
100Yards.com

MIS 510, Project Report
Spring 2009

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INTRODUCTION

ABOUT NFL

The National Football League (NFL) is the largest professional football league in the United States and the largest American football league in the world. It is an unincorporated/ non-profit organization controlled by its members. It was formed by eleven teams in 1920 as the American Professional Football Association (the league changed the name to the National Football League in 1922). The league currently consists of thirty-two teams from the United States. The league is divided evenly into two conferences — the American Football Conference (AFC) and National Football Conference (NFC), and each conference has four divisions that have 4 teams each. The regular season is a seventeen-week schedule during which each team has one bye week and plays sixteen games. This schedule includes six games against a team's divisional rivals, as well as several inter-division and inter-conference games. The season currently starts on the Thursday night in the first full week of September (the Thursday after Labour Day) and runs weekly to late December or early January.

POPULARITY OF NFL

American football is the most famous sport in America. Below are some pointers about the American football:

- In a Harris Poll conducted in 2008, the NFL was the favorite sport of as many as (30%) people which is the combined total of the next three professional sports--baseball (15%), auto racing (10%), and hockey (5%)
- Additionally, football's American TV viewership ratings now surpass those of other sports, although football season comprises far fewer games than the seasons of other sports
- According to the Associated Press, the Sports Marketing Group polls from 1988 to 2004 show NFL Football to be the most popular spectator sport in America
- The total percentage of Americans who liked or loved NFL Football exceeds 60% of the American Public.

The NFL has the highest per-game attendance of any domestic professional sports league in the world, drawing over 67,000 spectators per game for each of its two most recently completed seasons, 2006 and 2007

BUSINESS MODEL

The aim of the project is to build an ecommerce application to allow the Football enthusiasts to have one-stop information website regarding the Football games and player information. There is no one single resource apart from the Sports news websites where we have collated information specific to the games. The statistics and player information are still a long way apart. There is a need and hence a commercial necessity to collaborate the information related to this sport – **games, information, statistics, player details**, and **videos** of the games, highlights, **images, news, articles** to capture the attention of the enthusiasts and hence there is a business case that needs to be developed.

COMPETITIVE ANALYSIS

During our analysis in comparing various websites that provide football related information, we found several sites that offered similar services. The main competitors in market for 100Yards.com are Yahoo! Sports and espn.com. The following table shows a summary of functionalities provided by Yahoo! Sports, espn.com and 100Yards.com

Features/Competitors	Yahoo! Sports	espn.com	100Yards.com
Teams	X	X	X
Players	X	X	X
Videos	X	X	X
Photos	X	X	X
Search	X	X	X
Team Performances	-	-	X
Player Performances	-	-	X
Merchandising	X	-	X

All the three websites provide great information around all the aspects of football such as team and player information and the search capability. However, what sets 100Yards.com apart is its rich and varied multimedia content combined with the merchandising option for users. The user can view and buy team and player related stuff like apparels, shoes, caps, football etc via the Amazon.com.

The site also provides information about team and player performances in terms of ranking based on the previous historical data and various statistical analyses.

TARGET CUSTOMERS

It's a one stop information site for the football enthusiasts and lovers to get all information related to this sport-game, information, statistics, player and team details, videos and photos of the players, teams and stadiums etc. Also, it provides RSS feeds giving all the latest and relevant news for football enthusiasts. Our website can also be helpful for statisticians and game followers.

SERVICES PROVIDED

100Yards.com provides team and player information from all 32 teams with rich multimedia content as the video and photo gallery for the users. Along with this, users will be able to use the implemented API's to search and view player and team details. 100Yards.com also provides an option of Google Maps where the users can find the exact location of stadium.

