

Redevelopment of webapp UI

And

Towards CI/CD method of software development

Niveydhithaa R 17PW25 28.05.2022

- Introduction to organization
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 - About the project
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- Timeline
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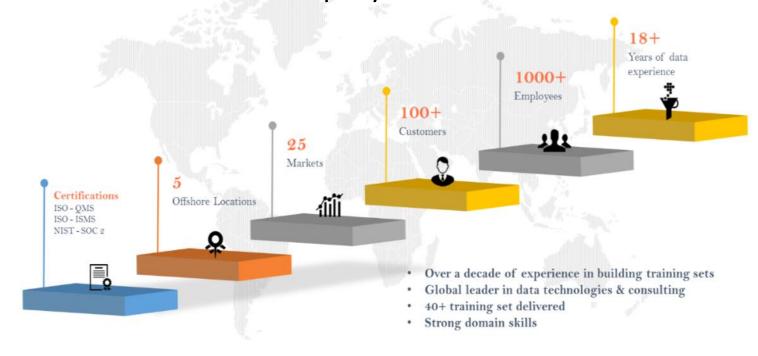
Special Thanks to

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 Mobius Knowledge Services
- Mr. Prashanth Ravindran, Associate Director ML&AI Division, Mobius Knowledge Services

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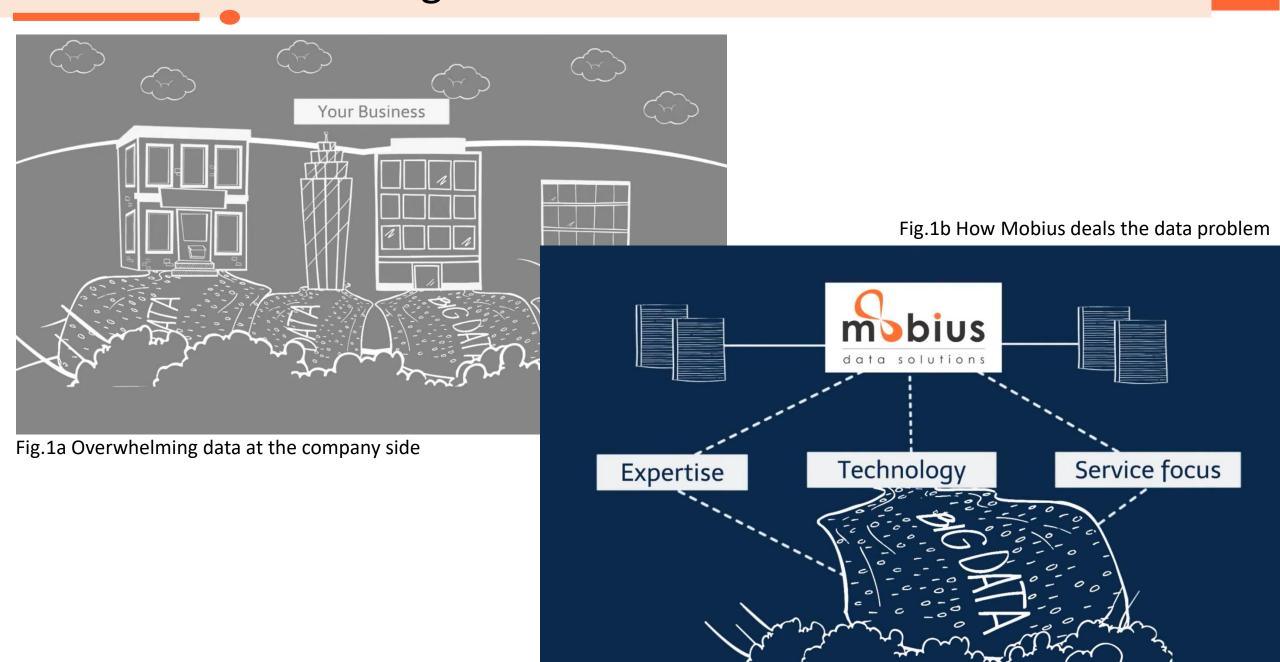
Introduction to the organization

