Injury Forecasting Application Implementation to Maximize Workers' Safety

pennsylvania DEPARTMENT OF LABOR & INDUSTRY

Carnegie Mellon University Heinz College INFORMATION SYSTEMS • PUBLIC POLICY • MANAGEMENT

Objective

The vision toward a final product is to have a tool that will predict injuries and illnesses in PA across various industries and counties. PA staff trainers will utilize this Information to conduct proactive training and outreach to prevent these incidents.

Previous Work & Problems

The previous seven CMU teams developed the injury forecasting tool, but it has not been used in the actual business because of the following issues.

- Non-compliant software
- Production environment-compatibility
- Lack of testing and existing bugs
- Complex usage of Framework

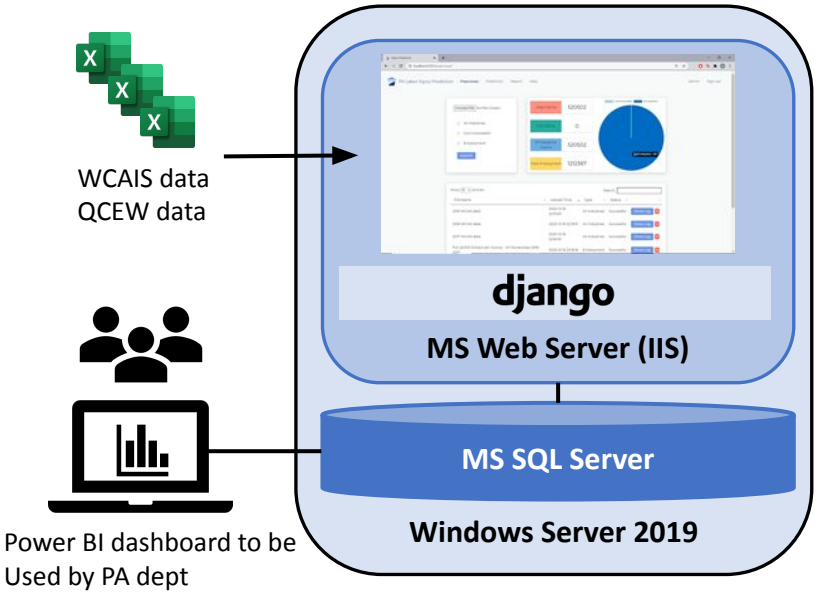
Solution

We applied the following solutions to solve problems and enhance user experience.

1) Software porting and simplification of framework usage to fit production environment
2) Enhance GUI features: model and granularity selection and progress bars
3) Bug-fix and security/style enhancement
4) Prediction code verification
5) Deployment process improvement

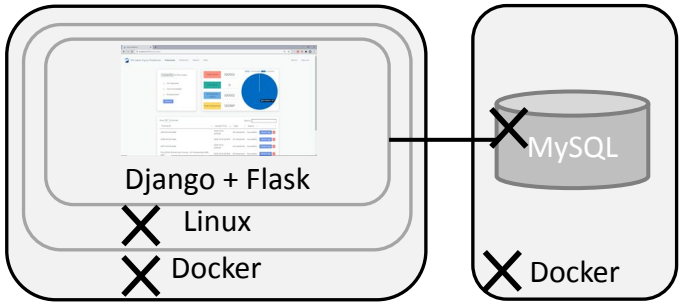
System Architecture

[New version]



PA Environment Compliant

[Old version]



Impact

Give the PA Department of Labor & Industry more quantitative data to draw from for making decisions and to allocate resources more effectively.

Setting Goal: Decrease Workers Compensation Paid due to work related injuries by 1% per year

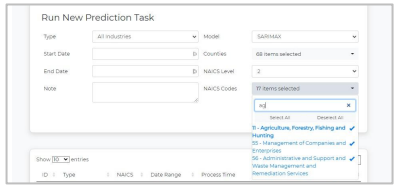
	2019
Work Injuries and illness in PA	172,756 cases
Worker Compensation Paid	$ 2.8 billion

(source: 2020 Pennsylvania WC Annual Report)

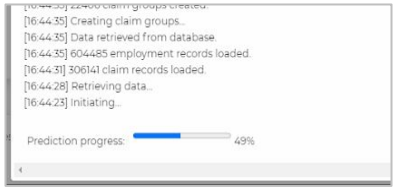
[Estimated Business Impact]

- Reduce injuries and illnesses by **1,700 case/year**
- Economic Effect: **$28 million/year**

Web Application and Dashboard

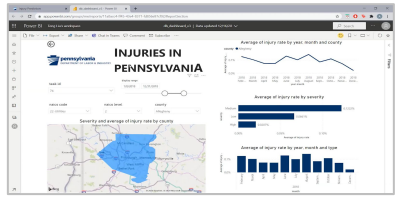


Model and granularity selection



Progress Bar

Application Statistic



Power BI Report

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