FINANCIAL PROSPECTIVES

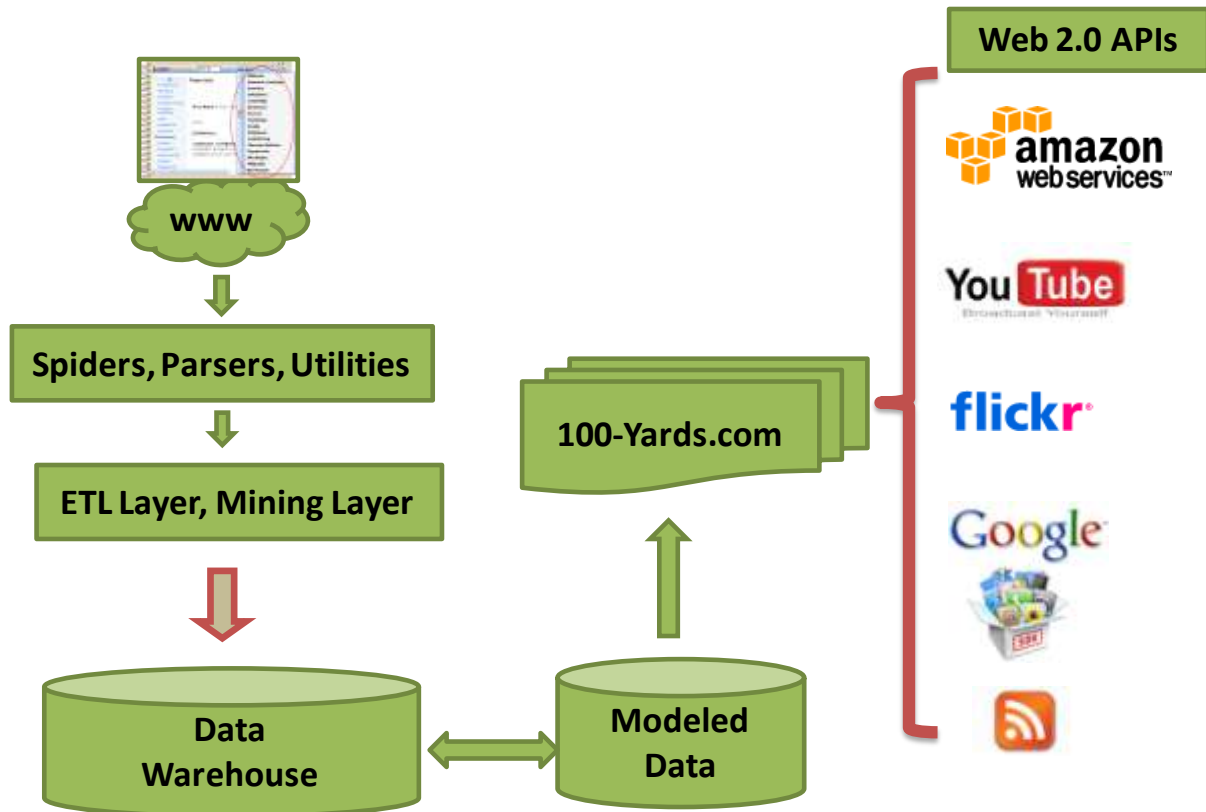
Football is one of the most popular games and 100Yards.com can cash the popularity of the sport to generate the revenue.

The following are some of the sources from which the revenue can be generated:

- Amazon: 100Yards.com can generate revenue through merchandising fees received from Amazon. If a user of our site buys Amazon products through a link from 100Yards.com webpage, then we will get revenue via a referral rate (a given percentage).
- Google Ad Sense: By posting targeted advertisements from Google, 100Yards.com can get around 5 cents per click of revenue.
- Direct Advertisements: 100Yards.com can post direct ads on the website. These advertisements will be charged based on the size, location and duration of the advertisements.

SYSTEM DESIGN AND ARCHITECTURE

The architecture of the 100Yards.com site is as follows



100Yards.com is built on a 3 tier architecture with MS SQL Server 2005 serving as the database and the Apache 6.x as the application server. Tomcat is utilized as the application server. We have used MS SQL Server BI suite for the data-mining component.

The database is updated for the statistics from various sources such as

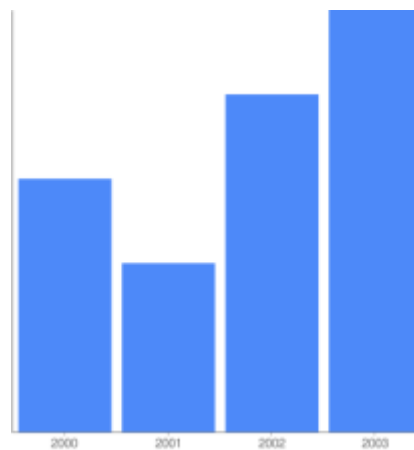
- Profootball.com where our crawlers and parsers update the database periodically
- FantasyFootballNerd API – fetches the injury, real time statistics and player information on the fly through their API

100Yards.com uses the following social media APIs to create a unique feel for the user logging to our website. They are - Amazon web services, YouTube, Flickr Photo search API, Google Maps, Google charts API, RSS feeds fetching News from Yahoo and other sports related websites

The features that these APIs and the application provide are listed here briefly

Football related News from Yahoo(RSS) – A web user can access the football related news section from the home page. When the user clicks on the feed news link he is redirected to a page where he can view the latest football news from sports.yahoo.com and cnn.com.