- Founded in 2002, the aim of Mobius is to offer platforms and products to companies to utilize the wealth of data, trapped in complex sources
- Employ big data technologies, robotic process automation, artificial intelligence, and self-learning bots in the solutions, currently offered to leading Fortune 2000 companies
- The Chief Executive Officer of the company is Mr. Karthik Karunakaran



Introduction to the organization





Introduction to the organization



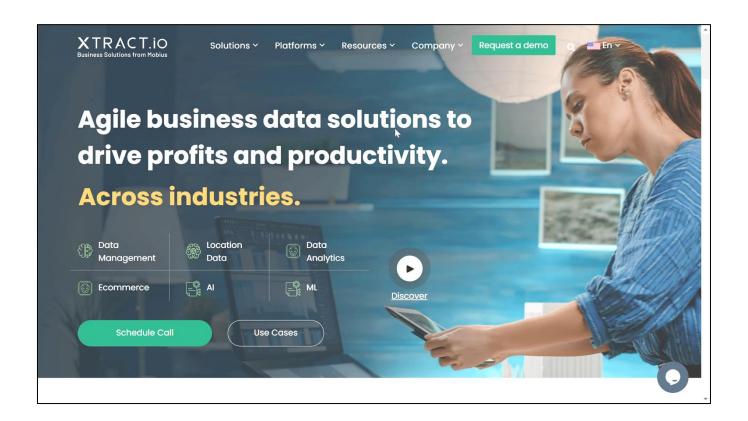
PROJECT WORK

Two phases of internship work

The work is briefly explained in the upcoming slides



- Xtract.io, catering to multiple industries across the world
- Helps businesses grow into new markets



