BMW Quarter Horses

BMWPHD
Vision

Version 2.0

Revision History

Date	Version	Description	Author
09/23/2022	1.0	Initial Vision and Scope after meeting once	All Team Members
09/30/2022	1.1	Update project name	Madison
01/22/2023	1.2	Update through section 3 based on progress that has been made in the first iterations	Madison
03/01/2023	2.0	Update the document based on our working version	Madison

Table of Contents

Vision

1. Introduction

The purpose of this document is to collect, analyze, and define the business requirements, i.e., high-level needs, desired ultimate business outcomes and features of the Performance Horse Application. It focuses on the capabilities needed by the stakeholders and the target users, and why these needs exist in the first place. The details of how the Performance Horse Application fulfills these needs are detailed in the use-case and supplementary specifications.

1.1 Background

Almost all modern-day sports assessments are made using data analytics. These statistics can be run at a surface level by new fans trying to learn the sport or at a substantially deeper, more nuanced level by the pros, coaches, trainers, and team owners to ensure they are getting the best performance for their investment. This data is not limited to human athletes; the racehorse industry has a similar system to assess a horse's performance on the track that simplifies the information for first-time bettors or delves into multi-faceted performance percentages, speed scores, track surface ratings, and more for the astute bettors, breeders, owners, and trainers to try to maximize each horse's performance. Unfortunately, horse racing is the only horse sport that currently utilizes any form of advanced analytics. Reining, a western horse sport similar to figure skating, is scored based on a system that assigns points for every maneuver performed to determine the winner. These maneuver scores are publicly available but not aggregated into any sort of system useful for data analytics. This creates issues for fans to track their favorite horses and for investors to find and rank horses for purposes of breeding, buying, and determining show schedules. Unlike the current state, our project will provide one stop data about horses based on different sources and increase general interest for the public by giving them t

1.2 References

Links for pedigree information: :

- www.allbreedpedigree.com
- www.aqha.com

Links for pedigree, ownership, results, and offspring information:

- www.reinersuite.nrha.com

Links for results, draws, and score sheets information:

http://www.showmanager.info/Showliste.aspx#current

Links for racehorse platform information (very similar to product being developed):

www.tmracingdata.com

2. Business Requirements

This project will encompass scraping data and creating a user-friendly database that fans or investors in the industry could access to find and rank horses for purposes of breeding, buying, and determining show schedules. This would also tie in public sales data so that people can track historical sale records of horses apart from having an enhanced way to track their favorite horses.

2.1 Business Opportunity/Problem Statement

The problem of	Not having any form of advanced analytics for performance horses
affects	Fans, athletes, coaches, team owners, horse owners, and investors
the impact of which is	Difficulty in tracking horses and finding concrete data on each individual horse
a successful solution would be	Provide one stop interface for concrete data to track horses and increase general public interest in performance horses.

2.2 Business Objectives

The overarching goal for the project is to consolidate the horse data into one source so that users can subscribe and pay for access to the data. The goal of the current project is to prototype and begin this tasks to see if there is potential for the system to be successful.

2.3 Success Metrics

Users are able to perform all use cases (defined in 3 Use Cases)

2.4 Vision Statement

For	fans and investors in the industry
Who	are interested in tracking horses
The Performance Horse Application	is a searchable database
That	the industry could use to access in order to find and rank horses for the purpose of breeding, buying, determining show schedules
Unlike	the existing platforms that are all separate and do not communicate with each other
Our product	will aggregate concrete data on horses in one location

2.5 Business Risks

All the data on the horses may not be available or accessible, therefore web scraping cannot be performed to gather the data. .

2.6 Business Assumptions and Dependencies

The data scraped by the development team from the various websites is correct and complete, although many entries are user entered.

3. Stakeholder Profiles and User Descriptions

Current stakeholders for this project include fans, investors, athletes, and coaches, all of which are end users. All end users will use the product to search horse performances, but may all have a different purpose and usage of the data accessed.

3.1 Stakeholder Profiles

Stakeholder	Major value or benefit from this product	Attitudes	Major features of interest	Constraints	End user or not?
Fans	Improved fan experience through fast access to data on the horses they are watching perform.		Searching a horse by name or searching a horse by show.	None Identified	Yes
Investors	Improved results from the money invested towards a horse		The overall access to real time data on horses according to specified categories and attributes.	None Identified	Yes
Athletes	An increase in the performance of the horses that they ride and compete with.		The overall access to real time data on horses according to specified categories and attributes.	None Identified	Yes
Coaches	Increased performance by the horses they are coaching.		The overall access to real time data on horses according to specified categories and attributes.	None Identified	Yes

3.2 User Environment

The users of this platform would include over 15000 members of NRHA and a quickly and continuously growing fan base for the sport. BMWPHD will be accessed as a web application.