Player Profiles – A user can access the player profiles by accessing the Players tab in the menu. The user can view the top performers based on the rankings by position as well. His Passing, returning, kicking, defense, rushing, receiving and scoring statistics are displayed in the statistics page. A user can also view the performance of that player over different seasons here as shown below.



Also, various information related to Merchandise options and images from Flickr and videos related to the player from Flickr have also been mashed up on the player profile page to increase the interactivity of the user

Player Information

Player Name :	Hines Ward
Team ID:	PIT
Team Name:	PIT
College:	Georgia
Position:	Wide Receiver
DOB:	1976-03-08
Height:	6-0 ft-in
Weight:	205 lbs
Experience:	11 years

Photo Gallery

Video Gallery

powered by

Merchandise

- Google Map & Driving directions** – The user can navigate to the team home page and find the driving directions for the current match from his geographical location to the home ground of the team by clicking the driving directions icon on the team profile page. We have fed the destination details and the current location is auto picked by the IP location and the directions are fetched from Google Maps

From: Tucson To: 1 W Cardinals Way, Glendale, AZ

Language: English Get Directions

Forecasted Directions

Tucson, AZ

131 mi (about 2 hours 5 mins)

1. Head north on N Campbell Ave toward E 5th St 0.3 mi
2. Slight left to stay on N Campbell Ave 436 ft
3. Turn left at E Speedway Blvd 2.3 mi
4. Turn right at N Piny Rd (signs for Phoenix) 3.3 mi
5. Take the ramp on the left onto I-48 W 120 mi
6. Take exit 133B for State Hwy 181 LOOP 0.9 mi
7. Merge onto AZ-181 N 3.4 mi
8. Take exit 6 for Bethany Horse Rd 0.4 mi
9. Turn right at W Bethany Horse Rd 0.3 mi
10. Turn left at W 55th Ave 0.1 mi
11. Turn right at Cardinals Way 56 ft

1 W Cardinals Way, Glendale, AZ 85305

Map data ©2009 Sordani, Tele Atlas

Powered by Google

Map data ©2009 Tele Atlas

Stadium Information

Team: Arizona Cardinals

Stadium: University of Phoenix Stadium

Address: 1 W Cardinals Way, Glendale, AZ

Description: University of Phoenix Stadium is a multipurpose football stadium located in Glendale, Arizona. It is the home of the Arizona Cardinals of the National Football League (NFL) and the annual Fiesta Bowl. The new stadium is located next door to the jobing.com Arena, where the NHL's Phoenix Coyotes play, and it has the first fully retractable natural grass playing surface built in the United States.

Image:

Football Rankings & Ratings – In this section, a user can view the performance of the players based on the statistics and strategy of the game such as the Passing, Receiving, Kicking, Rushing and etc. Our rankings are explained in the sections below on how we have achieved this rating mechanism. This helps them to pick the players for the fantasy football leagues that the sports websites have got to offer.

MATCHES PREDICTION

The matches data set has match related information for the past 10 years. Of all the variables in the matches' data set 8 variables were chosen for our analysis. These 8 variables were trained on the 70% of the data set and then were tested on the remaining 30% of the data. We created separate models for all the 32 teams. The model works in the following way:

- The outcome cannot be predicted before a match but only while the match is in progress
- During the course of the match or during the half time the user can enter values for the 8 variables along with the Team Name and the Opponent Name
- Based on the input variables and the Teams playing it predicts the outcome and the accuracy of the prediction

Using the SPSS Clementine three different techniques were used for predicting the outcome of a match namely Logistic Regression, Neural Networks and CART model. The Accuracy levels for the three techniques are provided in the figure. We came to a conclusion that the performance for Logistic regression and Neural Networks was almost similar but for CART it was very less. Hence Neural Networks was used to find the model for prediction for the 32 teams.

