**Design a Population Health Analytics Application for the Rural/Community Hospital Market**

**Project Background**

Population Health Management refers to a concerted holistic approach to improving the patient health outcomes of a group of individuals within a community. The U.S. population health management market size was valued at 13.9 billion USD in 2019 and is anticipated to expand at a rate of 20.5% over the forecast period (2026). The market is majorly driven by the growing demand for healthcare IT services and solutions that support value-based healthcare delivery, resulting in a transition from Fee-For-Service (FFS) to a Value-Based Payment (VBP) model.

Some of the tenants of Population Health Management include:

* patient population profiling to assist with identifying patients at risk for readmission and create patient-specific care plans
* insights and information regarding social determinants and claims data
* patient risk scoring regarding health, lifestyle and medical history to create subpopulations through the division of a patient population
* empowering patients to have a higher level of engagement, education, and participation in their care

For this project, Population Health Management will provide the ability to target health trends, service utilization, health outcomes in key markets. It will help organizations to understand their community and the types of people who live there and the future services needed.

**Project Summary**

Students will aid in the development of features and analysis needed to provide a Minimal Viable Product (MVP) in the development of a Population Health Management module for rural and community healthcare providers combining patient claim data with census forecast data.

The application will utilize Experian CAPE demographics census forecasting data as well as needed patient claim data which will be combined to provide a rolling 5-year forecast of increase and/or decrease in patient categories grouped by disease state (i.e. Diabetes, Hypertension, Cardiac Disease)

The application will be built in the Microsoft Azure Cloud environment with end-user reporting, data visualization, and analysis provided via a Tableau Business Intelligence environment.

Students will also receive training and develop in a Domain Driven Design which is a methodology where developers work with the domain expert to visually create a model of the business domain. The business domain is the term used to communicate about concepts in the domain and all of the business rules in the domain. Students will gather information for the domain and graphical models from the domain expert and model it together. This graphical representation of the business domain helps everyone quickly understand the business domain, how things relate to one another, and drives the design of the software.

**Project Details**

Throughout this Capstone project, students will accomplish the following high-level goals:

* Complete Domain-Driven Design Training provided by Intalere
* Develop the project in an Agile development methodology
* Gain real-world experience participating in a collaborative, product-engineering environment
* Research and engage with container technologies, including Docker and Kubernetes as well as work with additional technologies such as Visual Studio, Microsoft Azure, .NET Core, Tableau and SQL Server
* Ideal student candidates will have experience in Visual Studio and .NET Core/C#
* Team Size: 2-3 students
* POC: Joe Morrison – Director, Product Management