University of Louisville Basketball Team

Dynamic Designers
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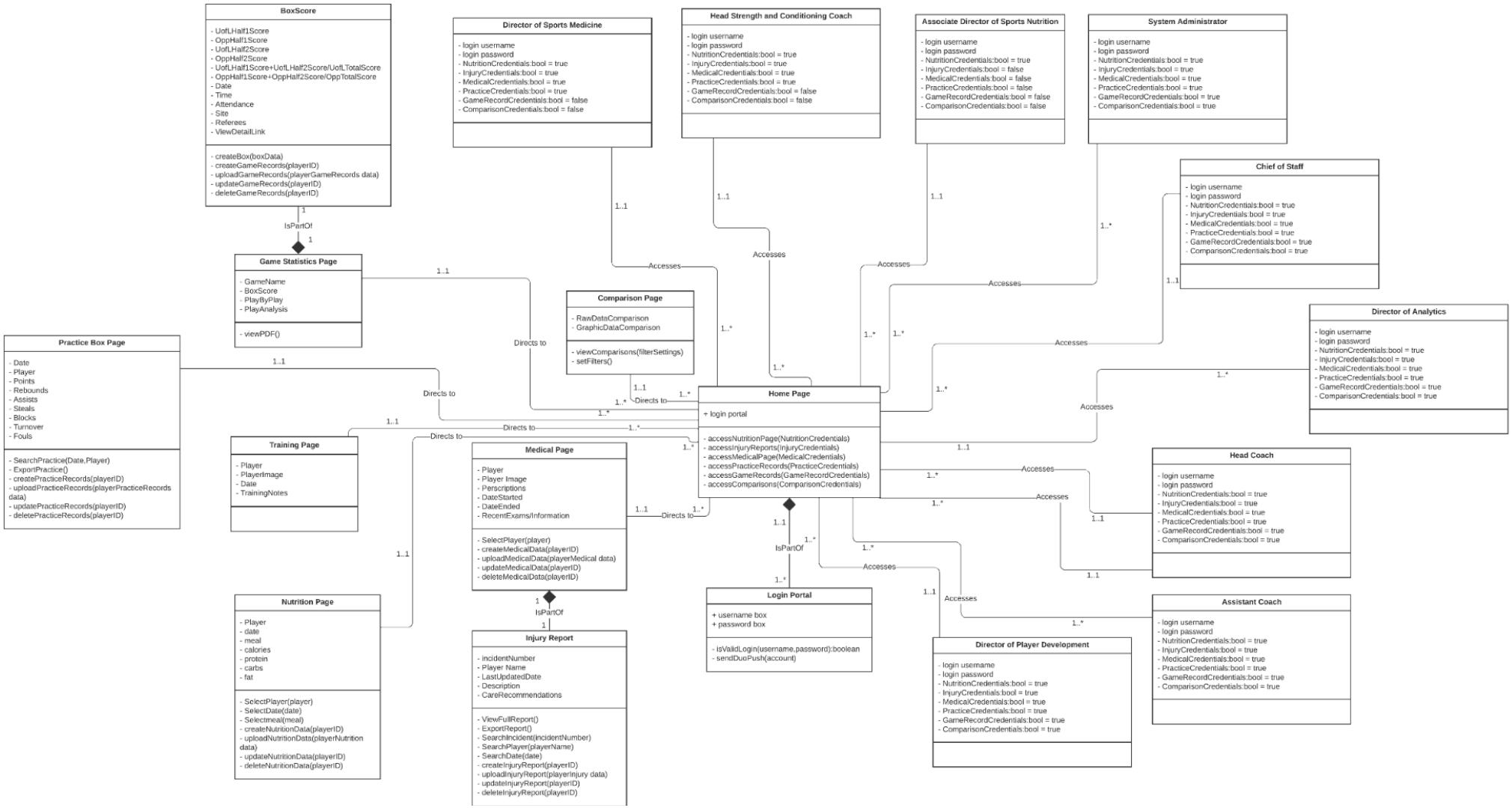
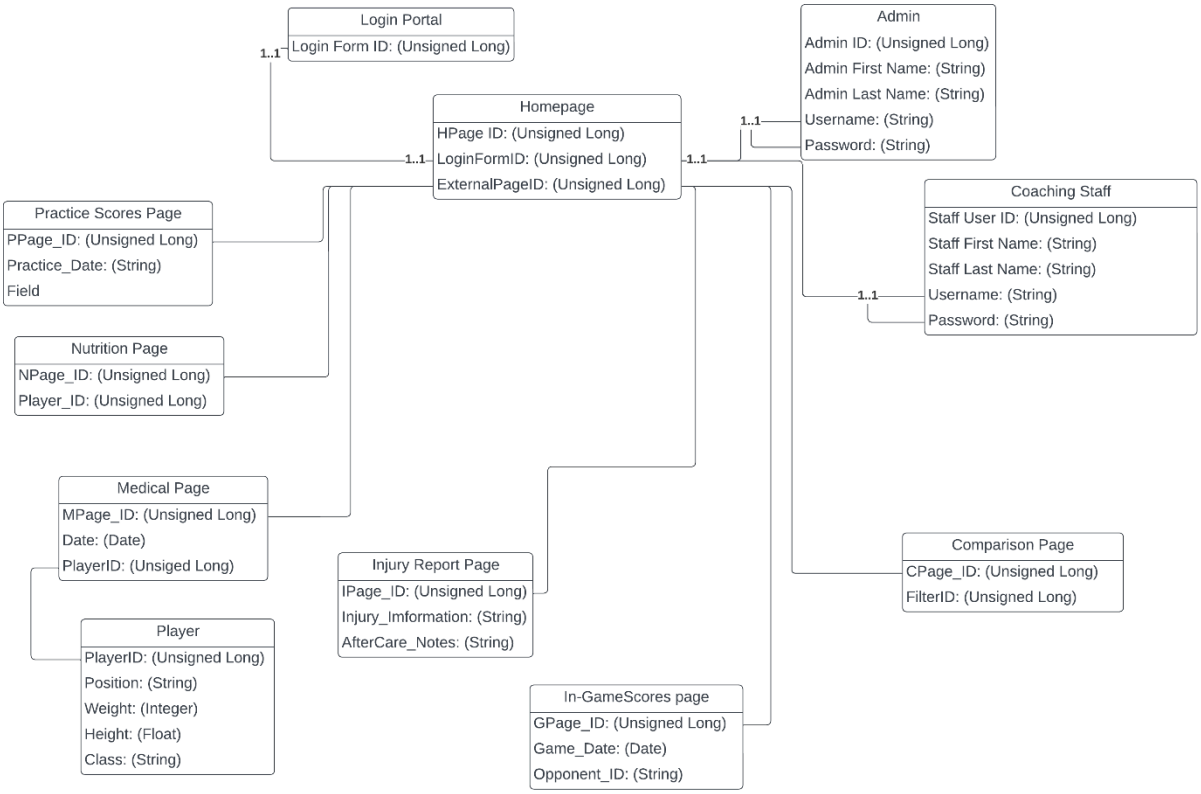
Class Diagram

This class diagram is derived by using a mix of verb-noun analysis and prototype analysis. The diagram shows how use cases flow and create the attributes from nouns, and the methods from verbs. When viewing this diagram, relationships can be seen between classes. The relationships between these classes help illustrate how many objects are associated between classes. Each class is made up of attributes, or characteristics, and methods, which define what the object can do. These relationships and classes were defined by looking at the prototypes that had been designed around the use-cases. This allowed our team to find the optimal way of organizing properties and operations within classes to best suit the needs of UofL's Basketball team.