Results for output field Result

- Individual Models
 - Comparing \$L-Result with Result

'Partition'	2_Testing
Correct	1,301 81.52%
Wrong	295 18.48%
Total	1,596
 - Comparing \$N-Result with Result

'Partition'	2_Testing
Correct	1,302 81.58%
Wrong	294 18.42%
Total	1,596
 - Comparing \$R-Result with Result

'Partition'	2_Testing
Correct	1,217 76.25%
Wrong	379 23.75%
Total	1,596
- Agreement between \$L-Result \$N-Result \$R-Result

'Partition'	2_Testing
Agree	1,294 81.08%
Disagree	302 18.92%
Total	1,596
- Comparing Agreement with Result

'Partition'	2_Testing
Correct	1,106 85.47%
Wrong	188 14.53%
Total	1,294

FIGURE 1 COMPARISON

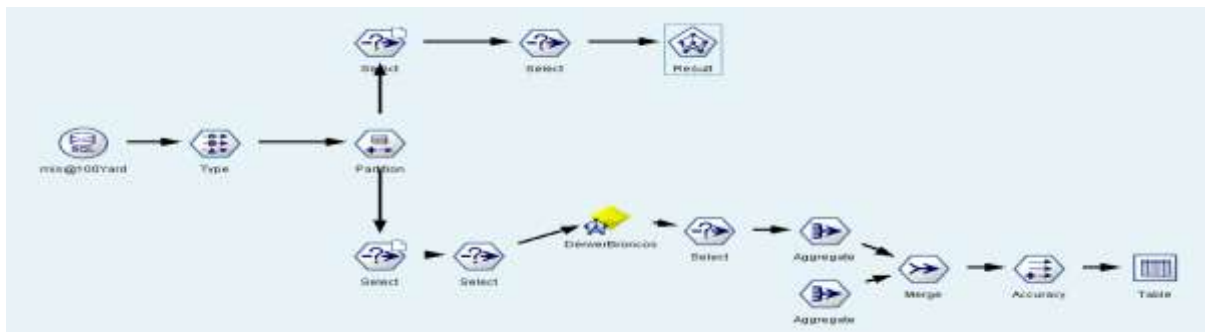


FIGURE 2 MODELS FOR TEAMS USING SPSS CLEMENTINE

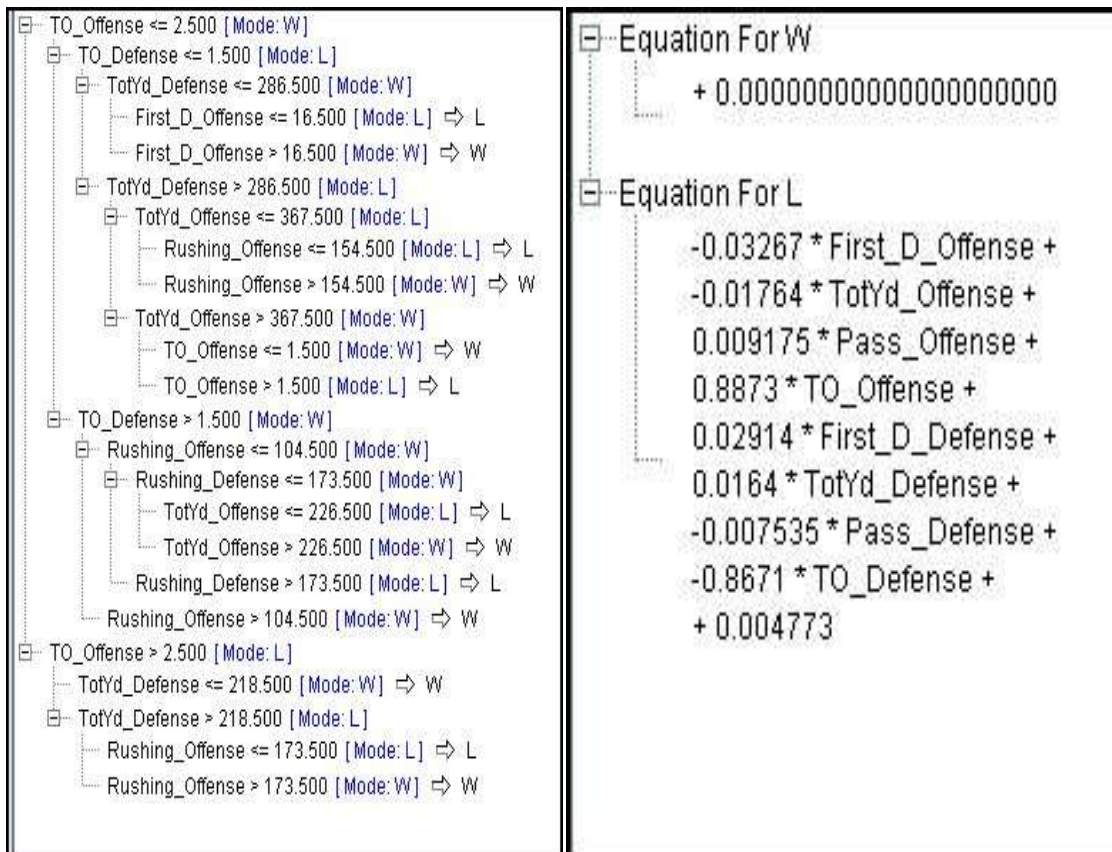


FIGURE 3 CART AND LOGISTIC REGRESSION METHODS

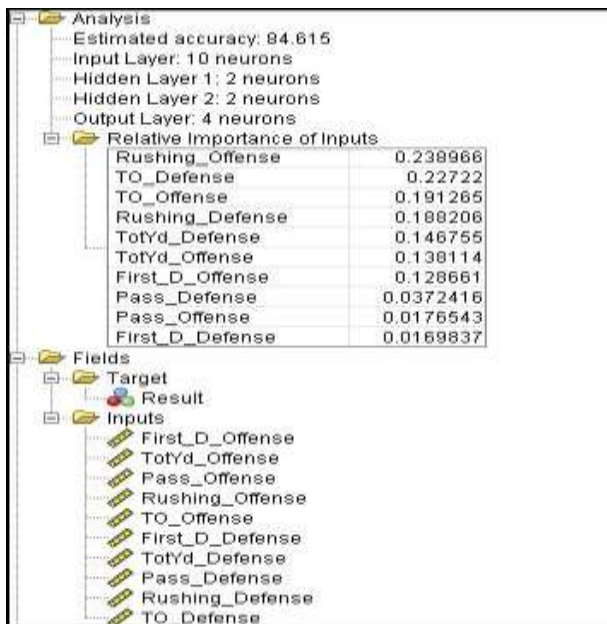


FIGURE 4 NEURAL NETWORKS

PLAYER PERFORMANCE

The team identified 7 aspects of the game where a player contributes and these are Passing, Defense, Receiving, Scoring, Rushing, Kicking and Returning. For each of these aspects various variables were identified which demonstrates a players performance for e.g. variables for Passing were Total Passes Completed, Yards Attempted and Touchdowns. K means clustering was done using these variables to segregate players into three categories i.e. Good, Average and Bad. Once the clustering was done Normalization techniques were used on these variables and ranking was provided to every player.

TABLE 1 PASSING: CLUSTERING VARIABLES

Cluster	CMP	Total Yards	TD
Cluster-1	16.400567	181.460296	0.944039
