



datagazer

April 2020

# Background and professional experience

Datagazer is a software consulting company focused on building data-driven healthcare solutions

## We specialise in:

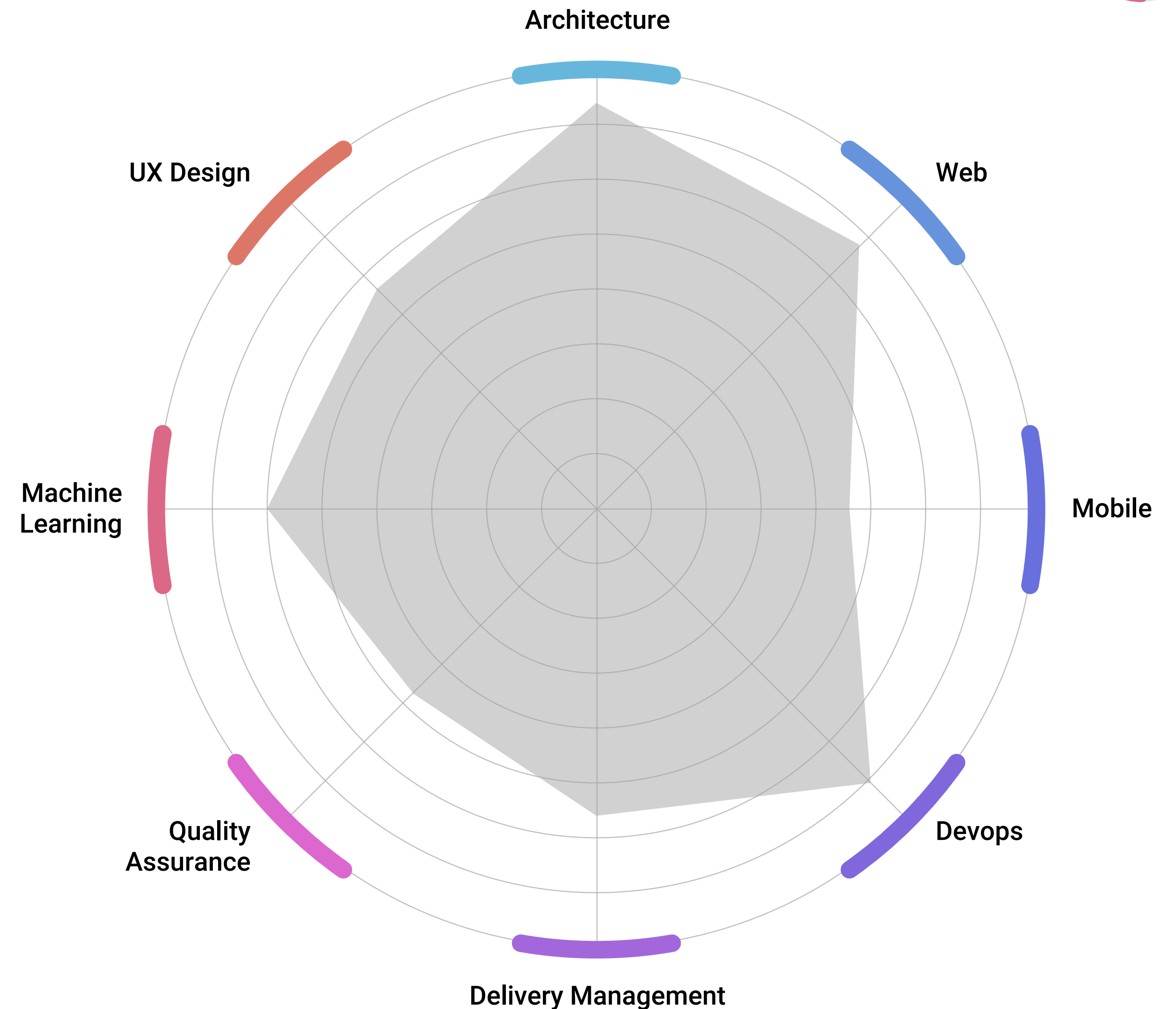
- Building large scale data processing systems for patient demographics, clinical, medical coding and financial data
- Data visualisation and Business Intelligence platforms for hospitals and FSER
- Implementing machine learning algorithms on clinical data
- Platform architecture audit and consultancy on reengineering (security, HIPAA compliance, backup/monitoring solutions, use of right technologies, scalability)