BoxScore
- UofLHalf1Score
- OppHalf1Score
- UofLHalf2Score
- OppHalf2Score
- UofLHalf1Score+UofLHalf2Score/UofLTotalScore
- OppHalf1Score+OppHalf2Score/OppTotalScore
- Date
- Time
- Attendance
- Site
- Referees
- ViewDetailLink
- createBox(boxData)
- createGameRecords(playerID)
- uploadGameRecords(playerGameRecords data)
- updateGameRecords(playerID)
- deleteGameRecords(playerID)
IsPartOf
Director of Sports Medicine
- login username
- login password
- NutritionCredentials:bool = true
- InjuryCredentials:bool = true
- MedicalCredentials:bool = true
- PracticeCredentials:bool = true
- GameRecordCredentials:bool = false
- ComparisonCredentials:bool = false
Head Strength and Conditioning Coach
- login username
- login password
- NutritionCredentials:bool = true
- InjuryCredentials:bool = true
- MedicalCredentials:bool = true
- PracticeCredentials:bool = true
- GameRecordCredentials:bool = false
- ComparisonCredentials:bool = false
Associate Director of Sports Nutrition
- login username
- login password
- NutritionCredentials:bool = true
- InjuryCredentials:bool = false
- MedicalCredentials:bool = false
- PracticeCredentials:bool = false
- GameRecordCredentials:bool = false
- ComparisonCredentials:bool = false
System Administrator
- login username
- login password
- NutritionCredentials:bool = true
- InjuryCredentials:bool = true
- MedicalCredentials:bool = true
- PracticeCredentials:bool = true
- GameRecordCredentials:bool = true
- ComparisonCredentials:bool = true
Chief of Staff
- login username
- login password
- NutritionCredentials:bool = true
- InjuryCredentials:bool = true
- MedicalCredentials:bool = true
- PracticeCredentials:bool = true
- GameRecordCredentials:bool = true
- ComparisonCredentials:bool = true
Game Statistics Page
- GameName
- BoxScore
- PlayByPlay
- PlayAnalysis
- viewPDF()
Comparison Page
- RawDataComparison
- GraphicDataComparison
- viewComparisons(filterSettings)
- setFilters()
Director of Analytics
- login username
- login password
- NutritionCredentials:bool = true
- InjuryCredentials:bool = true
- MedicalCredentials:bool = true
- PracticeCredentials:bool = true
- GameRecordCredentials:bool = true
- ComparisonCredentials:bool = true
Practice Box Page
- Date
- Player
- Points
- Rebounds
- Assists
- Steals
- Blocks
- Turnover
- Fouls
- SearchPractice(Date,Player)
- ExportPractice()
- createPracticeRecords(playerID)
- uploadPracticeRecords(playerPracticeRecords data)
- updatePracticeRecords(playerID)
- deletePracticeRecords(playerID)
Home Page
+ login portal
- accessNutritionPage(NutritionCredentials)
- accessInjuryReports(InjuryCredentials)
- accessMedicalPage(MedicalCredentials)
- accessPracticeRecords(PracticeCredentials)
- accessGameRecords(GameRecordCredentials)
- accessComparisons(ComparisonCredentials)
Training Page
- Player
- PlayerImage
- Date
- TrainingNotes
Medical Page
- Player
- Player Image
- Perscriptions
- DateStarted
- DateEnded
- RecentExams/Information
- SelectPlayer(player)
- createMedicalData(playerID)
- uploadMedicalData(playerMedical data)
- updateMedicalData(playerID)
- deleteMedicalData(playerID)
Head Coach
- login username
- login password
- NutritionCredentials:bool = true
- InjuryCredentials:bool = true
- MedicalCredentials:bool = true
- PracticeCredentials:bool = true
- GameRecordCredentials:bool = true
- ComparisonCredentials:bool = true
Nutrition Page
- Player
- date
- meal
- calories
- protein
- carbs
- fat
- SelectPlayer(player)
- SelectDate(date)
- Selectmeal(meal)
- createNutritionData(playerID)
- uploadNutritionData(playerNutrition data)
- updateNutritionData(playerID)
- deleteNutritionData(playerID)
Injury Report
- incidentNumber
- Player Name
- LastUpdatedDate
- Description
- CareRecommendations
- ViewFullReport()
- ExportReport()
- SearchIncident(IncidentNumber)
- SearchPlayer(playerName)
- SearchDate(date)
- createInjuryReport(playerID)
- uploadInjuryReport(playerInjury data)
- updateInjuryReport(playerID)
- deleteInjuryReport(playerID)
Login Portal
+ username box
+ password box
- isValidLogin(username,password):boolean
- sendDuoPush(account)
Director of Player Development
- login username
- login password
- NutritionCredentials:bool = true
- InjuryCredentials:bool = true
- MedicalCredentials:bool = true
- PracticeCredentials:bool = true
- GameRecordCredentials:bool = true
- ComparisonCredentials:bool = true
Assistant Coach
- login username
- login password
- NutritionCredentials:bool = true
- InjuryCredentials:bool = true
- MedicalCredentials:bool = true
- PracticeCredentials:bool = true
- GameRecordCredentials:bool = true
- ComparisonCredentials:bool = true
Accesses
Directs to
IsPartOf

Database Design



Database Definitions

Home Page

Attribute	Attribute Definition	Attribute Type	Attribute Size	Key
Page ID	Unique Identifier	Unsigned Long	2	Primary
Login Form ID	Unique Identifier	Unsigned Long	2	Foreign
External Page ID	Unique Identifier	Unsigned Long	2	Foreign

Administrator

Attribute	Attribute Definition	Attribute Type	Attribute Size	Key
Admin User ID	Unique Identifier for Admin	Unsigned Long	3	Primary
Admin First Name	Admin's First name	String	12	N/A
Admin Last Name	Admin's Last Name	String	15	N/A
Username	Admin's Username	String	15	N/A
Password	Admin's Password	String	15	N/A

Coaching staff

Attribute	Attribute Definition	Attribute Type	Attribute Size	Key
Coaching Staff User ID	Unique Identifier for Staff	Unsigned Long	2	Primary
Coaching Staff First Name	Staff First Name	String	12	N/A
Coaching Staff Last Name	Staff Last Name	String	15	N/A
Username	Staff Username	String	15	N/A
Password	Staff Password	String	15	N/A

Player

Attribute	Attribute Definition	Attribute Type	Attribute Size	Key
Player ID	Unique Identifier for Player	Unsigned Long	2	Primary
Weight	Weight of Player	String	12	N/A
Height	Height of Player	String	15	N/A
Position	Position of the Player	String	10	N/A

In-Game Scores Page

Attribute	Attribute Definition	Attribute Type	Attribute Size	Key
Page ID	Unique Identifier for In-Game Scores Page	Unsigned Long	2	Primary
Game Date	Date of the game	Date	10	N/A
Opponent ID	Unique Identifier for the Opponent	String	2	N/A

Practice Scores Page

Attribute	Attribute Definition	Attribute Type	Attribute Size	Key
Page ID	Unique Identifier for Practice Score Page	Unsigned Long	2	Primary
Practice Date	Date of Practice	Date	10	N/A

Login Portal

Attribute	Attribute Definition	Attribute Type	Attribute Size	Key
Login Form ID	Unique Identifier for Login Form	Unsigned Long	2	Primary

Injury Report Page

Attribute	Attribute Definition	Attribute Type	Attribute Size	Key
Page ID	Unique Identifier for Login Page	Unsigned Long	2	Primary
Injury Information	Information about Player's injury	String	255	N/A
After Care Notes	Notes on Players for After Care	String	300	N/A

Medical Page

Attribute	Attribute Definition	Attribute Type	Attribute Size	Key
Page ID	Unique Identifier for Login Page	Unsigned Long	2	Primary
Date	Date that any medical information was recorded	Date	10	N/A
Player ID	Unique Identifier for Player	Unsigned Long	2	N/A

Nutrition Page

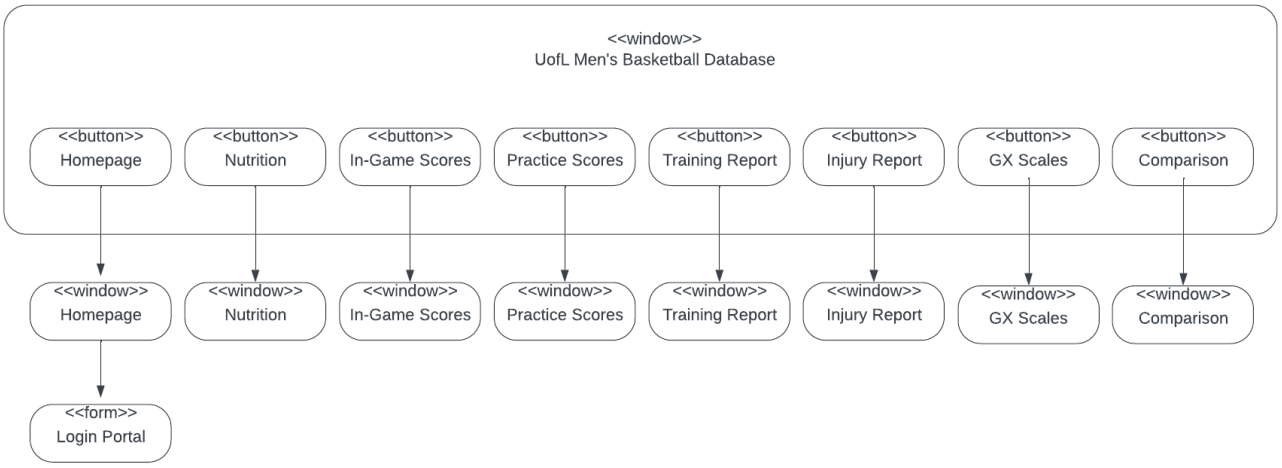
Attribute	Attribute Definition	Attribute Type	Attribute Size	Key
Page ID	Unique Identifier for Login Page	Unsigned Long	2	Primary
Player ID	Unique Identifier for Player	Unsigned Long	2	N/A

Comparison Page

Attribute	Attribute Definition	Attribute Type	Attribute Size	Key
Page ID	Unique Identifier for Login Page	Unsigned Long	2	Primary
Filter ID	Unique identifier	Unsigned Long	2	N/A

User Interface Navigation Diagram and Screen Layouts

The Window Navigation Diagram shows the fundamental parts of the system. It shows how users can interact with the system, as well as how windows, buttons, forms, and other objects interact with each other.