Cluster-2	174.262135	1963.787012	10.553399
Cluster-3	309.910155	3626.000539	23.234902

TABLE 2 PASSING: CLUSTERING STATISTICS

Cluster	#Obs	Average distance in cluster
Cluster-1	678	0.271
Cluster-2	201	0.648
Cluster-3	172	0.76
Overall	1051	0.423

NOVELTY

100yards.com is unique in the following ways:

PLAYER PERFORMANCE

Ranking players based on their performance is a unique feature of our application. The player performance is not done for a particular season but is based on the statistics for the last 10 years. This aspect of our application can be used by the coaches for finding out the best players over the years and can help them in selecting the team. Moreover users can pick players having a higher rank and can do well in various Fantasy football league.

MATCHES PREDICTION

Users can predict the outcome of the matches based on the model invented by us. The outcome of the match along with the accuracy is a key feature of our application. Various competitors like Yahoo sports and ESPN lack this feature.

WEB 2.0 TECHNOLOGIES

We have used Web 2.0 technologies to collate all the information regarding the American Football. Using various API's and Mashups we can collaborate the information related to American Football – **games, information, statistics, player details**, and **videos** of the games, highlights, **images, news, articles** to capture the attention of the enthusiasts.

APPENDIX

One single resource for all the work we have done and the milestones we have kept, this acted as an efficient project management tool to keep track of all the status and resources at one single place.