# Team of the dream

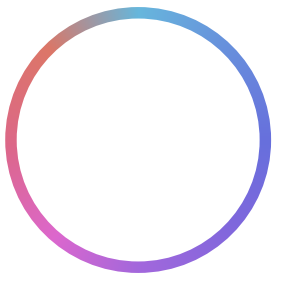
Our delivery teams consist of full spectrum of skill sets needed for to get the job done

- Architects to design the technical solution according to needs and budget
- Backend and Frontend engineers to implement
- Certified devops to establish and scale the infrastructure and support its operations
- Project & Product managers to drive the process from ideation to implementation
- Machine learning engineers to build prediction/classification algorithms
- Quality assurance engineers to capture any issues at the earliest stages
- UX/UI designers to ensure usability and best look and feel of the product



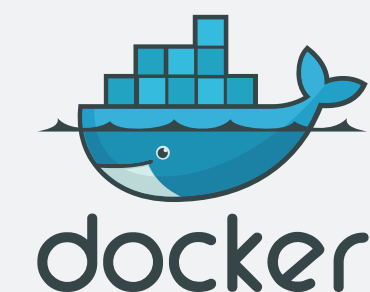


# Technology of the future



## Technological solutions we often use

- Containerised Java+Spring and Python+Flask micro-services
- EMR, Spark, Redshift for massive data processing
- Angular, Cordova/Ionic, Google charts for dashboards and visualisations and hybrid mobile apps
- Redshift, Postgres, MongoDB for data layer depending on project specifics
- Keras, Tensorflow, Spacy, Pandas, Scikit-learn + Amazon ML services for machine learning undertakings
- Amazon Web Services, Microsoft Azure, Docker, Kubernetes, Terraform for devops





# Case studies

## Healthcare expertise outline

4 years of building products for US Healthcare companies

40+ man-years of work

### Project portfolio includes

- BI platform for hospital revenue cycle management
- Machine learning powered clinical text extraction tool
- Hospital POS payment application
- Hospital membership management platform

Total Payments  
\$5,632.00

Subtotal  
-\$5,632.00

Amount to Pay  
52.5

Final Balance  
-\$5,684.50

CHOOSE PAYMENT METHOD

Credit/Debit Card

Cash

BACK

PROCEED TO PAYMENT

Edit Member

Membership Type

Individual

Plan Type \*

Premier Employees

Membership Cost \*

\$ 0/Monthly

Ends \*

4 Feb 2025

Home Phone

Cell Phone

Work Phone

City \*

Waco

Zip code \*

76701

Address \*

1900 Austin Ave, Ste 1001

PAYMENT INFO

Cardholder Name \*

John Doe

Card Number \*

53512901999999

Expires MM \*

12

YYYY \*

2020

CVV \*

...