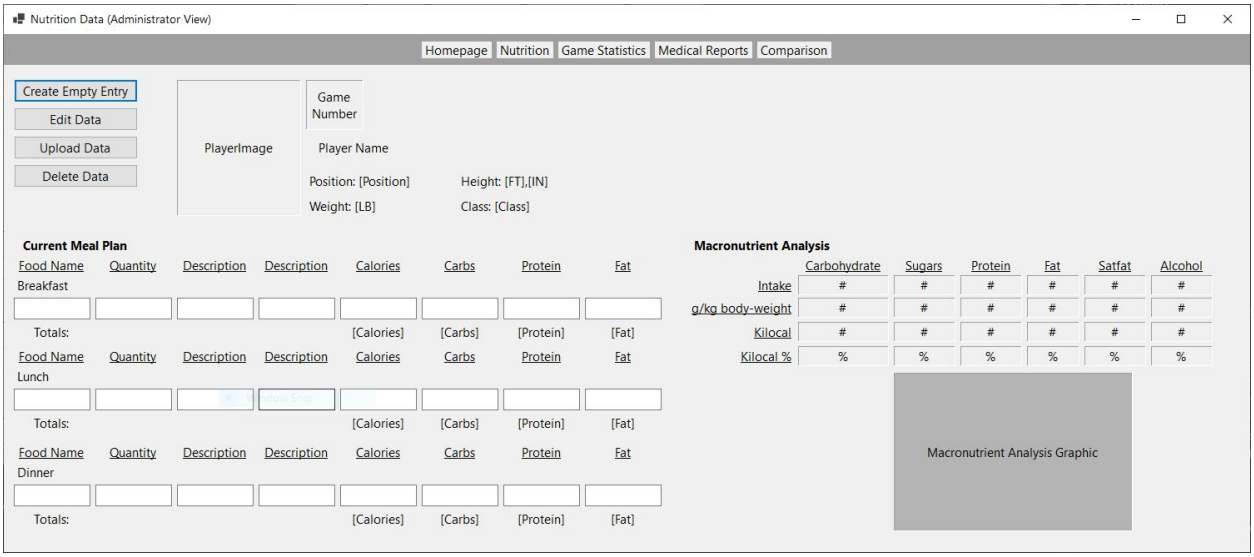


Data Forms

These are mockups of input/output forms for the screen layouts of the UofL Basketball Team system. Each of the use cases and prototypes for the input screen layouts are to demonstrate what the users or the administrators should see as they navigate through the website.

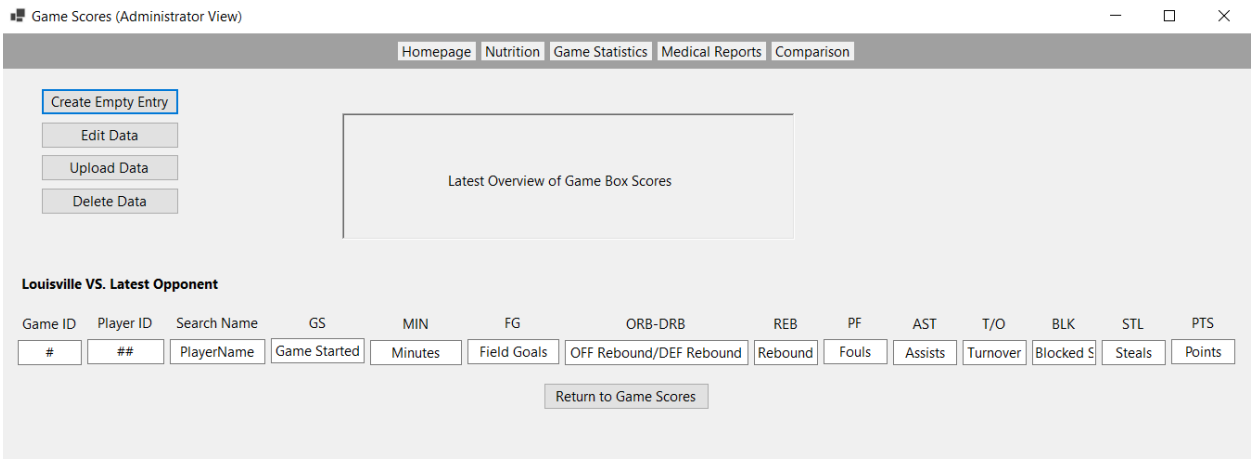
Create, Edit, Upload, Delete Players from Nutrition Page

Being able to change the nutrition page for the players is one of the important parts for the team players. Maintaining the player's nutrition improves diet and overall gameplay. Keeping the players healthy will result in better game statistics and a clear mind on the game. It's important for nutritionists to be able to create and edit the players' information accordingly. If there is any change in the players' diet, the nutritionists can edit the information and meet with the player to discuss any changes to their diet. With any new players or any players that will no longer be on the team, the nutritionists are able to upload any new medical information and delete older player information.



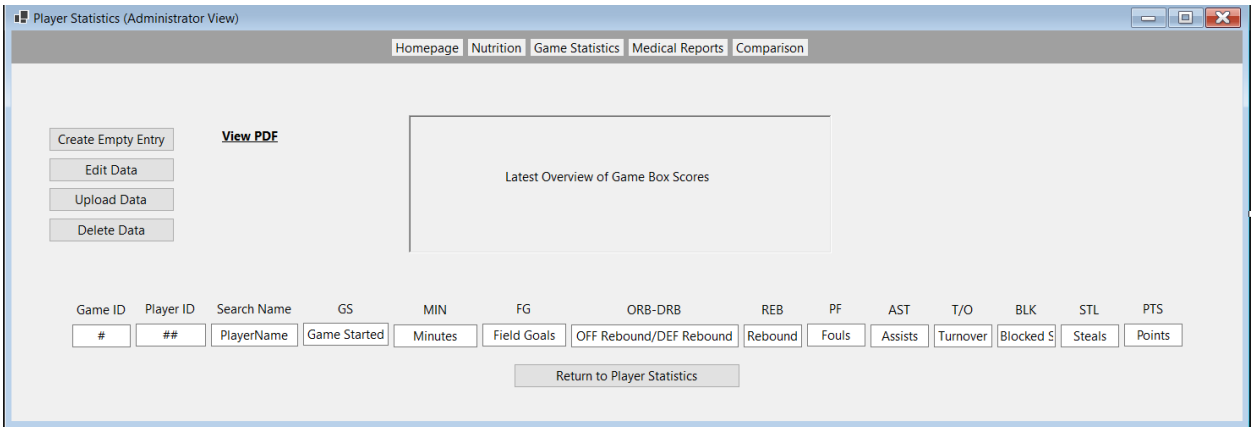
Create, Edit, Upload, Delete In-Game Scores

Keeping records of in-game scores is crucial to improving the team's knowledge of their own gameplay. Being able to review the in-game scores will allow the coaches to oversee the players who are doing well and who need more practice on the side to help improve the team's play. The coaching staff will be able to create new in-game scores and delete any old or irrelevant game scores. If the coaching staff needs to fix any information, they can edit the scores to have a more accurate database to review. The coaching staff is also able to upload any in-game scores that they have in a spreadsheet when they were not able to upload them.



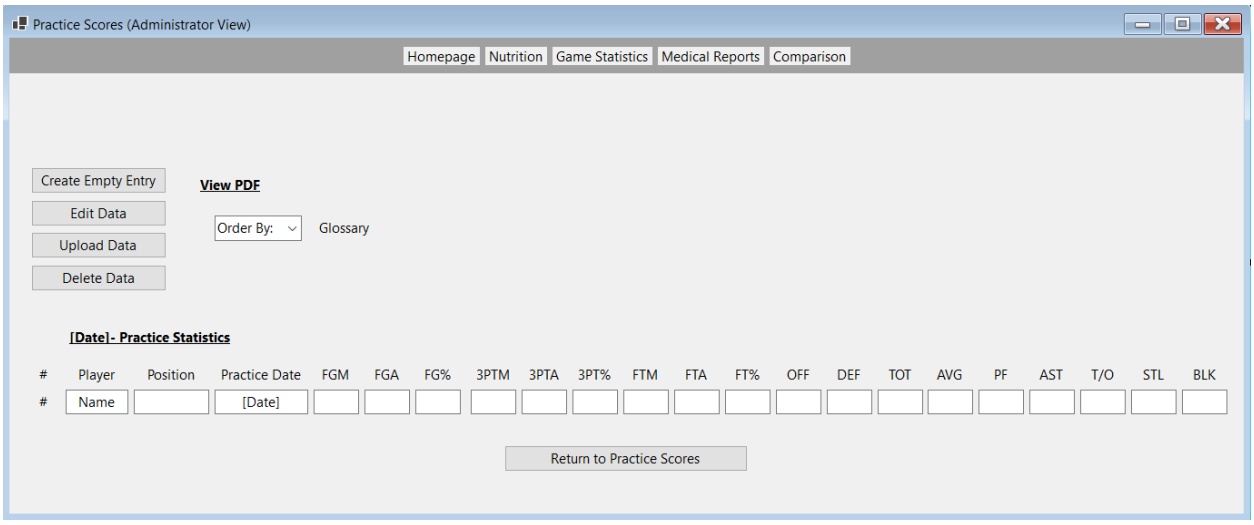
Create Edit, Upload, Delete Player Statistics

Maintaining a log of each player's in-game statistics is pivotal to any team's success. For the players, to keep track of where they may be struggling and which aspects, they need to work on in practice to hopefully transition in a game. For the coaching staff, it is important to see the statistics of players as they give a basis of how each lineup should play. If need be, they can make adjustments and cater to the players' strengths. The coaching staff has the ability to create and edit this database at any given point. Once complete, they may upload the information for all to see. If for any reason information needs to be wiped off the database, the coaching staff can delete the unneeded information.