<http://sites.google.com/site/100yardsdotcom/>

Home page

Players List














NATIONAL FOOTBALL LEAGUE			
NFL Players Master List			
TeamID	Player Name	Position	Experience
PIT	Hines Ward	WR	11 years
SF	Bryant Johnson	WR	6 years
ARI	Tim Ruskower	RB	0 years
TEN	Bo Scarfo	TE	4 years
JAC	Marcedes Lewis	TE	3 years
GB	Russell Martin	WR	3 years
ATL	Harry Douglas	WR	0 years
CHI	Ohafermeh Ayanbadejo	RB	9 years
DET	Dan Campbell	TE	9 years
IND	Brad Elwerekwa	WR	1 years

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Team Information

NATIONAL FOOTBALL LEAGUE

NFL Teams Master List

TeamID		Team Name	League
ARI		Arizona Cardinals	NFC
ATL		Atlanta Falcons	NFC
BAL		Baltimore Ravens	AFC
BUF		Buffalo Bills	AFC
CHI		Chicago Bears	NFC
CAR		Carolina Panthers	NFC
CIN		Cincinnati Bengals	AFC
CLE		Cleveland Browns	AFC
DAL		Dallas Cowboys	NFC
DEN		Denver Broncos	AFC
DET		Detroit Lions	NFC
GB		Green Bay Packers	NFC

100Yards.com Rankings

NATIONAL FOOTBALL LEAGUE

Player Rankings

Top 5 Passing Players

Player Name	Ranking	Team
Todd Collins	1	WAS
Shaun Hill	2	SF
Peyton Manning	3	IND
Aaron Rodgers	4	GB
Tom Brady	5	NE

[Click here for more](#)

Top 5 Receiving Players

Player Name	Ranking	Team
Terrell Owens	1	DAL
Marvin Harrison	2	IND
Randy Moss	3	NE
Torry Holt	4	STL
Larry Fitzgerald	5	ARI

[Click here](#)

Player Search

MENU

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- BARBERS
- ABOUT US
- CONTACT US

SPORTS NEWS

YAHOO! NEWS

NATIONAL FOOTBALL LEAGUE

NFL Players Master List

TeamID	Player Name	Position	Experience
PIT	Boo Davis	WR	11 years
IF	Bruce Johnson	WR	8 years
ARI	Don Johnson	QB	0 years
FIN	Ed Smith	TE	4 years
JAC	Malcolm Lewis	TE	2 years
GB	Sam Moore	WR	3 years
ATL	Stacy Douglas	WR	0 years
OH	Stanley Lovehollow	RB	9 years
DET	Sam Edwards	TE	3 years
IND	Sam Edwards	WR	1 years

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Search Page

Search for players and teams.

Display: Players Teams

Player Name:

Position:

Search Results

Search for players and teams.

Display: Players Teams

Player Name:

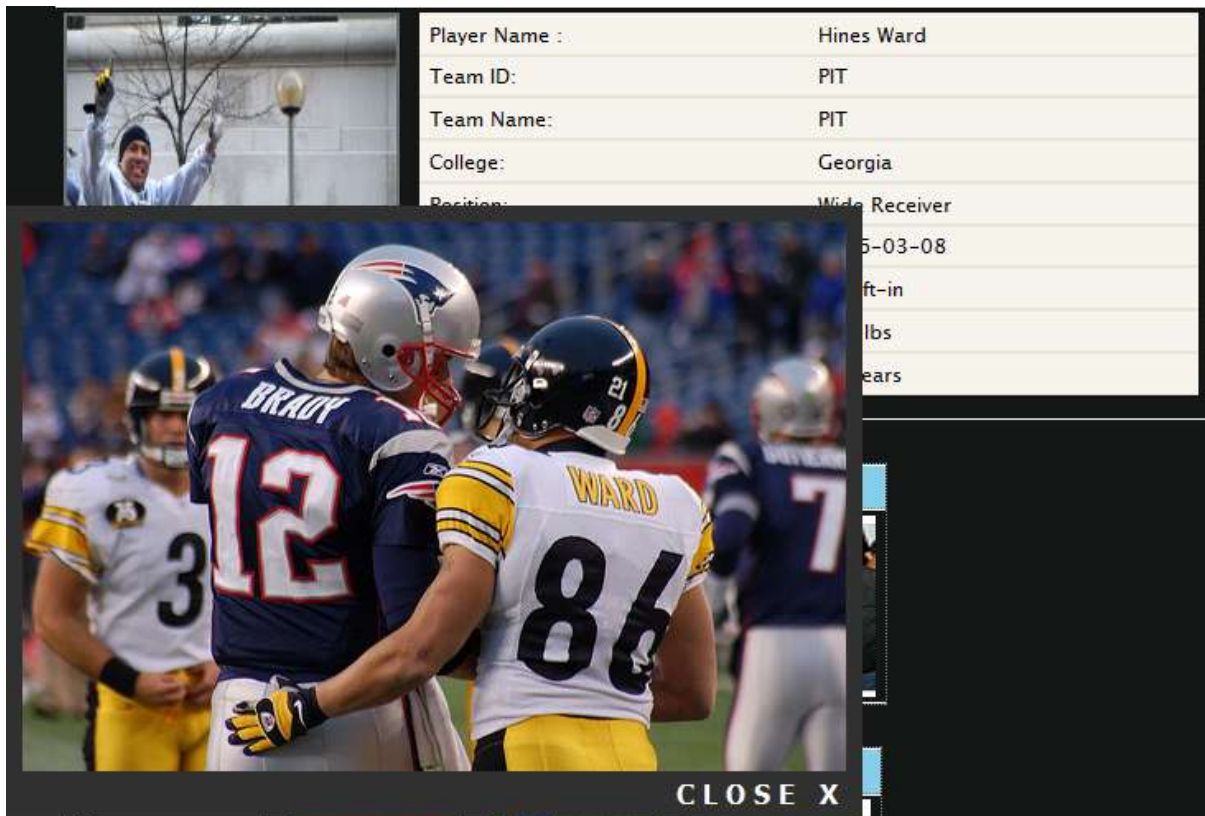
Position:

Search Results

TeamID	Name	College	Position	DOB	Height	Weight	Experience
PIT	Hines Ward	Georgia	WR	1976-03-08	6-0	205	11

Mashup information

Flickr Images

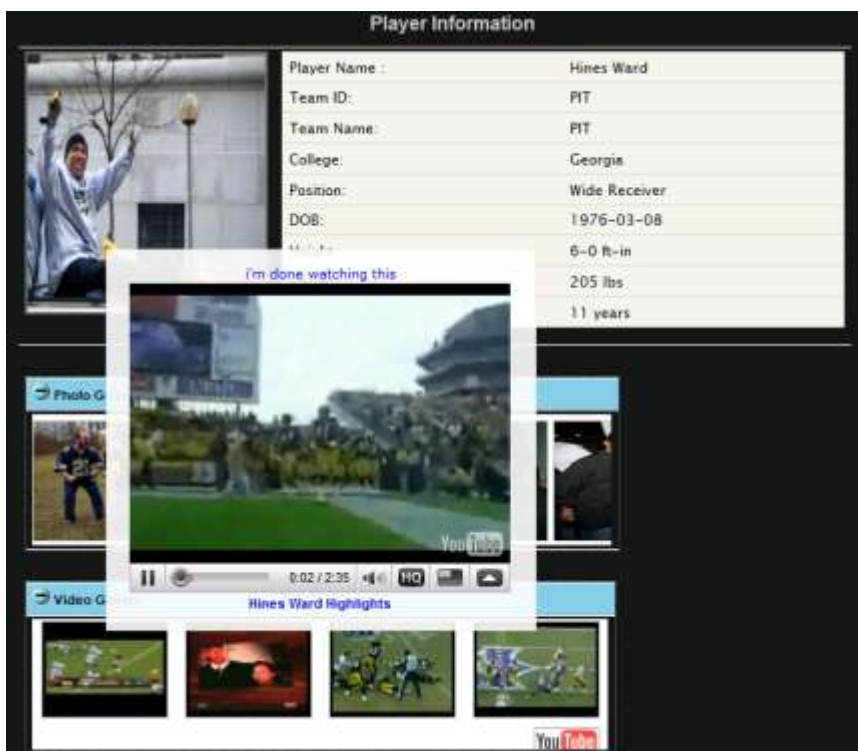


A Flickr image gallery for Hines Ward. The main image shows Tom Brady (number 12) and Hines Ward (number 86) on the field. A smaller thumbnail shows Hines Ward celebrating. To the right is a player information table.