3.3 Alternatives and Competition

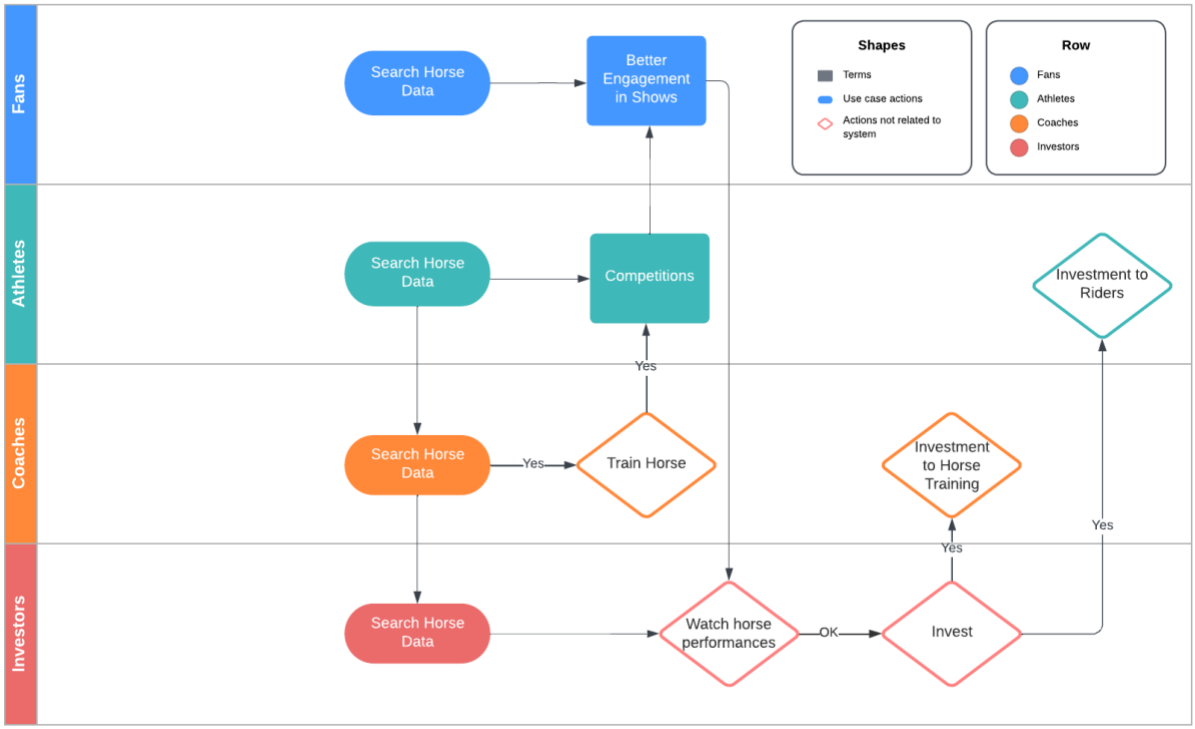
The website reinersuite.nrha.com is currently the biggest competitor for pedigree, ownership, results, and offspring information and data.

Another competitor in the fields of results, draws, and score sheets can be found through the following link: http://www.showmanager.info/Showliste.aspx#current.

4. Scope and Limitations

4.1 Product Perspective

The major stakeholders of the system are fans, athletes/riders, coaches and investors. The ways in which they will interact and benefit from this new system are displayed in the diagram below.



