MLB Game Prediction Model Project CSCE 5214

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Expanded Idea from: https://github.com/laplaces42/mlb_game_predictor

Description

This project expands upon the baseball prediction model presented above for my CSCE 5214 Software Development for AI class, through the creation of an UI for showing predictions for handling game outcome predictions

Software Used

```
- Python Streamlit (for the UI)
- Apache Airflow (Automated Data Pipeline for updating data)
- PostgreSQL (Storing Historical Data)
- MLFlow (For ML Tracking, Storage and Deployment)
- Docker and Docker Compose (Stacking the application all together)
```

How To Use This Application

Requirements

```
- Docker CLI or Docker Desktop (I use Docker Desktop)
- Atleast 8-12 GB of RAM
- Internet Access for downloading data
- A prefered Database Connection Application: I chose PgAdmin:
https://www.pgadmin.org/download/
```

Guide on Getting Started

```
Step 1: clone this repository
Step 2: Make Sure the Docker Engine is running
Step 3: Run the command: docker-compose up -d <- This command builds the compose
stacks. It takes a while to initially start.
Step 4: Use your database connection application to execute the
sql_scripts/schema.sql file in the MLB_DATA database to create the data warehouse
for historical data (username: user, password: password)
Step 5: Login to airflow and run the **baseball-savant-etl-workflow** DAG to
populate the Datawarehouse
```