Active

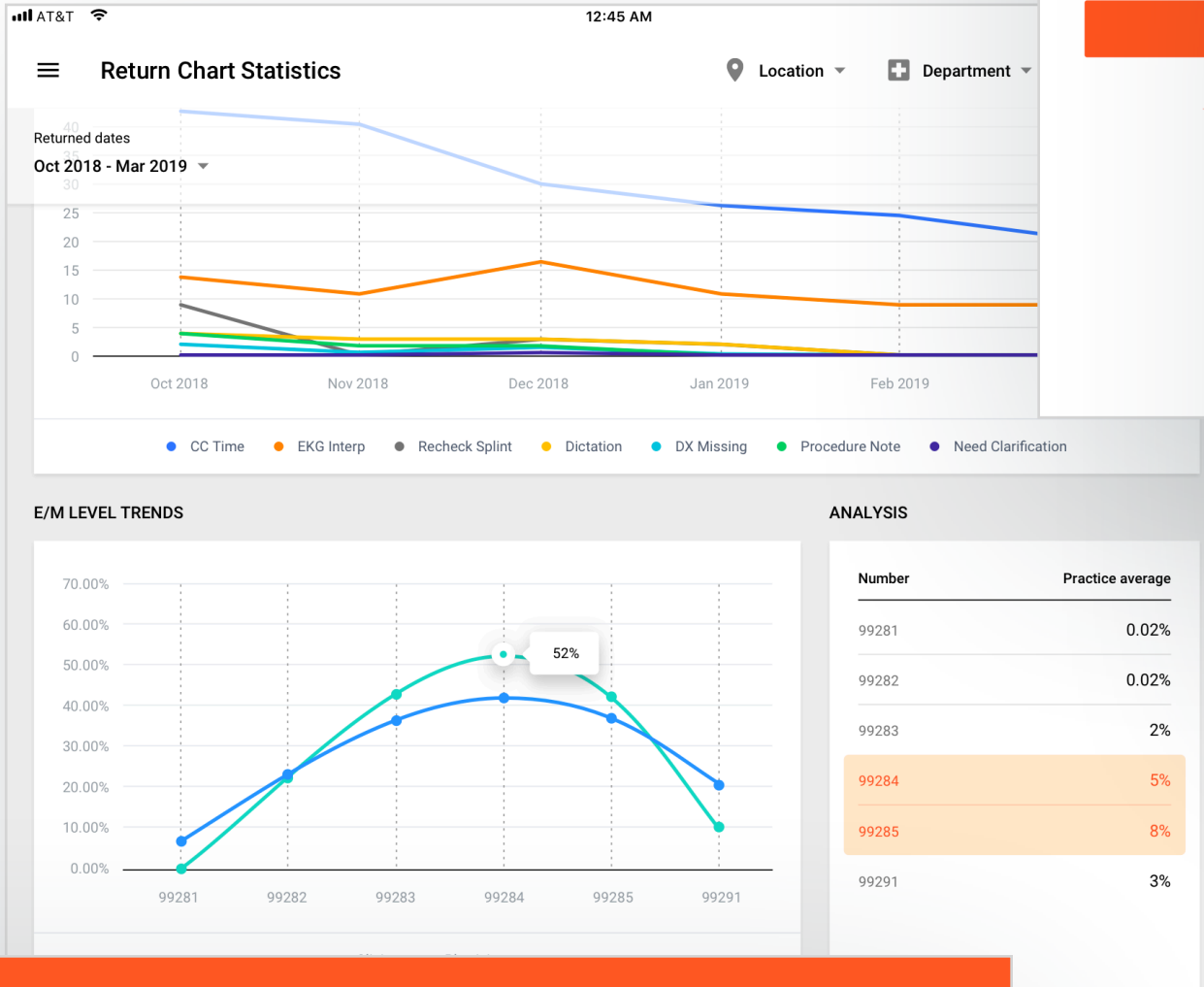
Auto-Renew

Use Payment Mthd. for Co-Pays