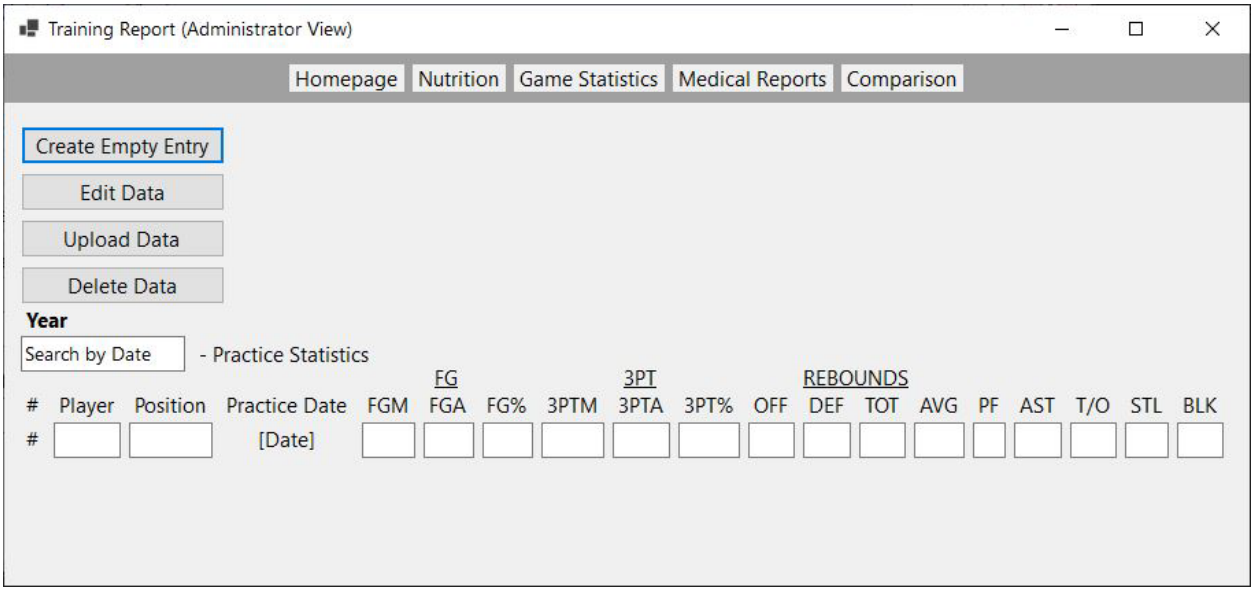
Create, Edit, Upload, Delete Players' Practice Scores

The team's practice scores are an important part of its long-term success. To have all of the records for the past performances is essential to getting better. One must be able to see where they played poorly or aspects where they can improve during practice. Collecting practice scores gives a player a good indication of where they excel, and where they need to put the extra work in. The coaching staff with the proper access will be capable of creating and editing the Players' Practice Scores when wanting to keep record of past performances. Once the information has been properly created, the coaching staff can then upload the practice scores for everybody to be able to view. Finally, the coaching staff can delete any uploaded practice scores at any given time.



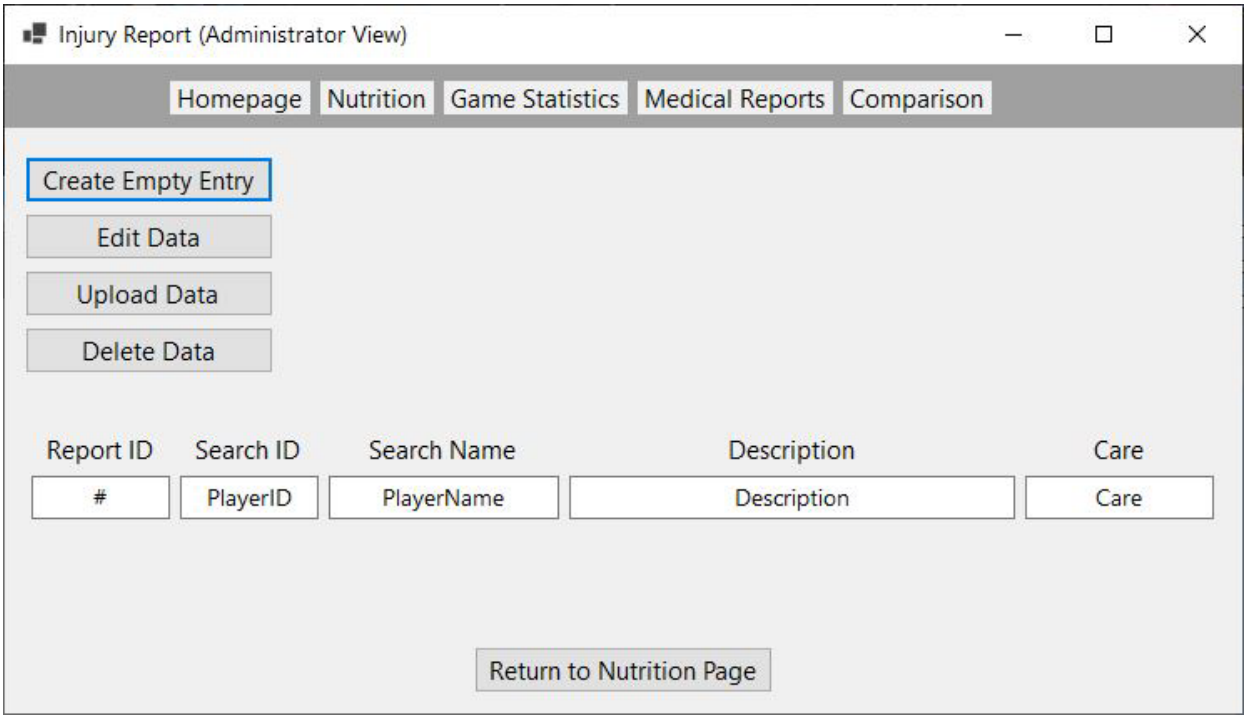
Create, Edit, Upload, Delete Players' Training Reports

Maintaining training reports is an essential aspect for the basketball team. Given the ability to keep a record of all your past training numbers. To see where one exercise compares to the next. Viewing all the data and focusing on the workouts that require the most work. The coaching staff can create and edit each training report. From there, they have the ability to upload the training report for all to see. This is where the user(player) can have access to this information and look at where they need to improve. Finally, the training reports may be deleted if the coaching staff finds the information redundant or unneeded.



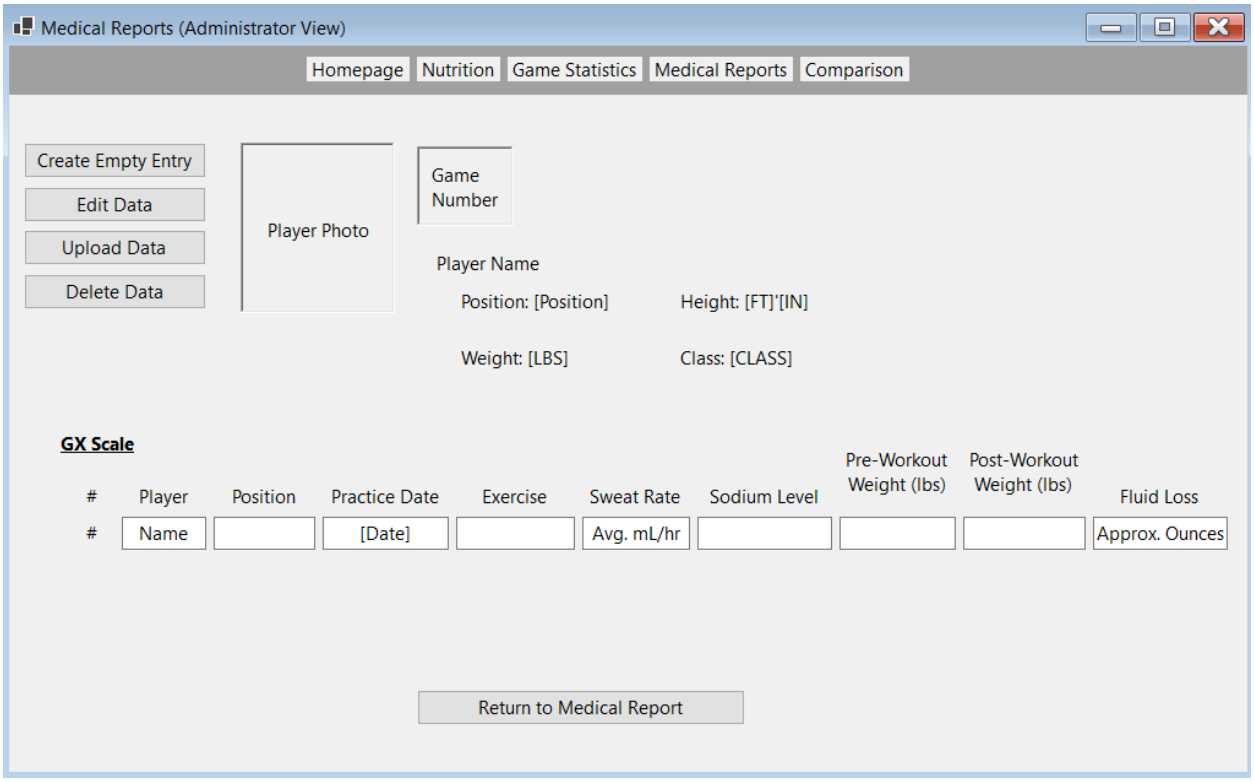
Create, Edit, Upload, Delete Players' Injury Reports

