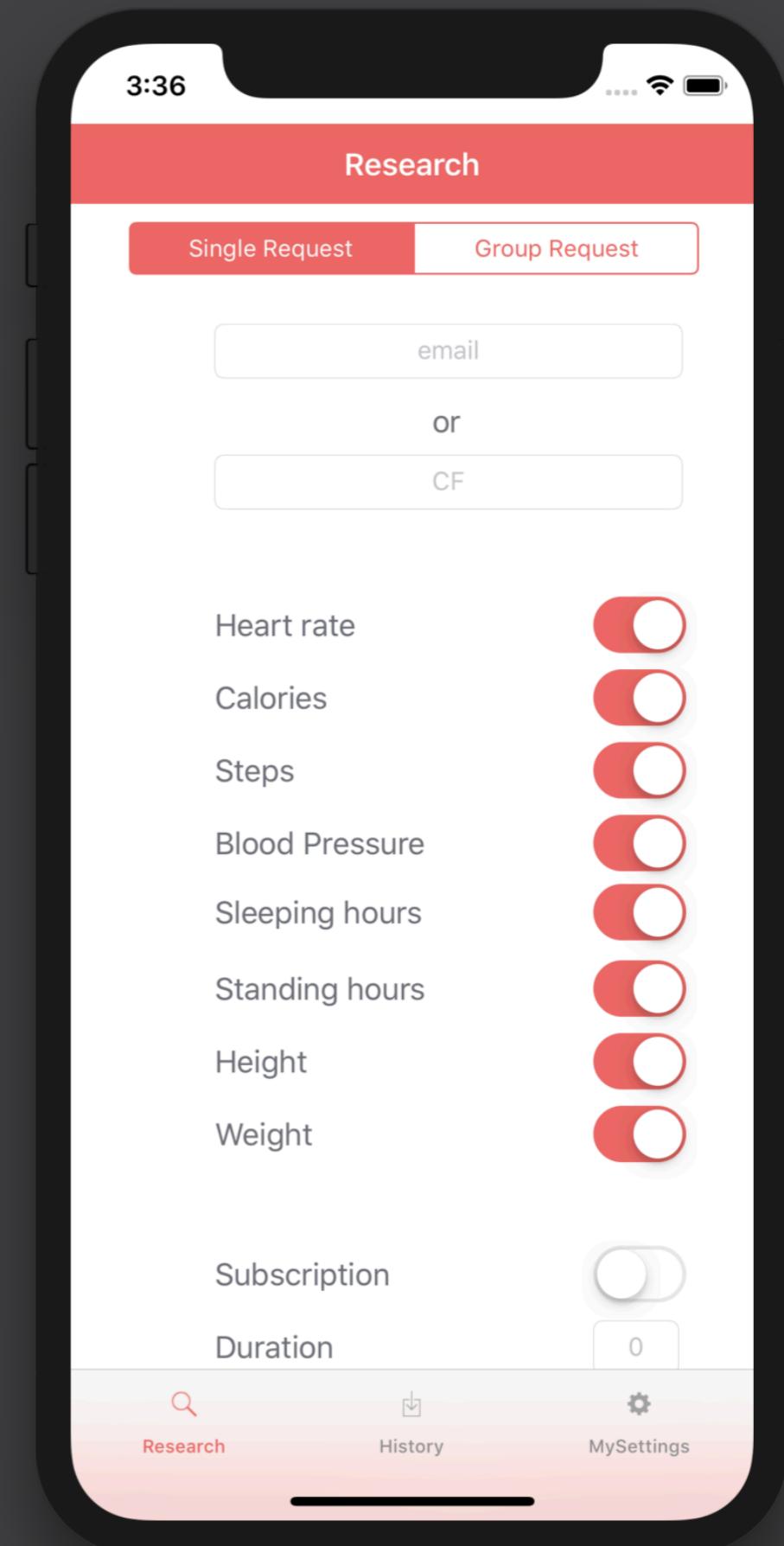




EDIT SETTINGS



SINGLE REQUESTS



iPhone XS - 12.1



12:02



Research

Single Request

Group Request

Filters

Min age:

Max age:

Min weight:

Max weight:

Avg Heart Rate

Avg Sleeping Hours

Data types

Heart rate

Calories

Blood Pressure

Steps

Sleeping hours

Standing hours



Research



History

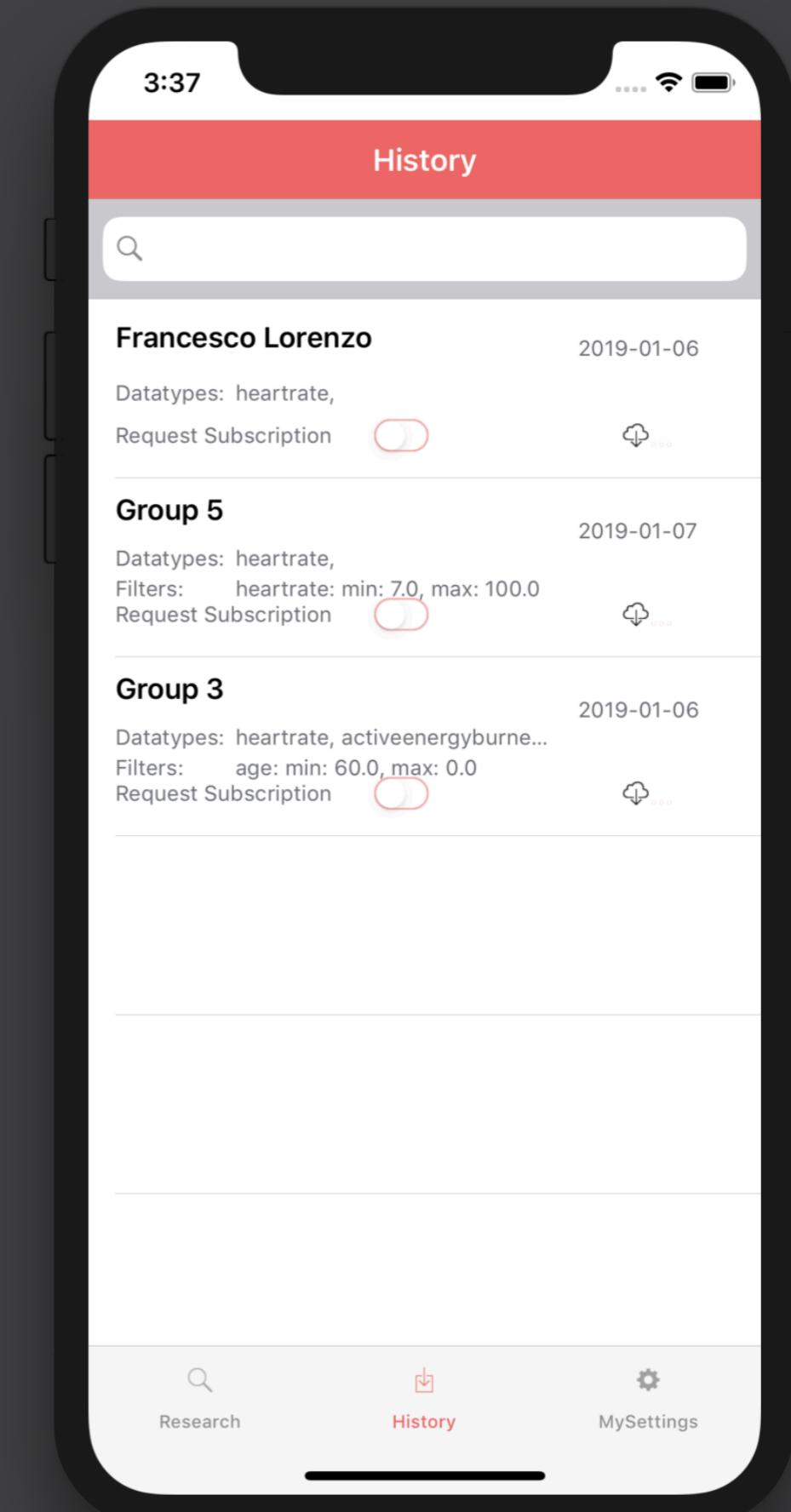


MySettings

iPhone XS - 12.1

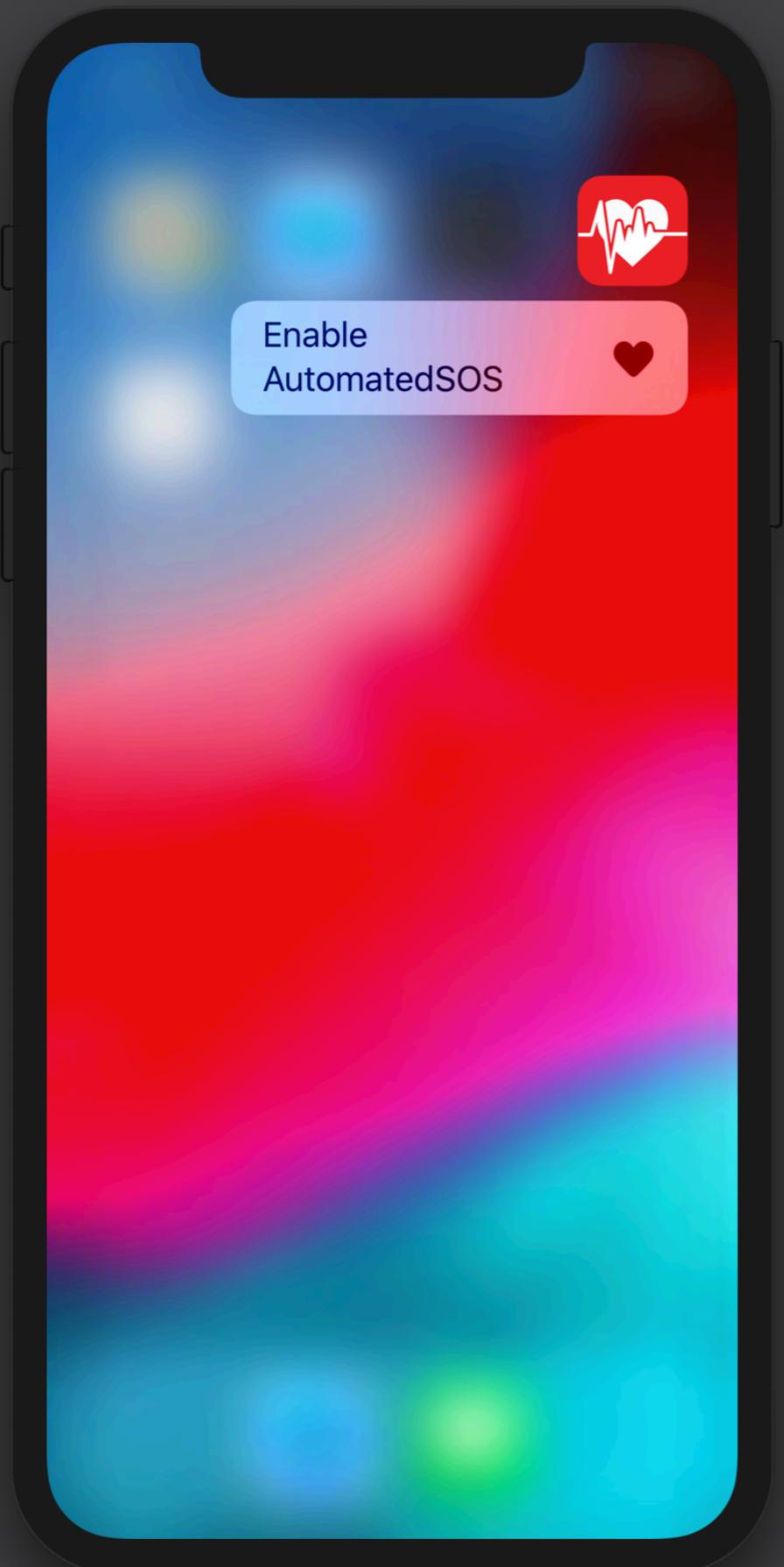
GROUP REQUEST

MANAGE REQUESTS



iPhone XS - 12.1



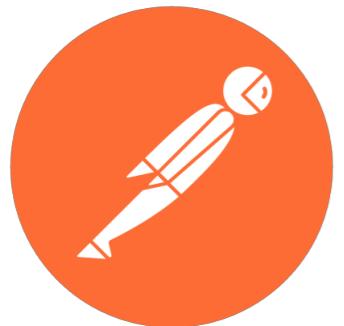


iPhone XS - 12.1