E-mail Statements

E-mail Receipts

Newsletter/Promotions

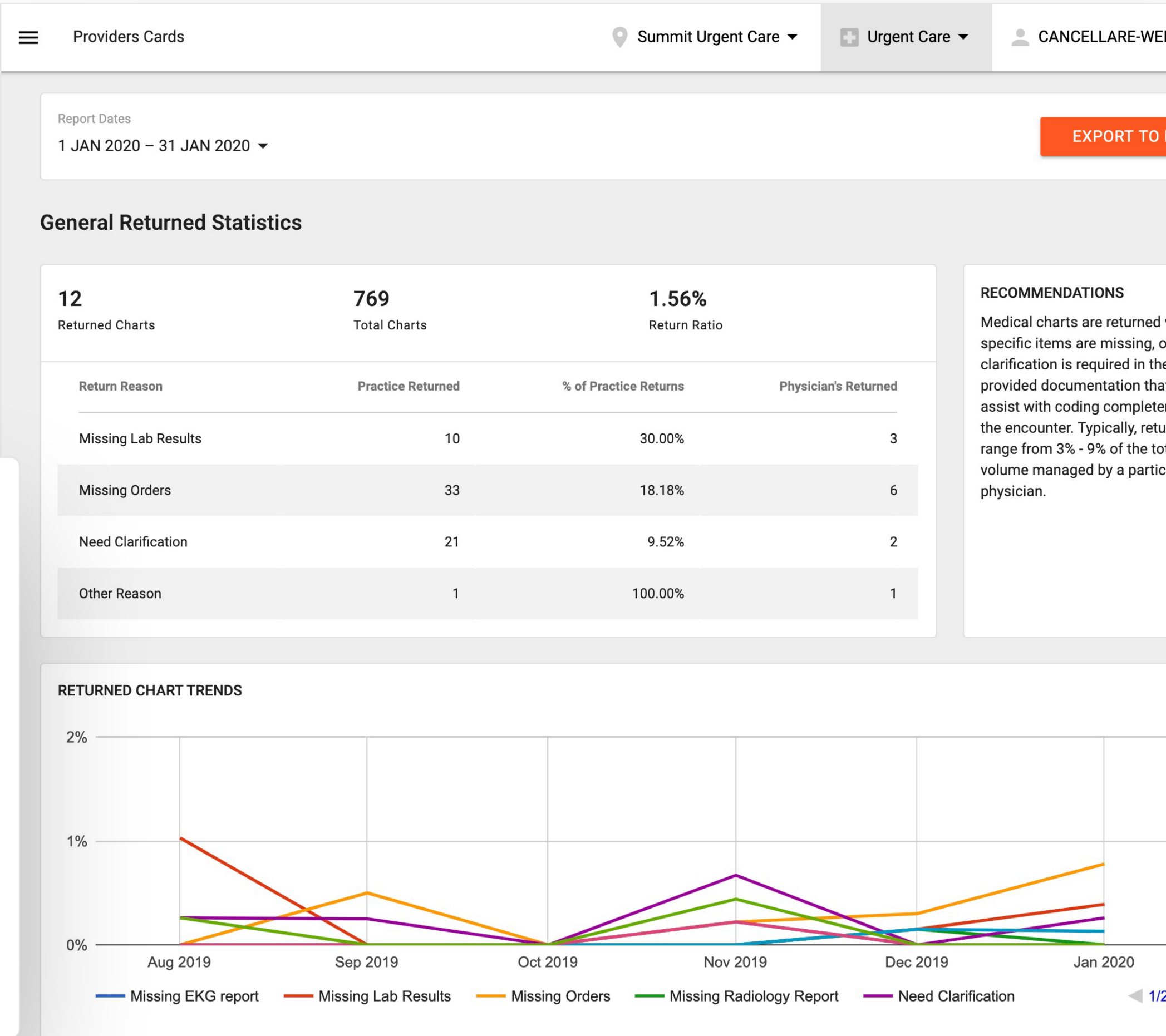
