Healthcare Management System - Modernization and Automation.

November 2023 - On going

I. SUMMARY

Delivered an application for a healthcare services client focusing on improving healthcare records and insurance data management

II. PROBLEM STATEMENT

The healthcare management system faced inefficiencies in maintaining and updating health and insurance records. Key issues included outdated member data, delays in data refresh, inaccurate patient–insurance mapping, and heavy reliance on manual processes leading to errors and operational inefficiencies

III. TECHNOLOGIES USED

- Frontend: React.js, HTML5, CSS, Bootstrap, JavaScript, JQuery
- Backend: .NET framework, ASP.NET Core, C#, Web API, RESTful Services, Entity Framework Core
- Messaging: RabbitMQ (Message Broker), Amazon SQS
- Caching: Redis, MemoryCache
- Database: Microsoft SQL Server
- Testing Tools: Swagger, SOAP UI, xUnit Test, Postman
- DevOps & Cloud: Azure DevOps, GitHub Actions, Azure App Services, Azure Functions, Azure Storage, AWS ElastiCache, AWS
- Task Management: Azure Boards, Microsoft Teams
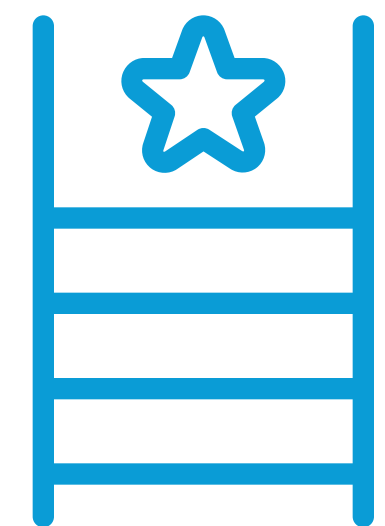
IV. OUR APPROACH

- Technology Upgrade: Refactored legacy .NET code, modernized frontend with React, and upgraded NuGet packages with resiliency features.
- Monitoring & Diagnostics: Implemented health checks and enhanced logging for proactive performance tracking and faster issue resolution.
- Automation: Streamlined workflows to auto-terminate outdated records, refresh active datasets, and ensure accurate insurance linking.
- Data Integrity: Enforced strict backend validation and workflow logic for reliable and consistent records.

V. KEY FEATURES

- Real-time health monitoring with automated checks.
- Resiliency features (retry logic, fault tolerance).
- Modern, responsive React-based UI.
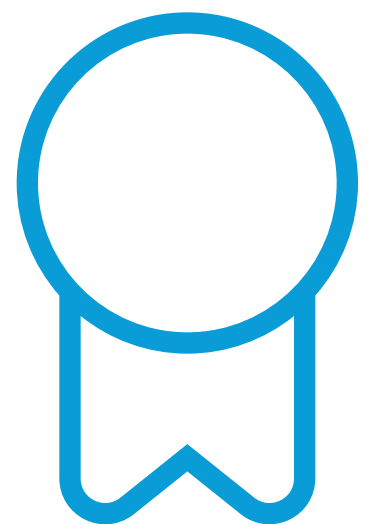- Automated record management and insurance mapping.

VI. CHALLENGES FACED

- Compatibility issues during NuGet upgrades.
- Complex refactoring of tightly coupled legacy architecture.
- Ensuring modernization without disrupting critical healthcare services.

VII. OUTCOME/RESULT

- Improved data integrity and automation, reducing manual errors.
- Consistently up-to-date healthcare and insurance records.
- Increased system reliability and performance.
- Boosted client satisfaction with a scalable, maintainable solution.

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