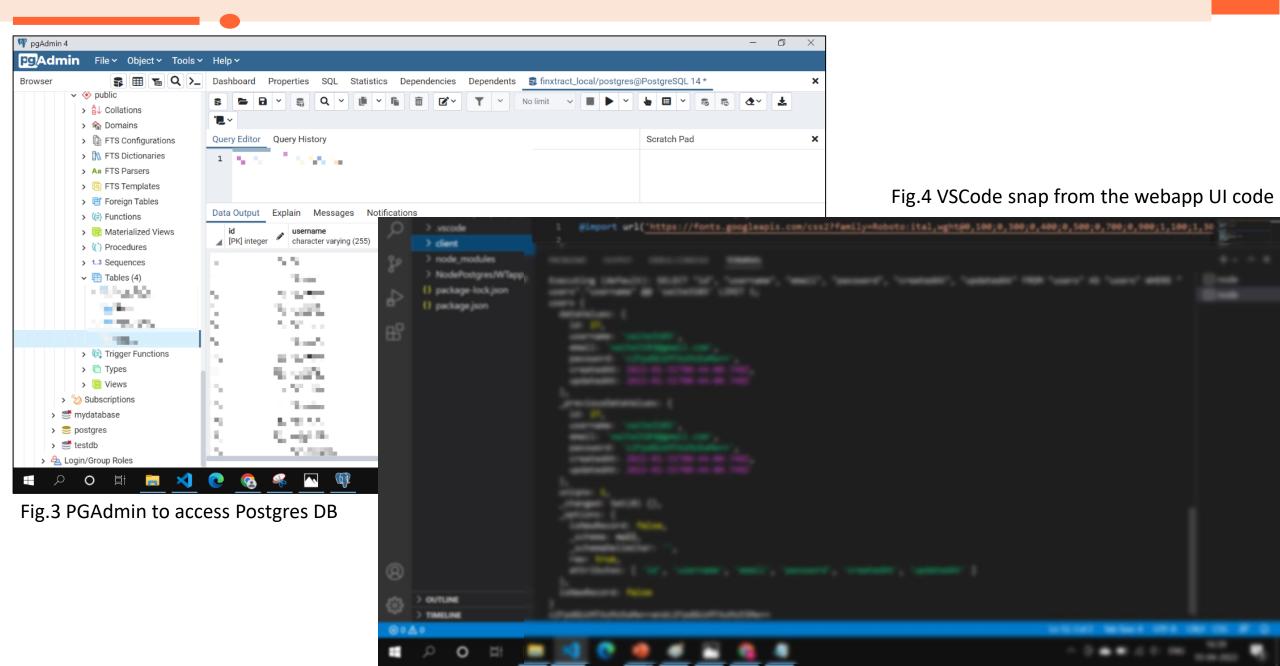
Work done by me

- As part of the project, contributed to the team for redeveloping the existing FinXtract webapp.
- Tasks were focused on
 - choosing the right framework to redevelop
 - creating an efficient web app
 - enhance the authentication and session storage
 - minimal client-side with login and register functions

	Existing tech	Modified
Application	Python	React + Node (server)
Database	PostgreSQL	PostgreSQL

Screenshots





Workflow



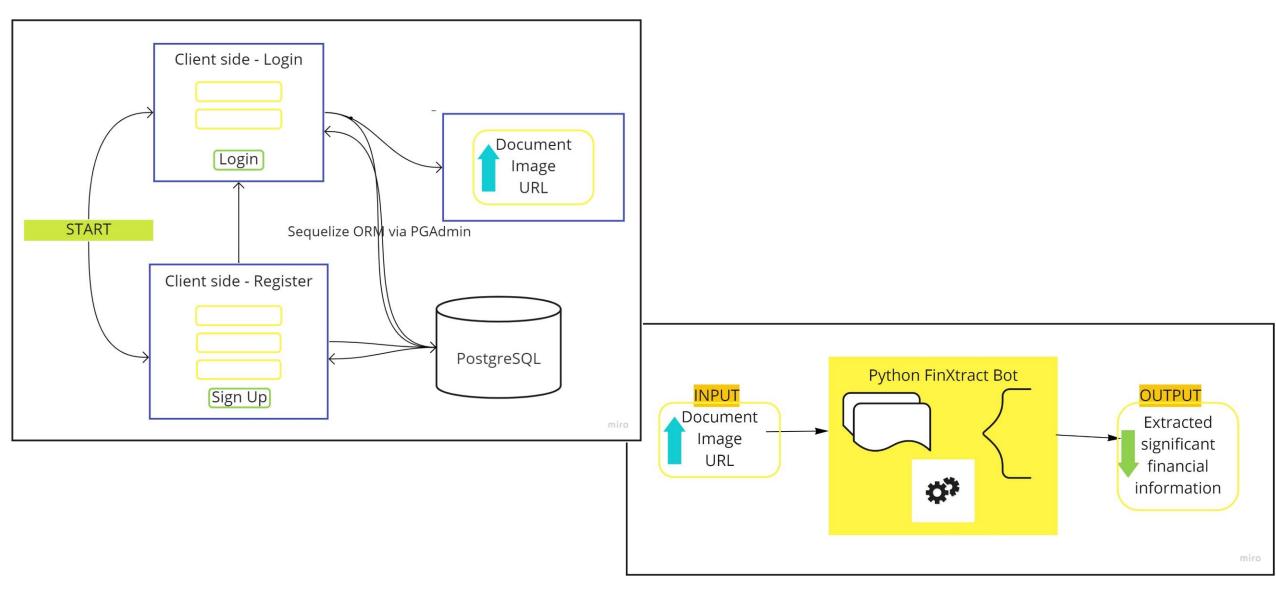
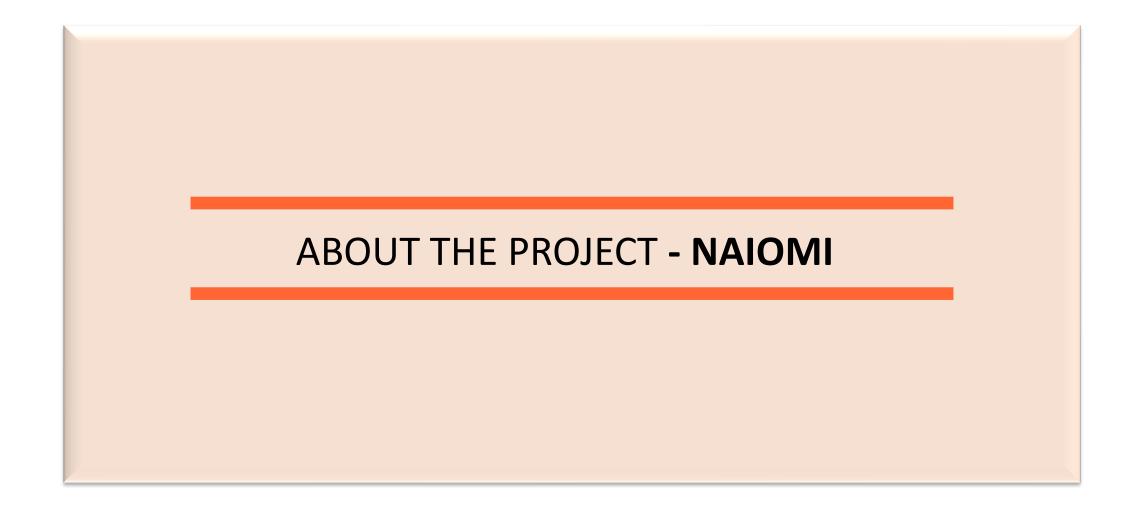