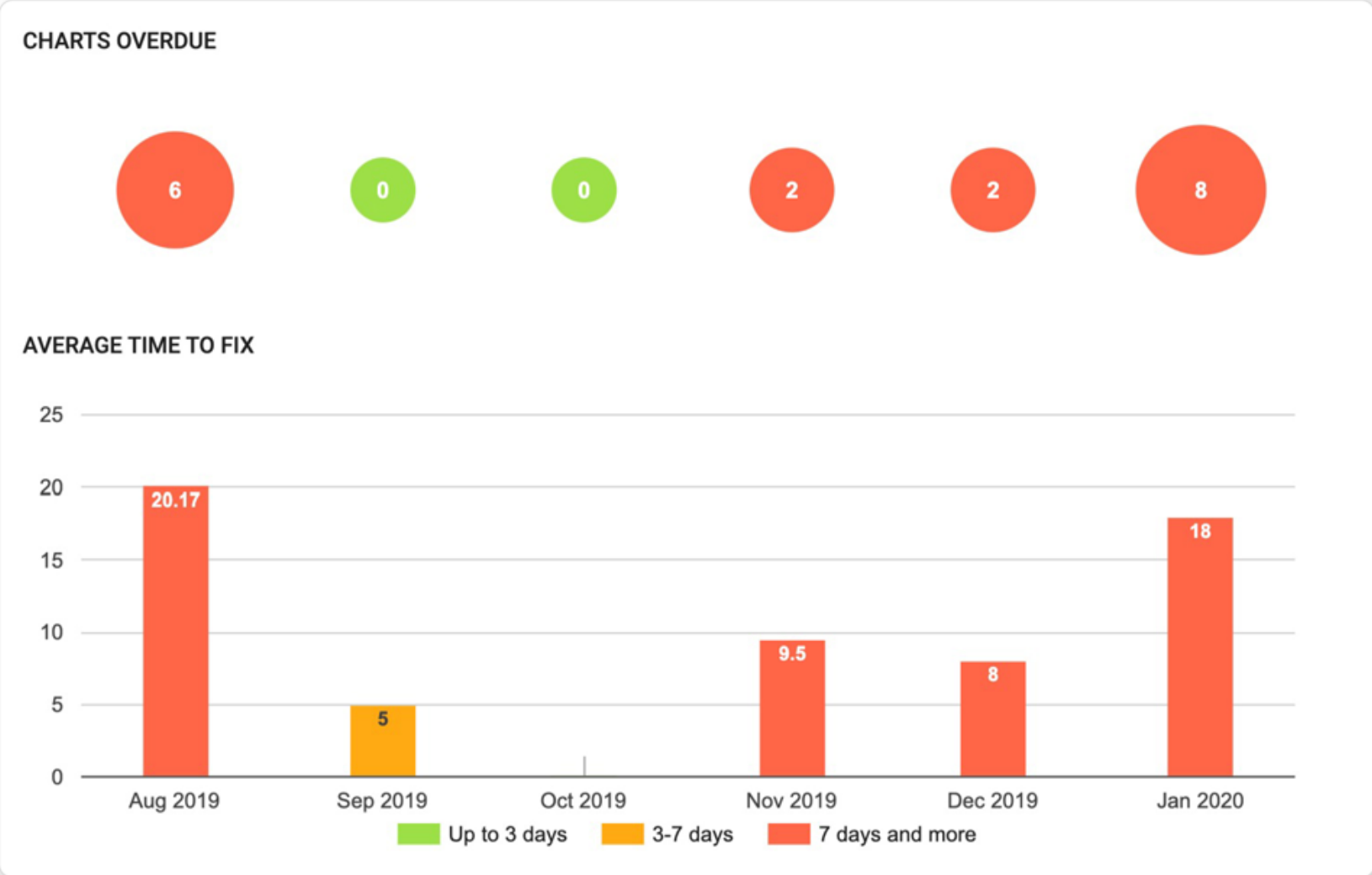
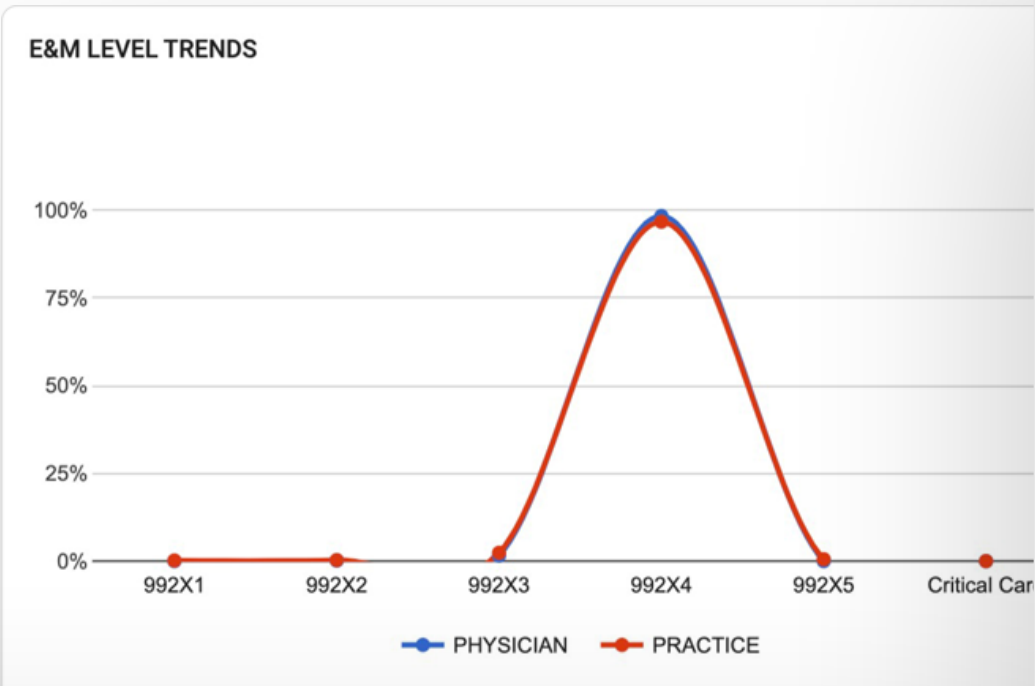