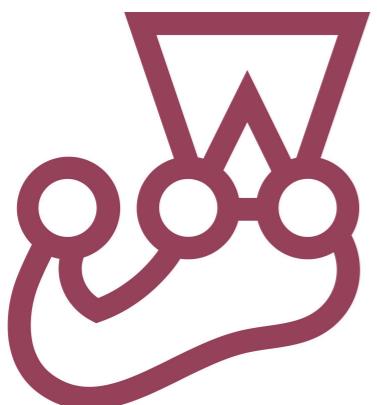
AUTOMATED SOS



Testing



Endpoint



Unit



Integration

Over 2000 lines of code

5 Test Suites

77 Tests

Full branch coverage of Express routes

Automated suite

Always running

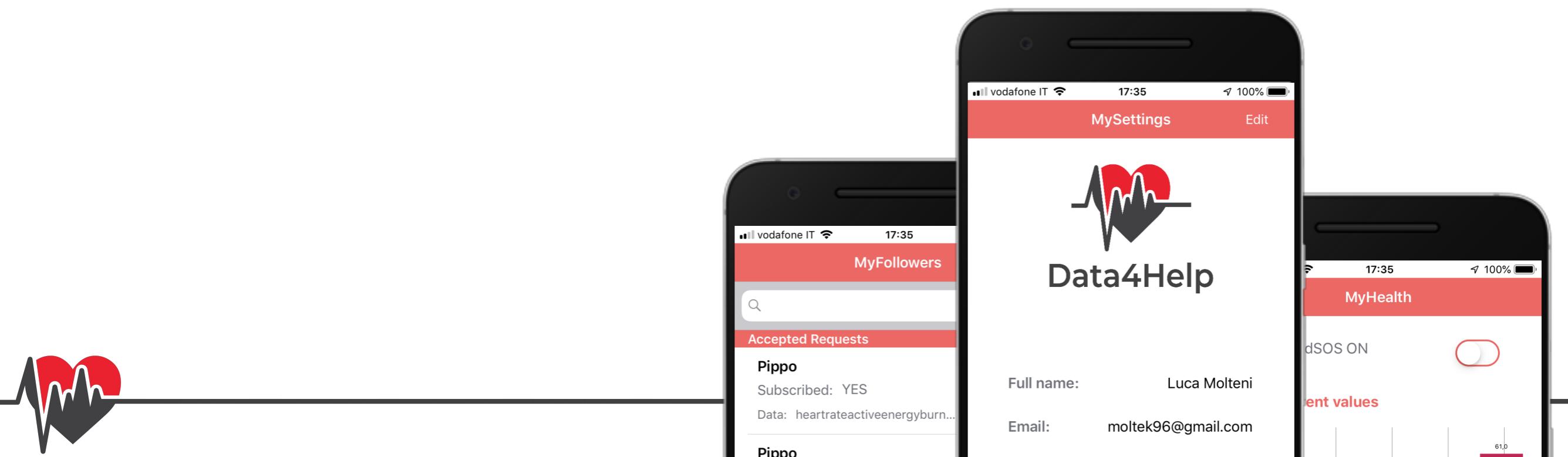


Conclusion



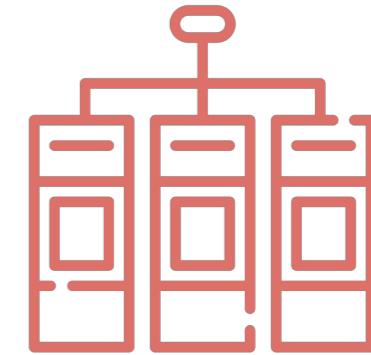
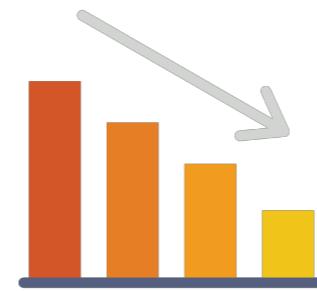
Value Proposition

- Non mocked data
- Fully deployed Server
- Fully deployed Database
- Wearable support through **HealthKit**
- Downloadable formatted CSV
- Integration with Apple's **3DTouch**



Future Developments

- Track4Run
- Nginx proxy
- Server replication
- HTTPS
- New datatypes
- New statistics
- TTS service
- Push notifications
- UI overhaul



TRACK4RUN



Conclusion

Thank you for your attention.

