

A dark blue vertical bar runs down the left side of the page. A blue arrow points to the right from this bar, containing the date.

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# Project Research Document

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## Detailed Discussion

This web application when completed will be able to show the user in great detail a range of sporting statistics going back multiple years where applicable. These statistics will include such information as:

- Football league tables going back at least ten years
- Top scorers in the league during those years
- Other relevant information in relation to the league
- Rugby league tables
- Scoring and other pertinent data for the rugby leagues
- High level information on American sports such as American Football (NFL), the National Basketball league (NBA) and Major League Baseball (MLB)
- Other sports may be added if enough data can be found

Mentioned above is only a small insight to the data that will be retrieved. This data will be displayed in a range of graphs and charts that best suit the data at hand. The representations of this data will be clear and concise and leave the user of the web application with no misunderstanding of the information provided.

A large part of this project will be finding and extracting the data from multiple sources. The means of which this data will be obtained will hopefully be with the use of a website scraper that scans the website and removes the wanted data. If problems arise wherein the scraper is unable to gather information off of a website due to the website being out-dated or very basic, the best course of action may be to manually extract the data to a file.

When all of the data is gathered calculations will be undertaken. These calculations, for example, will be finding the top scorer in a football league based on a comparison of the top scorers from each team. Other calculations such as averages will also be carried out.

All of these tables and graphs will be displayed in a web application created through C# and ASP.NET. This web application will have multiple layers and convey the information neatly and in a user friendly manner.

## Existing Applications

Name	Similarities	Differences
Statbunker.com	Detailed stats on football and rugby both present and past	No graphs, just generic tables
Sportingcharts.com	Displays graphs for American sports	Only accommodates American sports
Statto.com	Detailed stats on football league tables from past years	Outdated style and only shows league tables.
Optasports.com	Graphics based on real-time data from multiple sports	A professional paid service used mostly in media and journalism. Is also based primarily in present statistics.
Footballdb.com	Shows present and past data through tables	The data representation is basic and only accommodates American football

## Platform, Technologies and Libraries

### ASP.NET

I chose to use this platform for the HTML view and the integration with the database. There's also plenty of information on this platform and many useful tutorials, which I think will help me develop a better project.

### C#

I chose to use C# over other languages we know such as Java and C++ because C# is integrated with ASP.NET and I have experience with the use of the language in the ASP.NET environment through my third year project.

### HTML

I am using HTML because I am building a web application and I have experience in using HTML to make web pages which will display the graphs and tables.

### JavaScript

JavaScript will be used to create the graphs and charts through either d3 or tableau.

### D3

This is a JavaScript library used to manipulate documents based on data. This library will be used to create bar charts and pie charts.

### Tableau

Tableau is a piece of software that allows one to add a file containing data and create graphs and charts. The graphs and data are stored on their public server and retrieved when a page is loaded containing the link to the data.

### Web Scraper – Google Chrome extension \*

The web scraper will be used to scrape the data needed from the relevant websites.

\*(Other scrapers may be used if this scraper fails to capture the required data in certain areas.)

### Entity Framework Database

I may need to store certain information about the charts and graphs or the calculations in the built in database in ASP.NET

## Risks

- A risk that can jeopardise the project is the failure to secure the amount of data needed to show the depth of the project. If the information is not available beyond the basic form it will leave my project lacking in content.
- If the website scraper(s) were unable to sift the data needed from the relevant websites it would leave me to manually extract the data which would take up a great deal of time and may make me fall behind deadlines for the project.
- With the way Tableau works, by retrieving the data and graphs from their server when called, there may be complications if their server runs into trouble or has certain limitations on use.
- There may be some aspects of the project where I will run into problems and they will cause delays in the project timeline.