


# CASE STUDY



improving 



## Public Education School District

### Predictive Analytics Solution for K-12 on Google Cloud

#### About Us:

As a trusted Google Cloud Partner, Improving is committed to providing our commercial and public sector clients with transformative services and solutions on Google Cloud Platform (GCP). With our expertise in open-source technologies, Improving's Google Cloud team has been instrumental in developing and delivering best-in-class services and solutions that have had a profound impact on how our enterprise and public sector clients have navigated their digital transformation journeys. Our expertise on Google Cloud Platform spans a range of AI/ML & GenAI data analytics, platform engineering and application development services, with a focus on providing our clients with a secure, scalable, and strategic pathway to the cloud.

#### Overview:

Improving developed a predictive analytics solution for our public education school district client in Winnipeg, Manitoba, to forecast student performance outcomes; our client did not previously have a solution to accurately track future performance outcomes.

#### Business Problem:

Data-driven interventions have the potential to significantly improve students' academic performance outcomes. However, our client faced challenges in going beyond descriptive statistics to obtain insights from their student performance data. Despite having a well-developed data analytics practice, the school district lacked the advanced tools and skills necessary to implement machine learning and predictive analytics.

#### Our Solution:

Improving, in partnership with Google, developed a predictive analytics solution on Google Cloud. We used anonymized student data, Google Cloud SQL, Google BigQuery, and logistic regression models to predict Grade 9 English and Math grades. An interactive data visualization dashboard was also developed on Looker to provide the school district with actionable insights.

#### Business Benefits:

- Predictive capabilities for earlier interventions.
- Data-driven resource allocation improved intervention efficiency.
- Identified at-risk students earlier, providing targeted support.
- Scalable solution for future cohorts.
- Empowered educators with actionable insights

#### Technologies Used:

- Google Cloud Platform
- Python and Vertex AI
- Cloud SQL
- Looker
- Google BigQuery
- Machine Learning (Logistic Regression)



#### Partnerships:

The project was initiated through a collaboration with Google, who provided financial support and introduced the broader technology conversation around educational solutions. Improving led the implementation and design of the solution for our client.

#### Conclusion:

This predictive analytics solution exemplifies Improving's expertise in leveraging advanced technologies and our data analytics expertise on Google Cloud to solve complex problems within the education sector. By combining Google Cloud's robust infrastructure with our deep understanding of data science and machine learning, we delivered a scalable, impactful solution.