DOUGLAS COLLEGE

Winter 2025

Progress Report 4: Sports Management Portal for Injury Prevention, Performance, and Athlete Management Using Machine Learning

Prepared for

CSIS4495 Applied Research Project
Section 002

Presented to
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Work Logs

Juan Carlos Katigbak		
Date	**Number of Hours**	**Description of work done**
March 26, 2025	1	Finished "JuanCarlosK_Title_and_Abstract.pdf", uploaded it on Blackboard and added it to Repo
March 27, 2025	3	Continued with Proof of Concept 2 and uploaded to Repo a folder called updated_sports_management_portal which is basically an updated folder of the sports_management_portal folder and contains new updated data visualizations, a trained model which used the Random Forest algorithm called "rf_injury_model.joblib" which predicts the injury risk of the sports injury, "updated_data_visualization.py" to be able to make use of the Random Forest-trained model, "training_data.ipynb" jupyter notebook which trained my dataset using the Random Forest algorithm, "retrain_model.py" and "retrain_model.ipynb" files to add to my final Django work to retrain my dataset everytime I add new inputs to make the prediction even better, and the same "player_data_enhanced.csv" dataset. The updated_sports_management_portal folder uses Streamlit so in case you want to see the visualizations, open a Terminal (python -m venv env, then source env/bin/activate) or Command Prompt (python -m venv env, then env\Scripts\activate), install dependencies (pip install streamlit), then run application (cd updated_sports_management_portal, then streamlit run updated_data_visualization.py).
	4	Finalized Proof of Concept 2 with how the whole app will look like for the defense including the logo of the app which is called PlayAnalytics. Uploaded "playanalytics_logo.png" and "Final Rough Draft of PlayAnalytics.pdf" in the Repo in the Implementation folder under Proof of Concept 2 folder.
March 28, 2025	6	Finished Proof of Concept 2 having integrated Django with Machine Learning to bring out injury risk prediction with data visualization as well as have a player profile with journal entries and added to Repo in Implementation folder > Proof of Concept 2 folder > play_analytics folder.
	1	Finished "JuanCarlosK_ProgressReport4.pdf", uploaded it on Blackboard and added it to Repo

Work Description

This week of March 24 to 30, 2025, I finished PHASE 3: Build Minimum Viable Product and Testing having finished the last Microsoft Planner card which was “Building athlete profile and injury prediction”. These features were finalized for Proof of Concept 2 (now called PlayAnalytics which will serve as the MVP or minimum viable product) with how the whole app will look like for the thesis project defense based on the sketch file called “Final Rough Draft of PlayAnalytics.pdf”

I finished Proof of Concept 2 (serving now as the MVP) having integrated Django with Machine Learning (using Random Forest) to bring out injury risk prediction with data visualization as well as have a player profile with journal entries all added to Repo in the folder called “play_analytics”.

Finally ended the week by finishing Progress Report 4 which I uploaded to Blackboard and added to the repo.

Repo Check-In

The files and folders I have checked in the repo are as follows:

1.Implementation folder - under Proof of Concept 2 folder:

- ***updated_sports_management_portal* -** an updated folder of the sports_management_portal folder and contains **new updated data visualizations**, a trained model which used the Random Forest algorithm called **"rf_injury_model.joblib"** which predicts the injury risk of the sports injury, **"updated_data_visualization.py"** to be able to make use of the Random Forest-trained model, **"training_data.ipynb"** jupyter notebook which trained my dataset using the Random Forest algorithm, **"retrain_model.py"** and **"retrain_model.ipynb"** files to add to my final Django work to retrain my dataset everytime I add new inputs to make the prediction even better, and the same **"player_data_enhanced.csv"** dataset.

- ***playanalytics_logo.png* -** logo of PlayAnalytics which will serve as the branding of my sports management portal app.

- ***Final Rough Draft of PlayAnalytics.pdf* -** rough sketch of how the whole app will look like for the thesis project defense.

- ***play_analytics* -** the final folder of Proof of Concept 2 (now the minimum viable product moving forward) containing files to integrate Django with Machine Learning to bring out the injury risk prediction with data visualization as well as have a player profile with journal entries.

2. Reports & Documents folder - contains Progress Report 4 as well as the Title and Abstract file about my sports management portal app called “PlayAnalytics”.