Monitoring a player's physical health is vital to the construct of any team. Knowing each player's past injuries and keeping note of which areas players need to strengthen their body. It is important to have a database showing which players are available to suit up in the upcoming games. The coaching staff has the ability to create and edit the injury reports to their liking. Once complete, they may upload the information for all to see. Any unwanted information may be deleted and wiped off the database.



Create, Edit, Upload, Delete Players' Medical Data

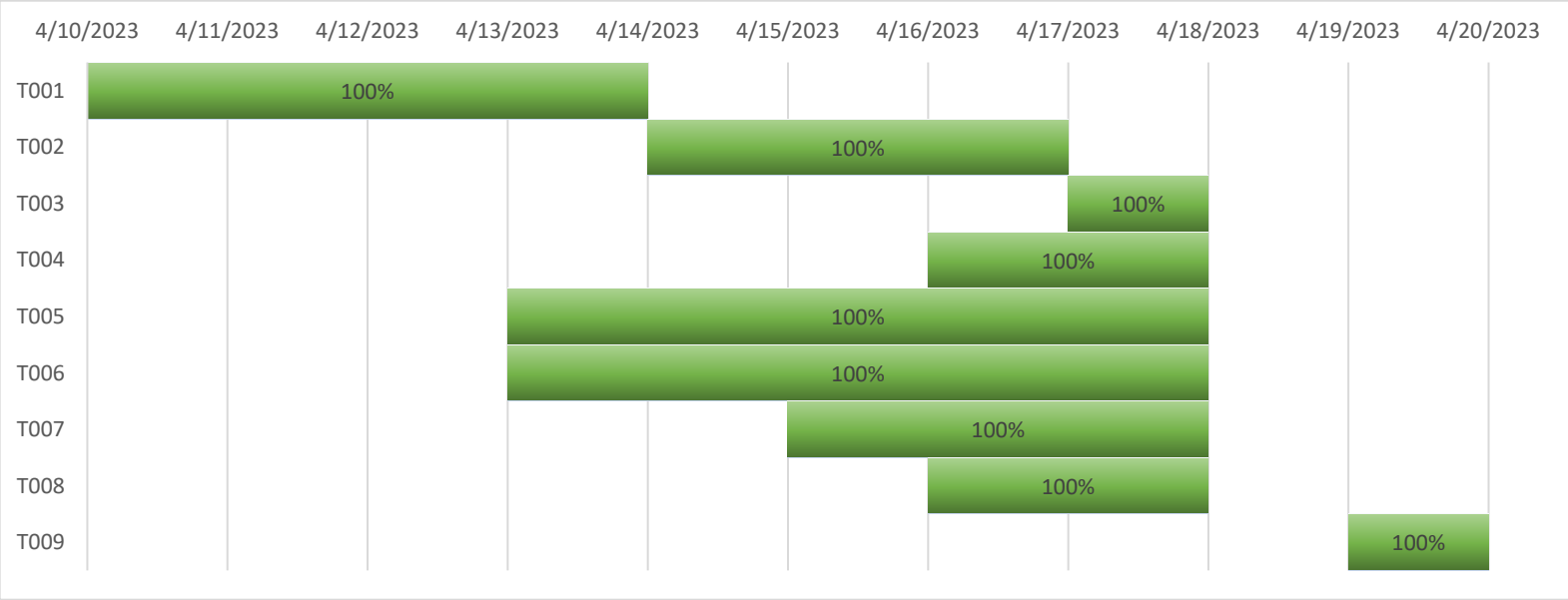
Keeping track of the medicine players are taking is important to the health of the team. To have a log showing all things medicinal related. Having a database that shows how long a player needs to take the medicine, what they are taking the medicine for, and if there are any side effects or impacts of taking said medicine. It is important to keep this data as accurate as possible and through the coaching staff's ability to create and edit information it is in their hands to ensure this. Once complete, the coaching staff may upload and delete the information at any time. Once uploaded, this gives everyone who has access to the database the ability to view the information.


Medical Reports (Administrator View)
Homepage
Nutrition
Game Statistics
Medical Reports
Comparison
Create Empty Entry
Edit Data
Upload Data
Delete Data
Player Photo
Game Number
Player Name
Position: [Position]
Height: [FT]'[IN]
Weight: [LBS]
Class: [CLASS]
GX Scale
Player Position Practice Date Exercise Sweat Rate Sodium Level Pre-Workout Weight (lbs) Post-Workout Weight (lbs) Fluid Loss
Name [Date] Avg. mL/hr Approx. Ounces
Return to Medical Report

Gantt Chart

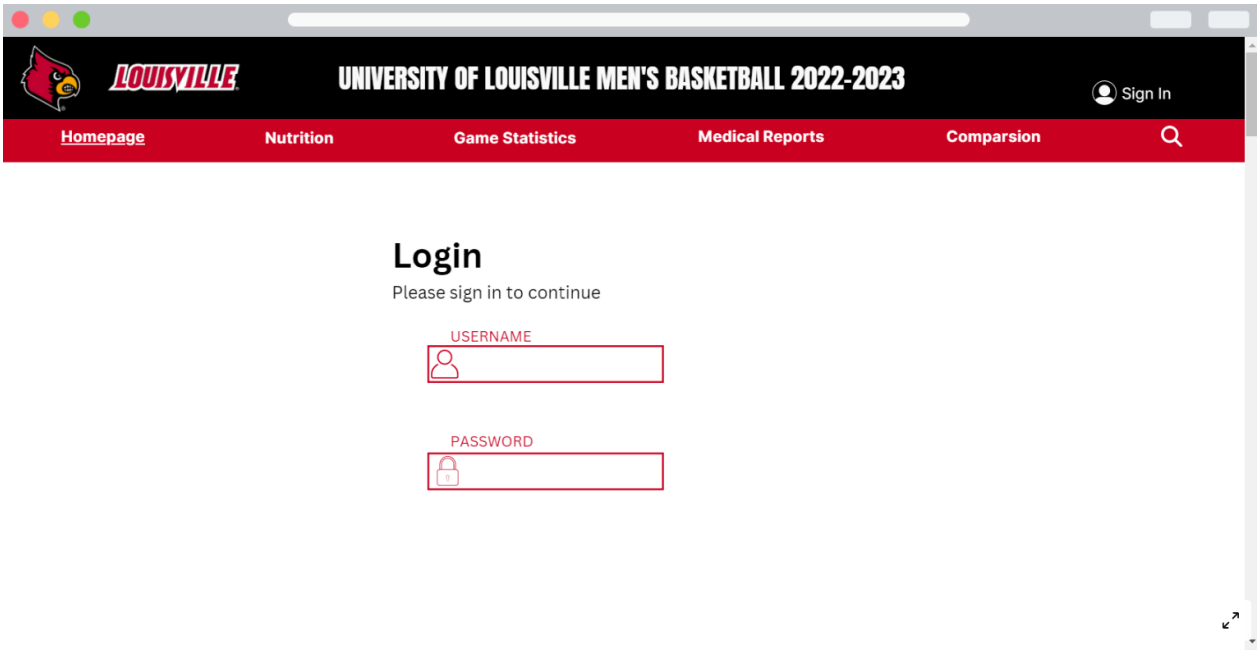
A Gantt chart is an important tool used in project management to help plan and appropriately schedule tasks among group members to successfully complete a project. Our Gantt chart visualizes the tasks for Iteration 5, displaying who was in charge of each section of work and the duration each task has taken. It allows for every team member to understand what is expected of them and have knowledge on any dependencies present between tasks, to be able to meet deadlines on time, and to prevent holding back another team member from beginning on their task. It allows for an organized workflow and helps visualize the project.