Player Name :	Hines Ward
Team ID:	PIT
Team Name:	PIT
College:	Georgia
Position:	Wide Receiver
DOB:	1976-03-08
Height:	6-0 ft-in
Weight:	205 lbs
Age:	11 years

CLOSE X

YouTube videos



A YouTube video player showing a video titled "Hines Ward Highlights". The video is paused at 0:02 / 2:35. The player includes a "Player Information" table and a "Photo Gallery" section.

Player Name :	Hines Ward
Team ID:	PIT
Team Name:	PIT
College:	Georgia
Position:	Wide Receiver
DOB:	1976-03-08
Height:	6-0 ft-in
Weight:	205 lbs
Age:	11 years

I'm done watching this

Photo Gallery

Video Gallery

Hines Ward Highlights

YouTube

Amazon Apparel


Player Information

	Player Name:	Hines Ward
	Team ID:	PIT
	Team Name:	PIT
	College:	Georgia
	Position:	Receiver
	DOB:	5-03-08
	Height:	6-0
	Weight:	215
	Years:	10



CLOSE X

Redirects to the Amazon product page



Reebok Pittsburgh Steelers Hines Ward Super Bowl XLIII Replica White Jersey
 Other products by Reebok
 No customer reviews yet. [Be the first.](#) | [Write about this product.](#)

Price: ~~\$84.00~~
 Sale: **\$54.97**
 You Save: \$30.02 (35%)

Select Size

Size:

Color: Pittsburgh Steelers White

[See merchant's store page](#)

Select Size to view availability (or, see the complete [usage and availability sheet](#).)

To buy, select Size
 (Choose from options to the left)
 Your Selection: Pittsburgh Steelers White

Quantity:

OR

[Sign in](#) to turn on 1-Click ordering.

[Share with Friends](#)

Team Information page

Team Information



Team Name :	Arizona Cardinals
Team ID:	ARI
Description:	
Web Link:	www.azcardinals.com
League:	NFC
Home ground:	University of Phoenix Stadium ↕
Address:	1 W Cardinals Way, Glendale, AZ

Photo Gallery



Video Gallery



Stadium Information

NATIONAL FOOTBALL LEAGUE

Stadium Information



Home team name :	Arizona Cardinals
Home ground:	University of Phoenix Stadium ↕
Address:	1 W Cardinals Way, Glendale, AZ
Description:	University of Phoenix Stadium is a multipurpose football stadium located in Glendale, Arizona. It is the home of the Arizona Cardinals of the National Football League (NFL) and the annual Fiesta Bowl. The new stadium is located next door to the Jobing.com Arena, where the NHL's Phoenix Coyotes play, and it has the first fully retractable natural grass playing surface built in the United States.

Driving Directions: 

Photo Gallery



Driving Directions

Google Maps Javascript API Example: Advanced Directions - Mozilla Firefox
 http://localhost:8080/100/YahooCom/ISP/DrivingDirections.jsp

Maps API Directions Illustrated

From: Tucson To: 1 W Cardinals Way, Glendale
 Language: English

Formatted Directions

Tucson, AZ

131 mi (about 2 hours 5 mins)

1. Head north on N Campbell Ave toward E 5th St 0.5 mi
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4. Turn right at N Fwy Rd (signs for Phoenix) 3.5 mi
5. Take the ramp on the left onto I-10 W 120 mi
6. Take exit 133B for State Hwy 101 LOOP 0.9 mi
7. Merge onto AZ-101 N 3.6 mi
8. Take exit 6 for Bethany Home Rd 0.4 mi
9. Turn right at W Bethany Home Rd 0.3 mi
10. Turn left at W 95th Ave 0.1 mi
11. Turn right at Cardinals Way 56 ft

1 Cardinals Way, Glendale, AZ 85305

Map data ©2009 Sanborn, Tele Atlas

Stadium Information

Arizona Cardinals

University of Phoenix Stadium

1 W Cardinals Way, Glendale, AZ

University of Phoenix Stadium is a multipurpose football stadium located in Glendale, Arizona. It is the home of the Arizona Cardinals of the National Football League (NFL) and the annual Fiesta Bowl. The new stadium is located next door to the Jobing.com Arena, where the NHL's Phoenix Coyotes play, and it has the first fully retractable natural grass playing surface built in the United States.

RSS feeds

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NUGGETS REACH FIRST CONFERENCE FINALS SINCE 1985 (AP)

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