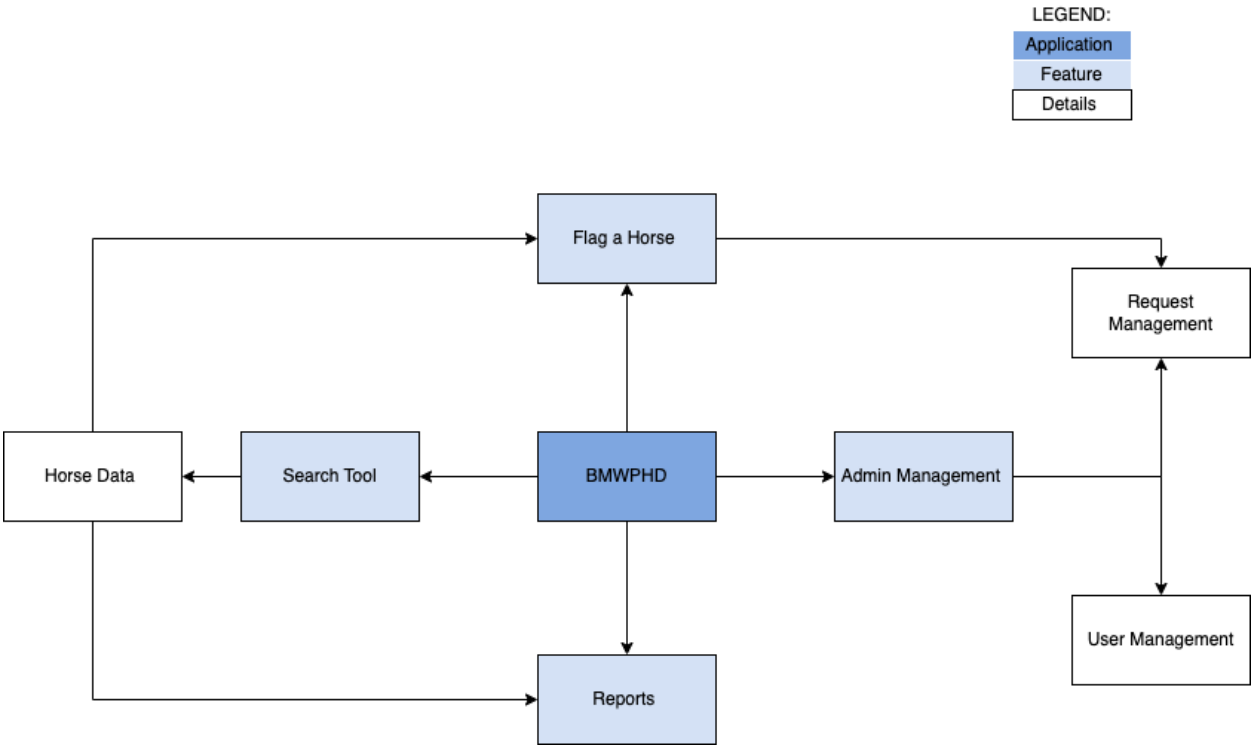
4.2 Major Features / Scope

- Be able to find all horses in the database. This allows the user to see all the data and then decide if they want to further narrow down their search.
  - See Use Case 1 in 3 Use Cases
- Be able to search and find a horse based on the horse's name. This allows a user to quickly find a horse and get the details they desire.
  - See Use Case 2 in 3 Use Cases
- Be able to view all details and data on a horse which includes Name, Sire, Dam, Dam Sire, Second Dam, Maneuver Score, LTE, PE, Show, Class, Level, Foul Date, European Opt., Year, and Nominator.
  - See Use Case 4 in 3 Use Cases
- Be able to search multiple parameters at once. This will enable a user to be able to access information such as how much money a horse won at different levels and at different ages, as well as total money won and total money offspring won.
  - See Use Case 3 in 3 Use Cases
- Be able to flag a horse to edit the information displayed because most of the data from the other websites is user inputted, so it is prone to human error.
  - See Use Case 8 in 3 Use Cases
- Be able to manage users and flagged horse requests. This allows for the admin team to have access and

control over the users of their system and the data offered to the users.

- See Use Cases 6,7,9,10 in 3 Use Cases

The way that these use cases interact with the system and with one other are displayed in the diagram below.



4.3 Deployment Considerations

The application will be deployed using Heroku. The front end is completed using Vue3, the backend is completed using Java, and lastly, the database used is Postgresql. The code used is pushed and committed to a GitHub account. With that, an admin email address has been created that has access to all accounts. The client will have access to this email address and can further give the permissions to whomever she sees fit.

5. Other Product Requirements

Performance - the user should be able to search and retrieve results in a timely manner. The results should be displayed to the user quickly. Although since the data entered in the websites that the system receives its data from is user inputted, there is a chance that the data is not completely accurate and is prone to human error.

Robustness - The user should always be able to retry a query after errors are encountered, and these errors should be logged and monitored in order to aid future robustness. Authentication and security should be top priority and all unauthorized access should be prevented.

Fault tolerance - All inputs should be sanitized and the user should not be able to cause any errors due to their input or use of the website or database. The only access a user has to the database is through flagged horse requests which have to be approved by a system admin to actually change data in the database. In event of fatal errors, the database should automatically be rolled back and attempt to restart / recover within a short time period.

Usability - The website should follow all modern design rules and should focus on web accessibility according to w3 guidelines. This means all semantic elements should be used appropriately and accessibility attributes such as aria-label, alt-text, etc. should always be explicitly specified to aid screen readers, and other accessibility devices.

Constraints

- Design constraints - The design of the database, specifically the attributes and format of those fields are limited to the fields an external website has and the way the information is initially formatted. Some information could be parsed into better and more flexible formats when possible, however the design will mainly be a union of existing database websites and their fields.
- External constraints - The information the user can access is limited by the specific set of websites that are used to source information from. Specific guidelines for each website must be followed individually in the process of requesting the information.

Documentation Requirements

- User Manual - A user manual is provided which explains to a user what steps to take to perform each specific task that the application offers

Priority of other product requirements:

(1) Stability - The website should only exhibit expected behavior to the user at all times, unless a fatal error occurs. In the event of an error that is unavoidable, the system should attempt to recover if at all possible.
(2) Effort - The user should not need to know any aspect of the internal design or specifics of how the website works in order to make a simple search. The user should have the option to search by advanced fields or attributes if they choose, but should be able to search with just a simple string of text.
(3) Risk - Since the database contains a lot of information and requires fetching information from multiple websites, it could possibly be abused or scraped to gather information. This uses up a lot of resources on the server and makes the website slower for others. Users that are not authorized should be heavily rate-limited, and access to the database should be recorded to identify and eliminate misuse.
(4) Benefit - The application should provide a significant advantage over other websites because it compiles information from multiple different sources and provides the ability to search for specific fields / attribute values. Users should benefit from both the amount of information they can access, the way they can view it, and the short amount of time it takes to achieve these functions.