Task ID	Task	Start Date	End Date	Duration	Progress	Days Completed	Assignment Lead	Dependent
T001	Class Diagram	4/10/2023	4/14/2023	4	100%	4	Luke	
T002	Design Database	4/14/2023	4/17/2023	3	100%	3	James	Class Diagram
T003	Data Definitions	4/17/2023	4/18/2023	1	100%	1	Tiffany	Database Design
T004	User Interface Navigation Diagram	4/16/2023	4/18/2023	2	100%	2	Luke	Prototypes
T005	Gantt Chart	4/13/2023	4/18/2023	5	100%	5	Luke	
T006	Prototypes	4/13/2023	4/18/2023	5	100%	5	Abby	
T007	Data Capture/Presentation Forms	4/15/2023	4/18/2023	3	100%	3	Abby/Luke	
T008	Data Capture/Presentation Descriptions	4/16/2023	4/18/2023	2	100%	2	Dane/Tiffany	
T009	Review	4/19/2023	4/20/2023	1	100%	1	All	All

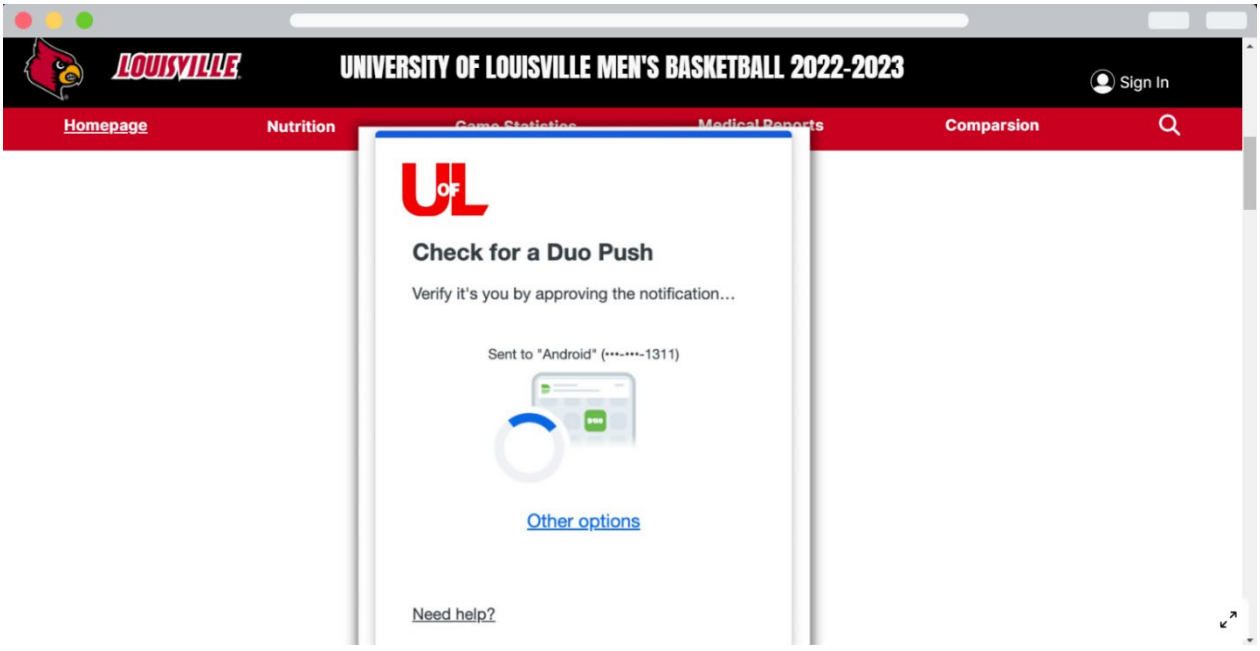


User Interface Prototypes

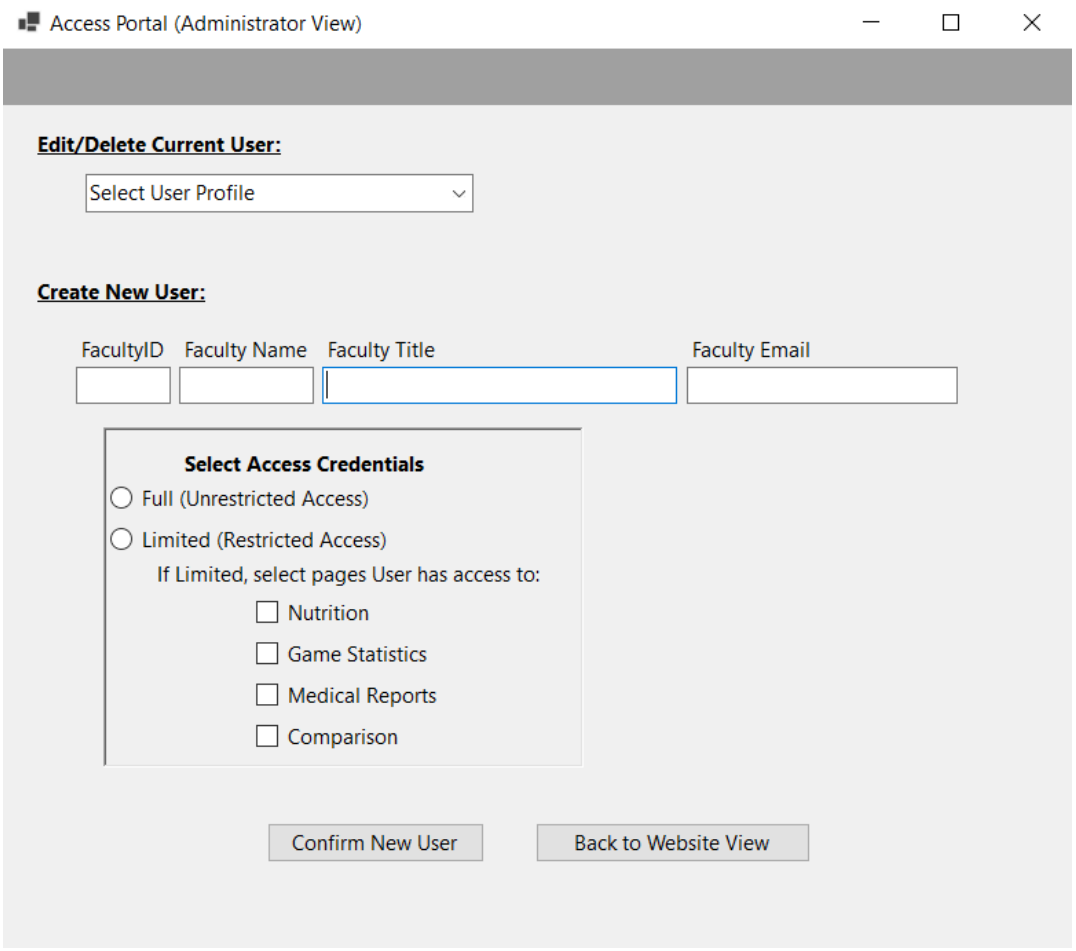
Use Case #1, 2: Edit Website Layout, Create Login Portal