# Case 1.1

## BI tool for revenue cycle management

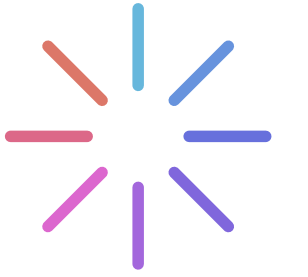
Data platform that captures, normalises, aggregates and visualises patient, clinical and financial data from 100+ hospitals in the US to show holistic birds-eye view for management and ability to slice and dice the data at a very granular level

- 8 unique dashboards and 30 reports
- Multiple billing data provider integrations
- Scalable and HIPPA compliant





# Case 1.2



## BI tool for revenue cycle management

### Datagazer involvement

- Project management
- Requirements management
- UX and UI design
- Data processing and transformation
- Backend and Frontend for the client-facing part
- End-to-end testing
- Infrastructure setup and operations

### Technical stack

- Containerised Java8+Spring web services
- AWS(EC2,SQS,ECS,Redshift, RDS)
- Angular.js
- Terraform,k8s





# Case 2.0



## Machine learning powered clinical text extraction

Machine learning platform that processes hospital clinical documentation (semi-structured pdfs, images, texts) captures meaningful pieces of text and scores their completeness and creates brief text summary

- Captures 20 text topics, including radiology, EKG, labs, medications, past social/surgical/social history, allergies, diagnoses
- Tested in 5 hospitals
- Summarises 100+ page PDFs into one-pager and fills all calculated values to automate medical coding process

### Datagazer involvement

- Project management
- Requirements management
- Data processing and transformation
- ML model creation and tuning
- End-to-end testing
- Infrastructure setup and operations

### Technical stack

- Amazon Textract
- Java for document processing
- LSTM model: Keras, Spacy, Python
- Google BERT

History of present illness

✓ Review of systems

Labs

EKG

MIPS

Allergies

Diagnosis

Medications

Patient is a 42 year old male who presents to the emergency department with a fall, onset 2 days ago. The patient reports that he fell out of his bed and was unable to get up off the floor. The patient reports that he was lying on the floor for several days due to his inability to get up. The patient denies hitting his head or loss of consciousness. The patient complains of associated generalized weakness, fever, chills, and left ankle pain and swelling. The patient denies any other associated symptoms at this time. The patient reports a history of HTN and DM. The patient reports he has been unable to take his medications over the last two days. The patient reports a past fracture with surgery to the left ankle.

Constitutional: Positive for chills and fever. HENT: Negative for congestion and sore throat. Respiratory: Negative for cough and shortness of breath. Cardiovascular: Negative for chest pain and leg swelling. Gastrointestinal: Negative for abdominal pain, diarrhea, nausea and vomiting. Endocrine: Negative for polydipsia and polyuria. Genitourinary: Negative for difficulty urinating, dysuria and hematuria. Musculoskeletal: Positive for arthralgias (left ankle pain and swelling). Negative for joint swelling and neck

COMPREHENSIVE METABOLIC

Abnormal; Notable for the following components:

GLUCOSE 244 (\*) |

CL 98 (\*)

CALCIUM 8.0 (\*)

GLOBULIN 4.0 (\*) All other components within normal limits

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# Case 3.0

## Hospital POS payment app



Mobile application for emergency rooms and hospitals helping to collect patient payments at of point of service