Fig.5a, b: Finxtract Webapp & Bot workflow



NAiOmi Overview

- Cancer detection and diagnosis
 - Every year, new cancer patients registered: Over 11,57,294 lakh. But do all of them get diagnosed and treated?

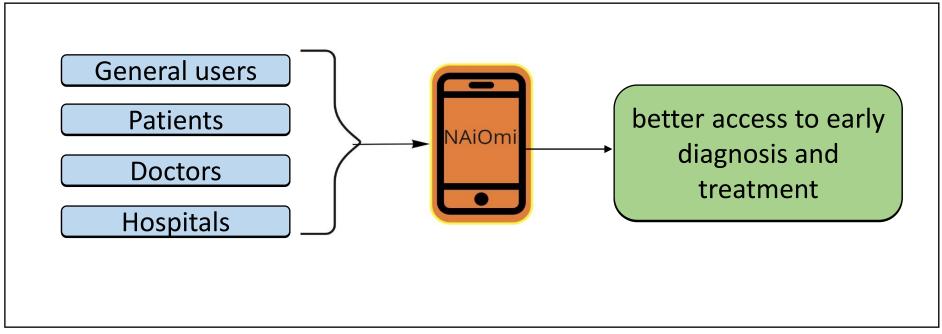


Fig.6 Need for NaiOmi

Towards CI/CD

- Continuously deliver code to production
- Ongoing flow of new features and bug fixes

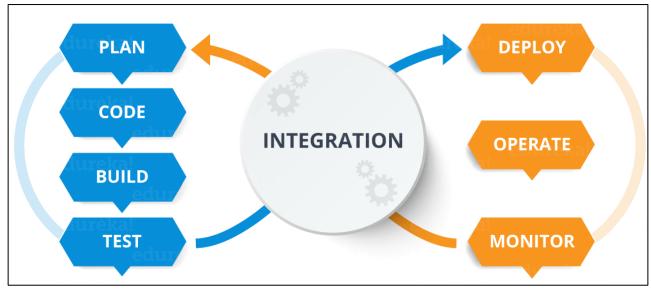


Fig.7 CI/CD pipeline

Work done by me

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Applying schema migrations

Test the migrations and adding fixtures

Employ
Dependency
Injection

Unit test the modules

Thereby, developing a test package



- Changing requirements through the development process
- Migrations ensure backward compatibility
 - Analogy, Github: Source code version control; Migrations: DB changes version control
- How can it be tested?