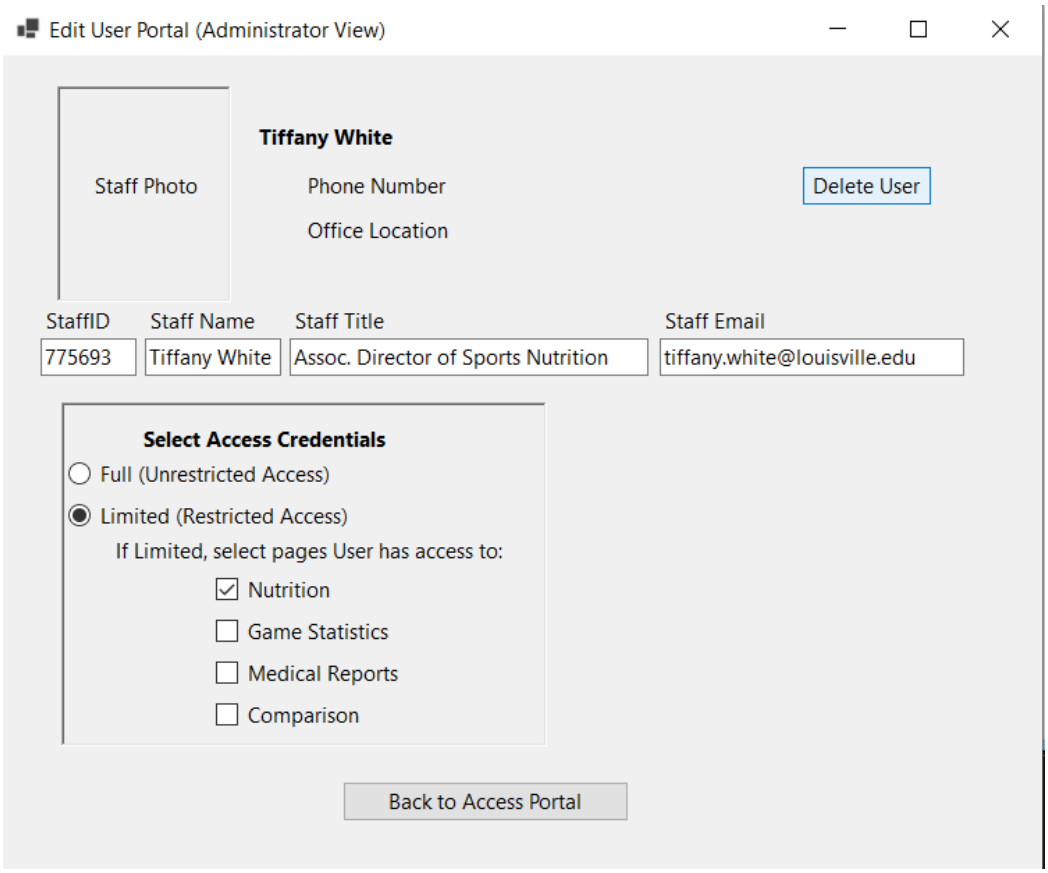
Use Case #3: Create Duo Authentication



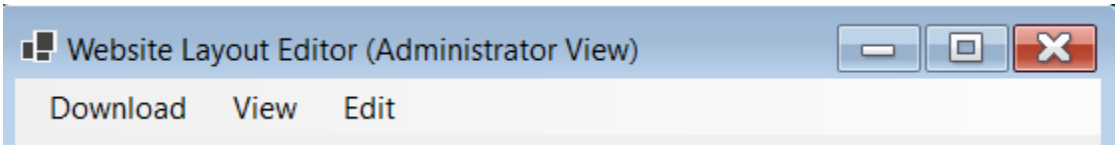
Use Case #4: Create Limited Access



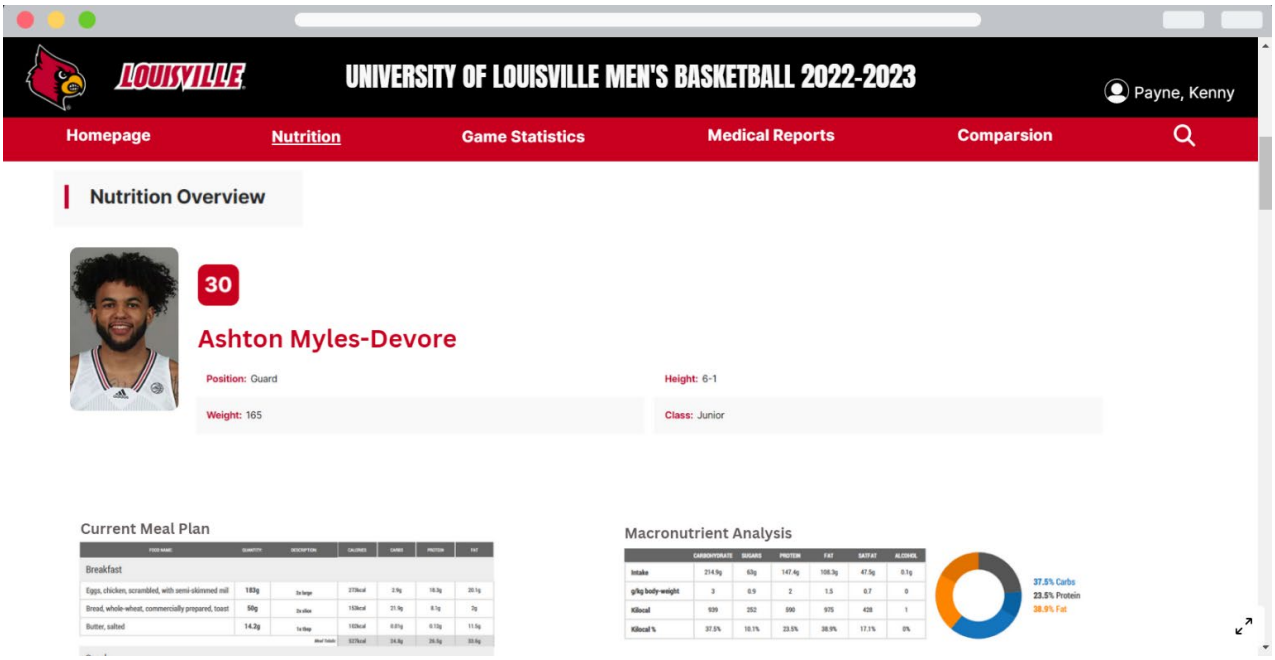
Use Case #5: Edit, Delete Limited Access.



Use Case #7, 8, 9: Download and View files from Website, Edit Website Information.

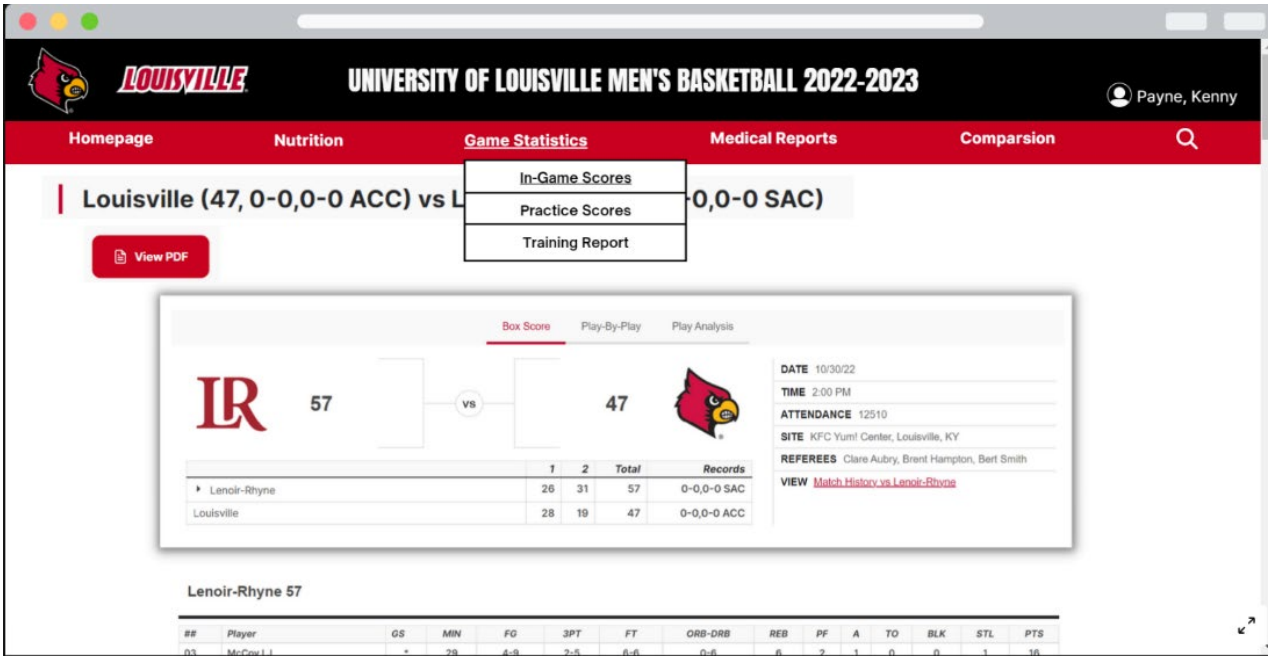


Use Case #10, 11, 12, 13: Create, Upload, Edit, Delete Nutrition Data

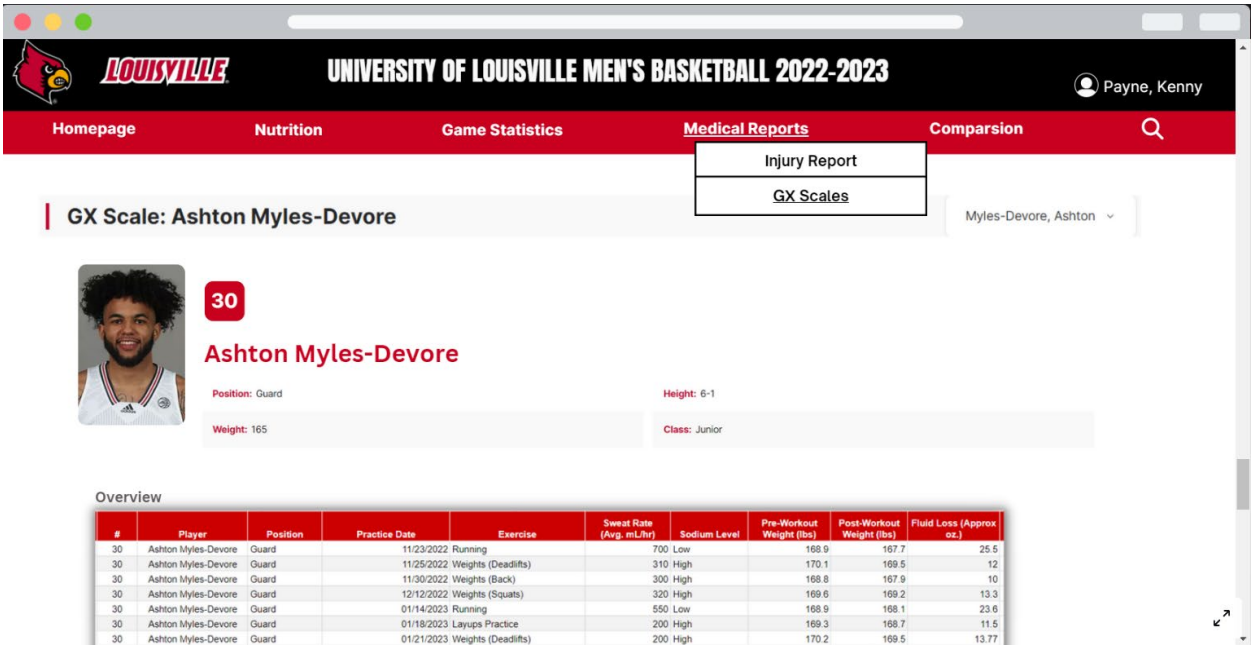


Use Case #14, 15, 16, 17, 18: Create, Upload, Edit, View, Delete Injury Report

Use Case #19, 20, 21, 22, 23, 29, 30, 31, 32, 33: Create, Upload, Edit, View, Delete Game Records. Create, Upload, Edit, View, Delete Game Box Scores.