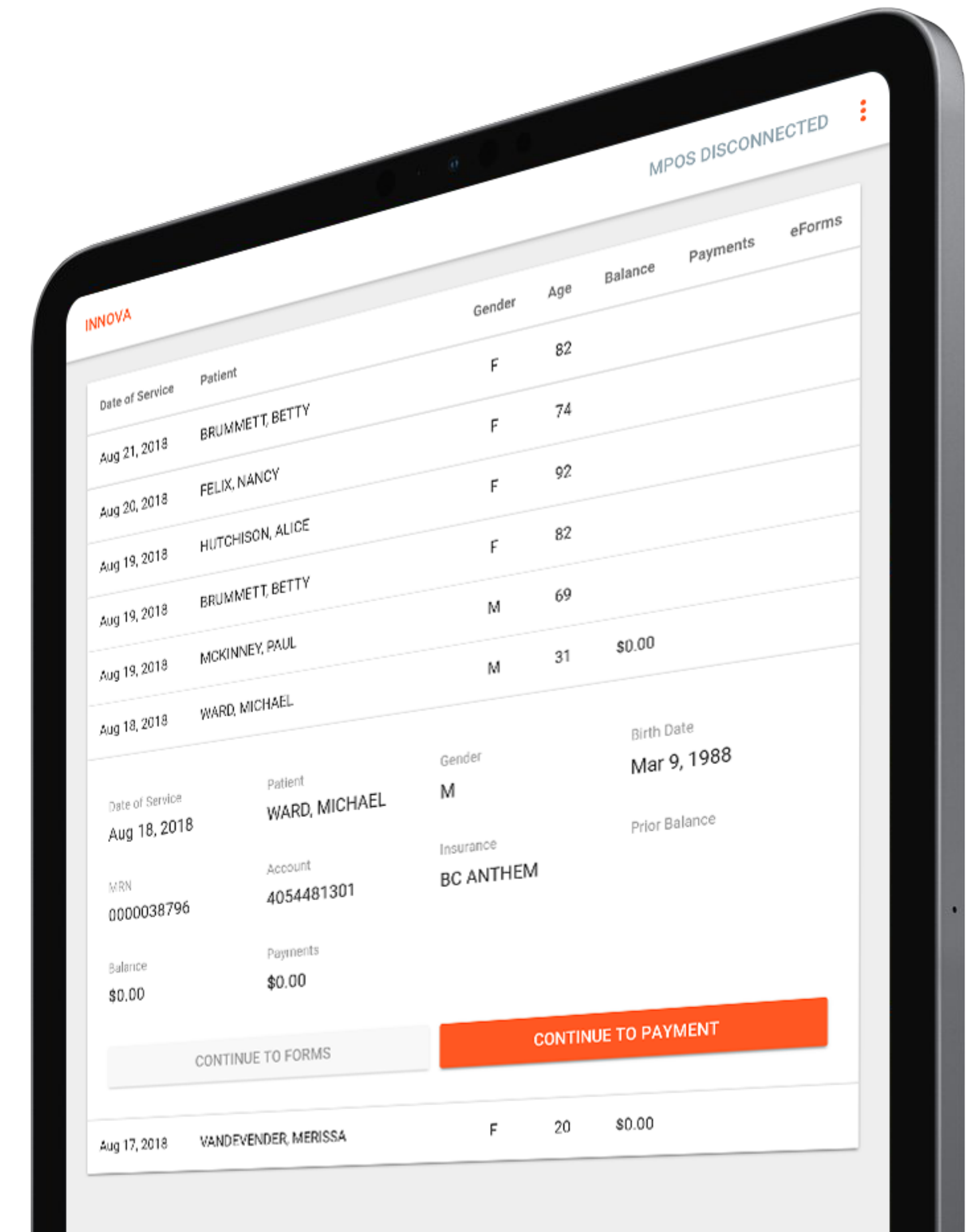
- Tablet application that integrates with Ingenico mobile payment terminal
- Installed in multiple Emergency Room chains

### Datagazer involvement

- Project management
- Requirements management
- UX and UI design
- Backend and payment flow processing
- Mobile payment terminal integration
- Mobile client development
- End-to-end testing
- Infrastructure setup and operations

### Technical stack

- Containerised Java8+Spring web services
- Ionic+Cordova
- Terraform, Kubernetes



# Case 4.0



## Hospital membership management platform

Web application for administration of hospital membership plans, participants and their recurrent payments

- Payment gateway integration, schedule administration and reporting
- Integration with POS and other systems with the ecosystem

### Datagazer involvement

- Project management
- Requirements management
- UX and UI design
- Backend and payment gateway integration
- Frontend development
- End-to-end testing
- Infrastructure setup and operations

### Technical stack

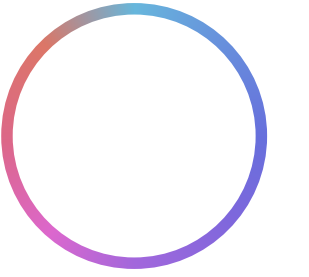
- Containerised Java8+Spring web services
- Angular.js
- Terraform, Kubernetes