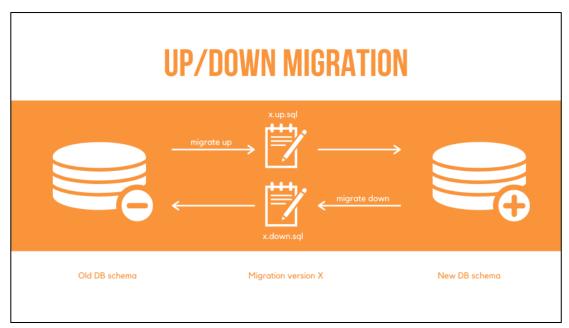


Fig. 8 Migrations

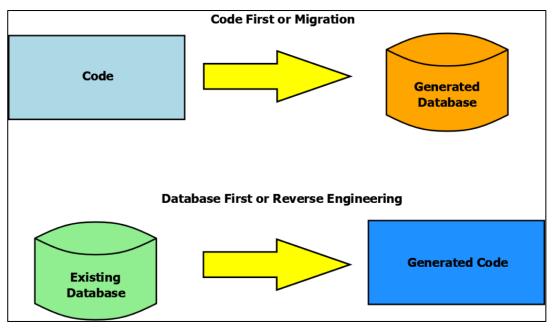


Fig. 9 Migrations Vs. Reverse Engg

Unit testing

- Validate that each unit of the software code performs as expected.
- Unit testing is first level of testing done before integration testing.

- Providing initial data to models
- Useful during testing logic, forms the baseline for running tests