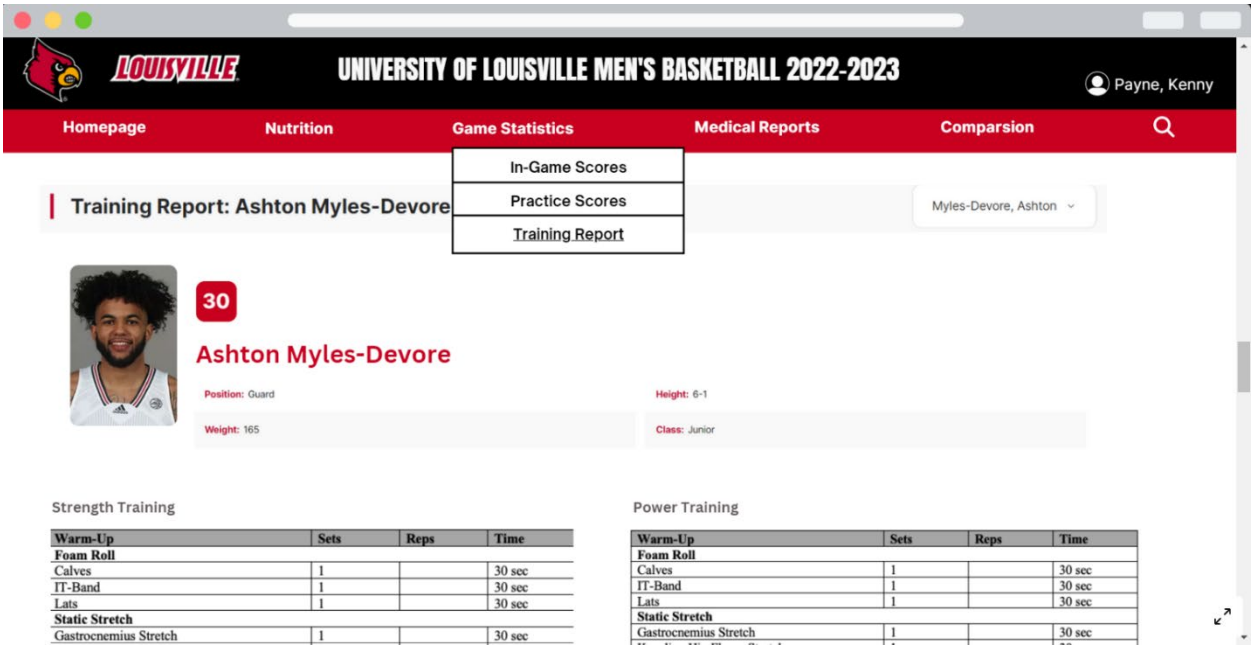
Use Case #24, 25, 26, 27, 28: Create, Upload, Edit, View, and Delete GX Scale files.



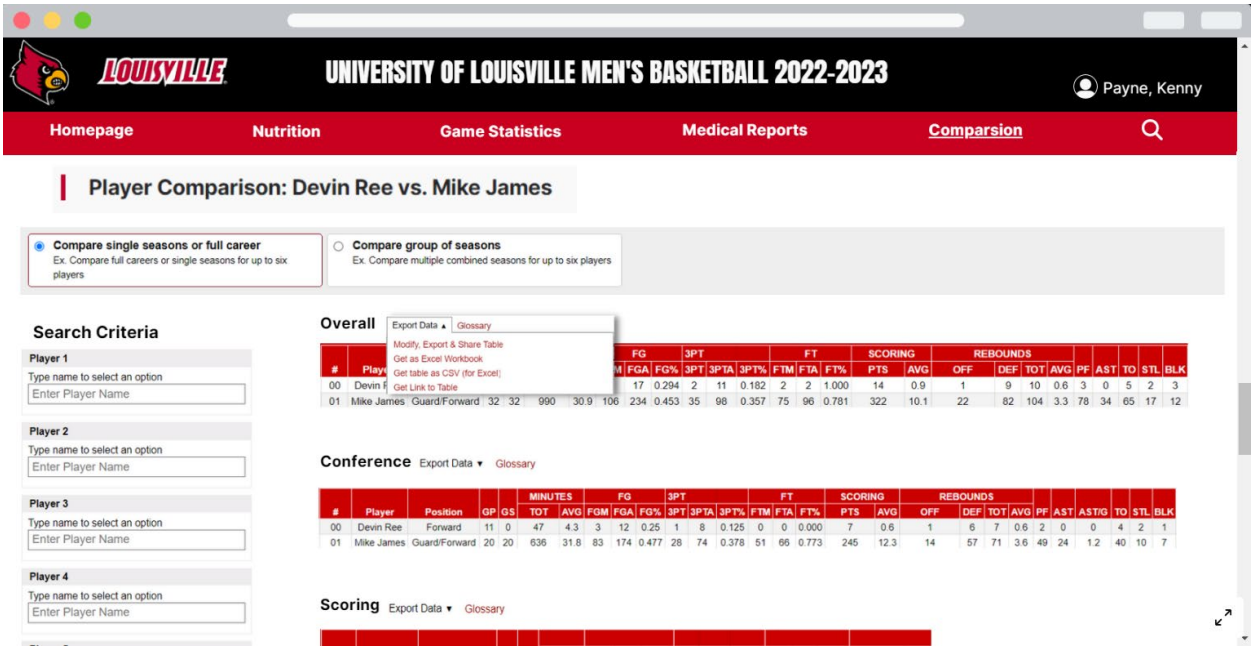
Use Case #34, 35, 36, 37, and 38: Create, Upload, Edit, View, Delete Practice Box Scores

#	Player	Position	Practice Date	FG			3PT			FT			REBOUNDS				PF	AST	T/O	STL	BLK
				FGM	FGA	FG%	3PTM	3PTA	3PT%	FTM	FTA	FT%	OFF	DEF	TOT	AVG					
00	Devin Ree	Forward	2/25/2023	3	12	0.25	0	3	0	0	0	0.000	1	9	10	5	2	0	2	1	1
01	Mike James	Guard/Forward	2/25/2023	4	8	0.50	2	2	1	2	3	0.667	2	5	7	3.5	1	7	1	7	4
03	El Ellis	Guard	2/25/2023	1	4	0.25	1	4	0.25	3	3	1.000	1	8	9	4.5	0	3	3	3	2
04	Roosevelt Wheeler	Forward/Center	2/25/2023	0	3	0	0	1	0	4	6	0.667	5	4	9	4.5	0	6	5	1	4
05	Brandon Huntley-Hatfield	Forward	2/25/2023	6	7	0.86	1	1	1	3	3	1.000	4	6	10	5	0	4	2	3	5
11	Fabio Basili	Guard	2/25/2023	3	8	0.38	0	0	0.00	4	7	0.571	3	3	6	3	2	6	4	5	6
12	JJ Traynor	Forward	2/25/2023	8	12	0.67	0	0	0.00	2	6	0.333	7	5	12	6	3	2	8	2	4
15	Hercy Miller	Guard	2/25/2023	0	4	0.00	2	3	0.67	2	3	0.667	5	1	6	3	1	7	5	6	1

Use Case #39, 40, 41, 42, and 43: Create, Upload, Edit, View, Delete Training Report



Warm-Up	Sets	Reps	Time
Foam Roll			
Calves	1		30 sec
IT-Band	1		30 sec
Lats	1		30 sec
Static Stretch			
Gastrocnemius Stretch	1		30 sec

Warm-Up	Sets	Reps	Time
Foam Roll			
Calves	1		30 sec
IT-Band	1		30 sec
Lats	1		30 sec
Static Stretch			
Gastrocnemius Stretch	1		30 sec

Use Case #44, 45, and 46: Create Comparison Filter, Comparison Filter Input, View Comparison Filter.