The screenshot displays the 'Edit Member' interface of the hospital membership management platform. The interface is divided into several sections:

- Membership Type:** Includes radio buttons for 'Individual', 'Family', and 'Corporate' (selected). Below these are fields for 'Starts \*' (3 Dec 2018) and 'Ends \*' (4 Feb 2025).
- Plan Type \*:** A dropdown menu showing 'Premier Employees'.
- Membership Cost \*:** A dropdown menu showing '\$ 0/Monthly'.
- MEMBER/CONTACT:** Includes fields for 'Company Name \*' (Disney Employees), 'Last Name \*' (John), 'First Name \*' (Doe), 'Middle Name', 'State \*' (Texas), 'City \*' (Waco), 'Home Phone', 'Cell Phone', and 'Work Phone'.
- PAYMENT INFO:** Includes fields for 'Cardholder Name \*' (John Doe), 'Card Number \*' (53512901999999), 'Expires MM \*' (12), 'YYYY \*' (2020), and 'CVV \*' (\*\*\*). A red error message 'Please provide valid credit card number' is displayed below the card number field.
- Settings:** A list of toggle switches for 'Active', 'Auto-Renew', 'Use Payment Mthd. for Co-Pays', 'E-mail Statements', 'E-mail Receipts', and 'Newsletter/Promotions'.



# Testimonials



## Thomas Gregory

Chief Technical Officer in Presidio Health

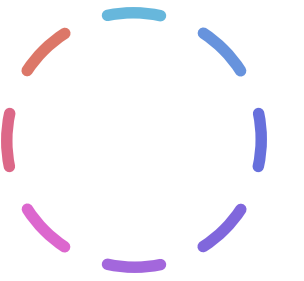


*I have worked with the team at Datagazer for nearly two years. During that time, we have worked together on numerous projects in the healthcare space. From UI design, back-end architecture, user interface development, business intelligence, AI, mobile and DevOps, the Datagazer team handled all tasks with professionalism and thoroughness.*

*The Datagazer team independently managed many of the projects and delivered on-time and within budget. Along with the autonomy, the team was able to make design decisions which always added significantly to the overall product. Their skills in leveraging the AWS infrastructure helped us with innovative solutions at a lower cost.*

*I highly recommend the Datagazer team with any project and look forward to working with the team again in the future.*

# Testimonials



**Han Wen Chua**

VP Ecosystem Growth in Zilliqa



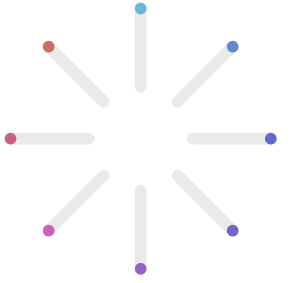
*Datagazer team was responsible for architecture, design and implementation of a block explorer project that captured and displayed up-to-date information about the state of Zilliqa blockchain network, transaction, block and pricing data along with the available smart contracts*

*The backend team integrated with our internal API and built a layer on top of it to accumulate historical and aggregated metrics to provide both granular detail level and the overall data trends*

*The frontend team provided practical ways to observe the trends along with ability to search and drilldown to a detailed level*

*Overall the team delivered the agreed scope of work on time and with good quality.*

# Testimonials



**Viktor Yanushenko**

Chief Technical Officer in LOOQME

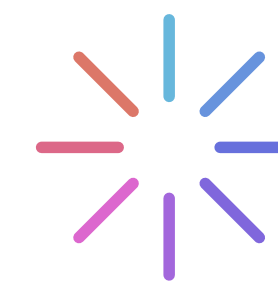


*Datagazer helped my team come up with an optimal solution for scaling out our data layer. They worked with us to identify and address the pain points and limitations of the existing platform and proposed an actionable plan on how to non-invasively extend the system to support future growth.*



# Contacts

Feel free to contact us



**Alexey Laptiev**

Chief Technical Officer

✉ [alex.laptiev@datagazer.io](mailto:alex.laptiev@datagazer.io)



**Ivan Porokh**

Chief Operations Officer

✉ [ivan.porokh@datagazer.io](mailto:ivan.porokh@datagazer.io)



**Thanks**  
**for watching**