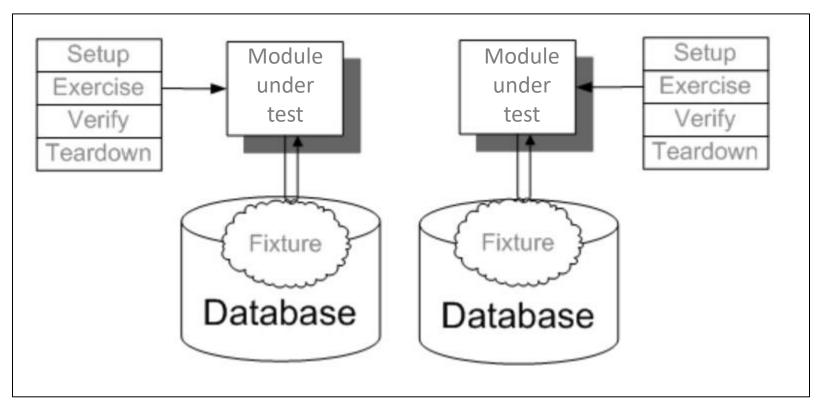


Fig. 10 Fixtures

Fixtures

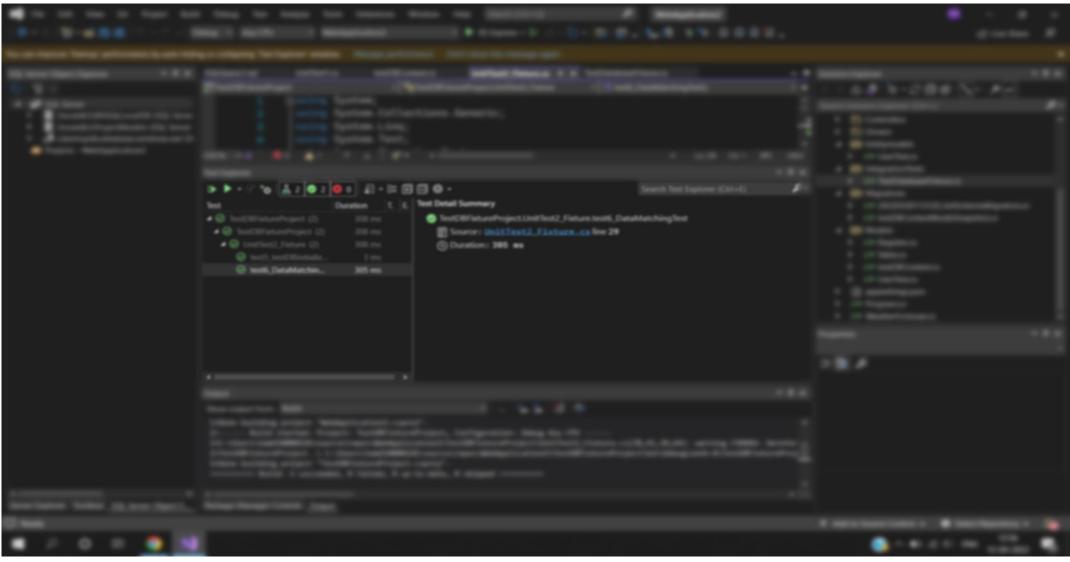


Fig. 11 Test environment

Work done by me

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Applying schema migrations

Test the migrations and adding fixtures

Employ Dependency Injection Unit test the modules

Dependency Injection

- Organizing the various modules working together
- Maintainability & Testability is enhanced

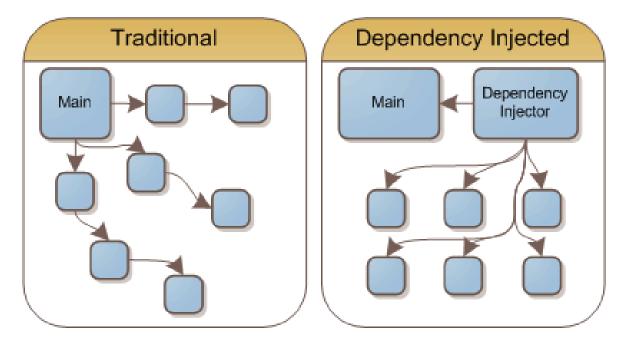


Fig. 12 Dependency Injection

Conclusion

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Performing the initial operations (change schemas, adding migrations) Creating the test DB Applying the Migrations Adding test fixtures

Thereby, this results in continuously integrate any database changes, as well as test it from unit tests of various modules.

This paves the way for CI/CD, to deliver changes more frequently and reliably.





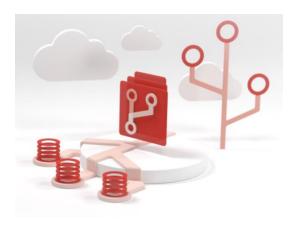


Fig. 13 Azure repos

Timeline

Week 1- 4

Onboarding and

transfer sessions

 Basic access and environment setup

knowledge

 Understanding structure and existing code base

Week 4 - 8

- React app development
- Implementation of server side functionalities

Week 9 - 11

- Completion of server side functionalities
- Studies for the external bot access for the core functionalities

Week 11 -12

- Induction sessions to NaiOmi project
- Environment setup

Week 12 – Week 14

• The exploring and implementation of Migrations and Fixtures

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unit testing Resolving issues in mocking the

framework in

Need for

DB

mocking

• DI significance and implementation in sample apps

- Week 15 Week 20 till date
 - Unit testing the APIs of the app Applying the
 - tested concepts into project's codebase

Work Environment

- Hardware Specifications
 - Processor : Intel(R) Core(TM) i5-1035G1 CPU @ 1.00GHz 1.19 GHz
 - Installed Memory: 8.00 GB
 - System Type: 64-bit Operating System, x64-based processor
- Software Specifications: Windows 10 Pro

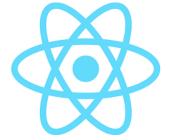
Tools and technologies used



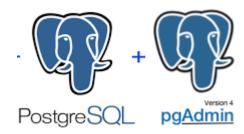
≭Unit.net













Challenges faced

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- Environment setup
- Understanding the components from existing code base

- https://docs.microsoft.com/en-us/ef/core/managingschemas/migrations/?tabs=dotnet-core-cli
- https://docs.microsoft.com/en-us/aspnet/core/test/integrationtests?view=aspnetcore-6.0
- https://sweetcode.io/schema-changes-devops-including-databasedevelopment-model/
- https://www.youtube.com/watch?v=tNcWX9qPcCM&t=353s
- https://www.section.io/engineering-education/how-to-build-authentication-api-with-jwt-token-in-nodejs/