Commands

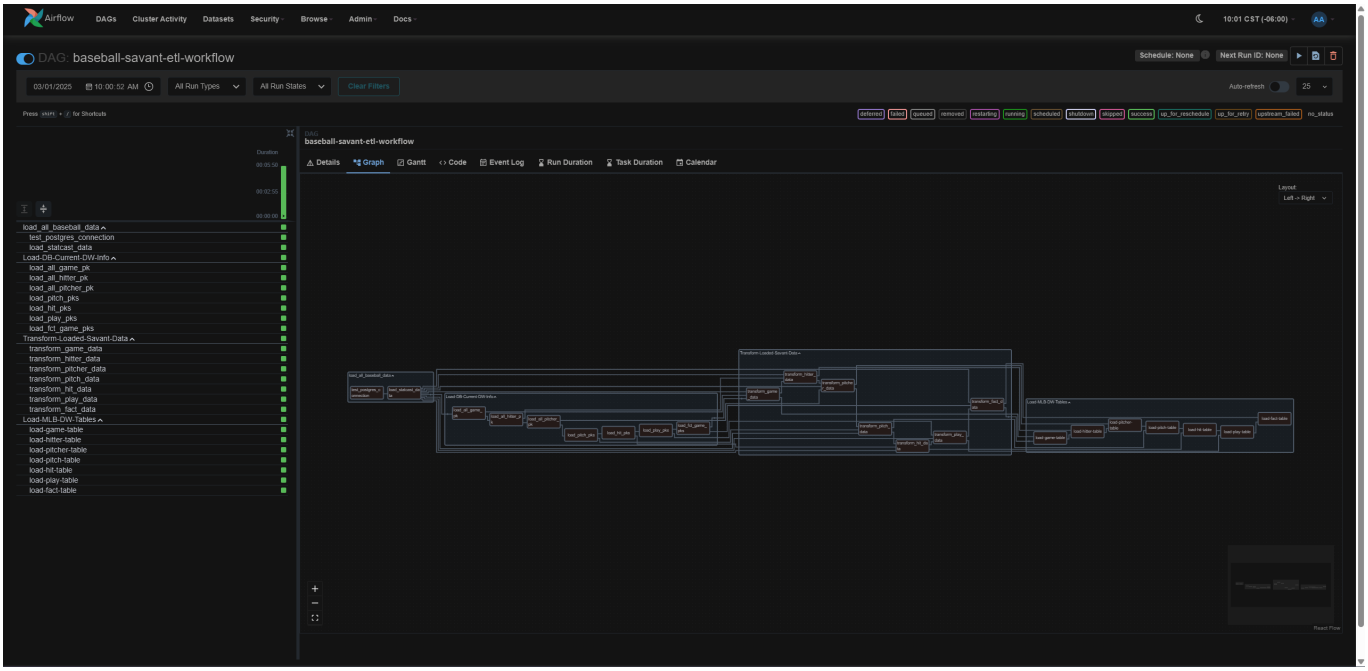
```
docker-compose up -d
```

Applications Running

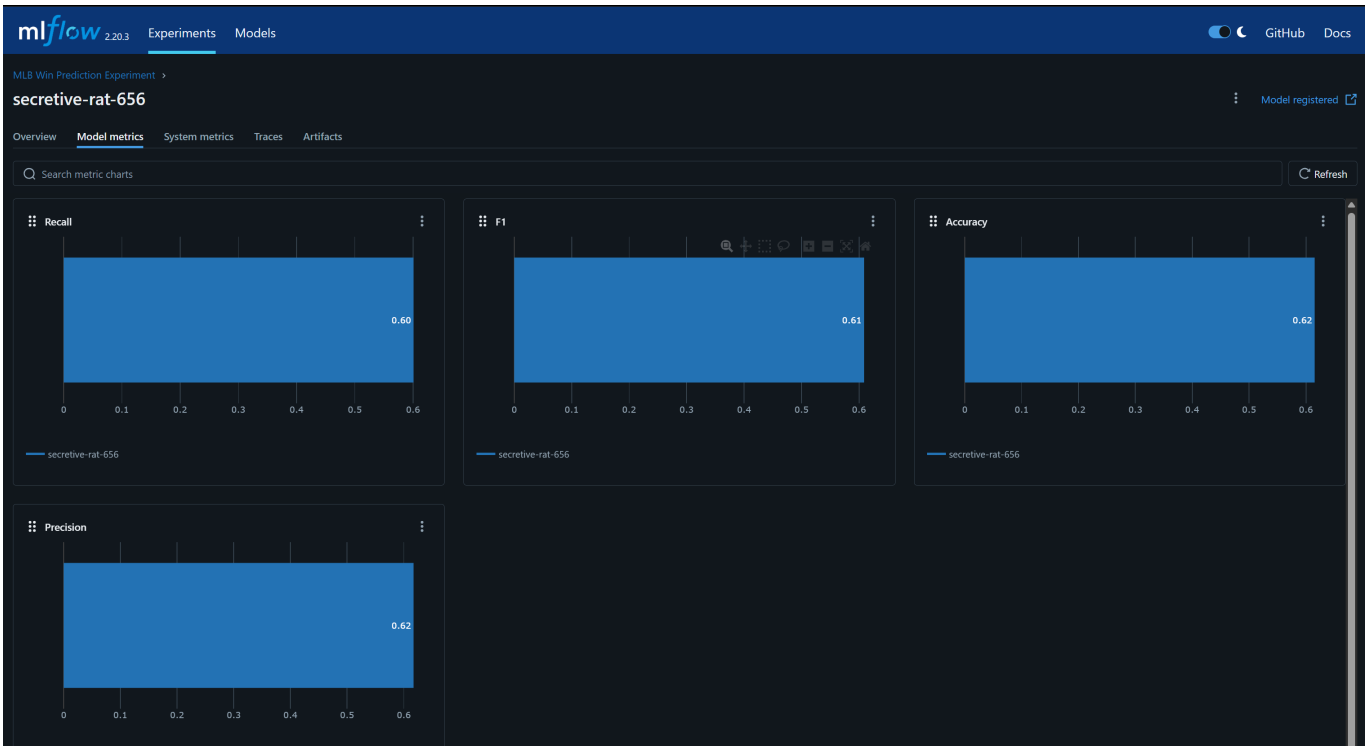
```
localhost:8051 -> Streamlit app
localhost:8080 -> Apache Airflow Web UI (default login is user:airflow pass:airflow)
localhost:5432 -> PostgreSQL Database (default login is user:user pass: password)
localhost:5000 -> ML Flow UI
```

UI Demo

Airflow ETL



MLFlow UI


mlflow 2.20.3
Experiments
Models
GitHub
Docs
MLB Win Prediction Experiment
secretive-rat-656
Model registered
Overview
Model metrics
System metrics
Traces
Artifacts
Search metric charts
Refresh
Recall
0.60
F1
0.61
Accuracy
0.62
Precision
0.62
0
0.1
0.2
0.3
0.4
0.5
0.6
secretive-rat-656