



# HoopStats Requirements Specification

Version 0.1

HoopStats	Version: 0.1
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## Revision History

Date	Version	Description	Author
2012-11-05	0.01	Initial Draft	Andreas Köhle, Predrag Filipovikj

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## 1. Introduction

### 1.1 Purpose of this document

The purpose of this document is to deliver the requirements laid out by the customer and the project team to successfully implement the HoopStats application. The document is created in the initial requirements engineering phase of the project and is revised and updated after each development cycle. The document is the basis for the system design document and all implementation tasks for the team members.

### 1.2 Intended Audience

The document is intended for the following audience as project reference:

- Project team members
- Supervisor
- Customer
- External project stakeholders
- Future Developers

### 1.3 Scope

The scope of this document is to give a broad and detailed explanation about the requirements of the HoopStats project. It explains the main requirements defined by the customer as well as the underlying requirements defined by the project team to support the main requirements. It contains the explanation of each requirement as well as their deadlines.

### 1.4 Definitions and acronyms

#### 1.4.1 Acronyms and abbreviations

Acronym or abbreviation	Definitions
<i>XML</i>	<i>Extensible Markup Language</i>
<i>NFR</i>	<i>Non-functional Requirements</i>
<i>FQ</i>	<i>Flexible Query</i>
<i>VR</i>	<i>Visual Representation</i>

### 1.5 References

- ❖ Project Home
  - <http://www.fer.unizg.hr/rasip/dsd/projects/basketball>
- ❖ Project plan
  - [http://www.fer.unizg.hr/download/repository/Project\\_Plan%5B3%5D.pdf](http://www.fer.unizg.hr/download/repository/Project_Plan%5B3%5D.pdf)
- ❖ Requirements Definition
  - [http://www.fer.unizg.hr/download/repository/Requirements\\_Definition%5B4%5D.pdf](http://www.fer.unizg.hr/download/repository/Requirements_Definition%5B4%5D.pdf)
- ❖ DatabaseBasketball Home Page
  - <http://www.databasebasketball.com/>

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## 2. Requirements Description

In this chapter the requirements for HoopStats are defined, to give a general idea about the functionality the application will provide. These general requirements build the basic blocks for the definition of more detailed functionality and requirements.

### 2.1 Introduction of Application

The HoopStats project is intended as a reimaging of the web application databasebasketball.com. This application provides basketball statistics which are free to use by anybody. Unfortunately it provides no features for visualization of statistics and data other than tables and plain text. Furthermore the choices of the use in terms of which data he wants to display are limited. Figures 2.1 and 2.1 show examples from the web application:

#### Mahmo Abdul-rauf

Mahmoud Abdul-Rauf ((Chris Wayne Jackson))

Position: G

Height: 6' 1" Weight: 162

Born: 3/9/1969, in Gulfport, MS, USA

High School: Gulfport, in Gulfport, MS

College: [Louisiana State University](#)

[About bio info](#)

Draft History

[1990 NBA](#) - Round 1 by [DEN](#)

\*\*[Player News](#)

**Regular Season Stats**

Click on column header to sort

#### Regular Season Stats

Click on column header to sort

Year	Age	Team	Lg	G	Min	Pts	PPG	FGM	
1972-73	3	<a href="#">GSW</a>	<a href="#">NBA</a>	46	629	208	4.5	82	
1972-73	3	<a href="#">BUF</a>	<a href="#">NBA</a>	9	134	53	5.9	25	
1990-91	21	<a href="#">DEN</a>	<a href="#">NBA</a>	67	1505	942	14.1	417	
1991-92	22	<a href="#">DEN</a>	<a href="#">NBA</a>	81	1538	837	10.3	356	
1992-93	23	<a href="#">DEN</a>	<a href="#">NBA</a>	81	2710	1553	19.2	633	
1993-94	24	<a href="#">DEN</a>	<a href="#">NBA</a>	80	2617	1437	18.0	588	
1994-95	25	<a href="#">DEN</a>	<a href="#">NBA</a>	73	2082	1165	16.0	472	
1995-96	26	<a href="#">DEN</a>	<a href="#">NBA</a>	57	2029	1095	19.2	414	
1996-97	27	<a href="#">SAC</a>	<a href="#">NBA</a>	75	2131	1031	13.7	411	
1997-98	28	<a href="#">SAC</a>	<a href="#">NBA</a>	31	535	227	7.3	103	
2000-01	31	<a href="#">VAN</a>	<a href="#">NBA</a>	41	486	266	6.5	120	
9 Season Totals					586	15633	8553	14.6	3514

M - MVP

N - All NBA First Team

A - All Star

Figure 2.1 Player data from databasebasketball.com

Figure 2.2 Table season statistics from databasebasketball.com

The goal of the HoopStats project is to take the free-to-use data from the web and create a new system, which would provide more dynamic and visually appealing approach. The application provides mechanism to users for creating queries. This is done by giving them an option in which users can choose from different templates for querying the application. Here the users can choose e.g. a player or team and select the data that they are interested in. After that they can combine this template with conditions to filter out the data that is not of interest.

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Furthermore the data output shown in figure one and two will be replaced with a more modern visual style. This style will be more user-friendly and will enable users to easier interpret what is presented to him. Figure 2.3 and 2.4 show examples of how the visual data output might look like:

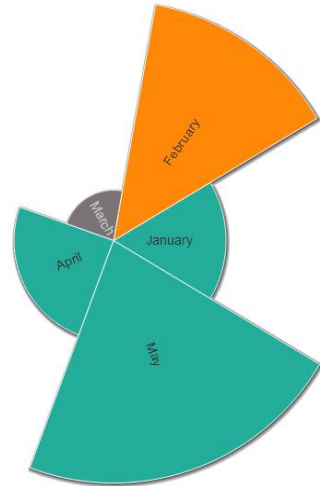


Figure 2.3 Pie chart for data visualization

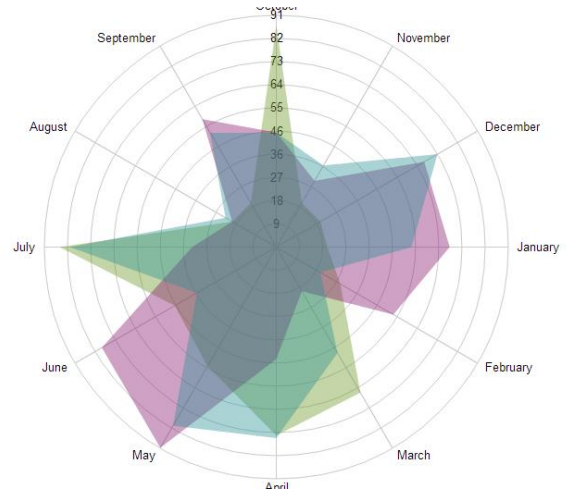


Figure 2.4 Net chart for data visualization

In addition to the visual changes a mobile application for Android phones will be developed, as mobile devices become more and more important for users and especially for the avid basketball fan for which the application aims at.

The following list summarizes the main features of HoopStats again:

- Users can make his own basketball related queries
- Visuals of application are improved by using modern visual output
- Mobile application to use HoopStats on-the-go

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## 2.2 General requirements

The HoopStats project is divided into three main requirements which represent the basic concepts and functionality which are provided by the application.

### 2.2.1 FQ: Flexible creation of queries

The users of the application should be able to create their own statistics at runtime. This is done by giving them the possibility to combine predefined template blocks to create queries. The template blocks allow for a greater flexibility for the user to create their representation of statistics. To ensure that the users can not combine templates which do not produce useful data, constraints have to be put in place.

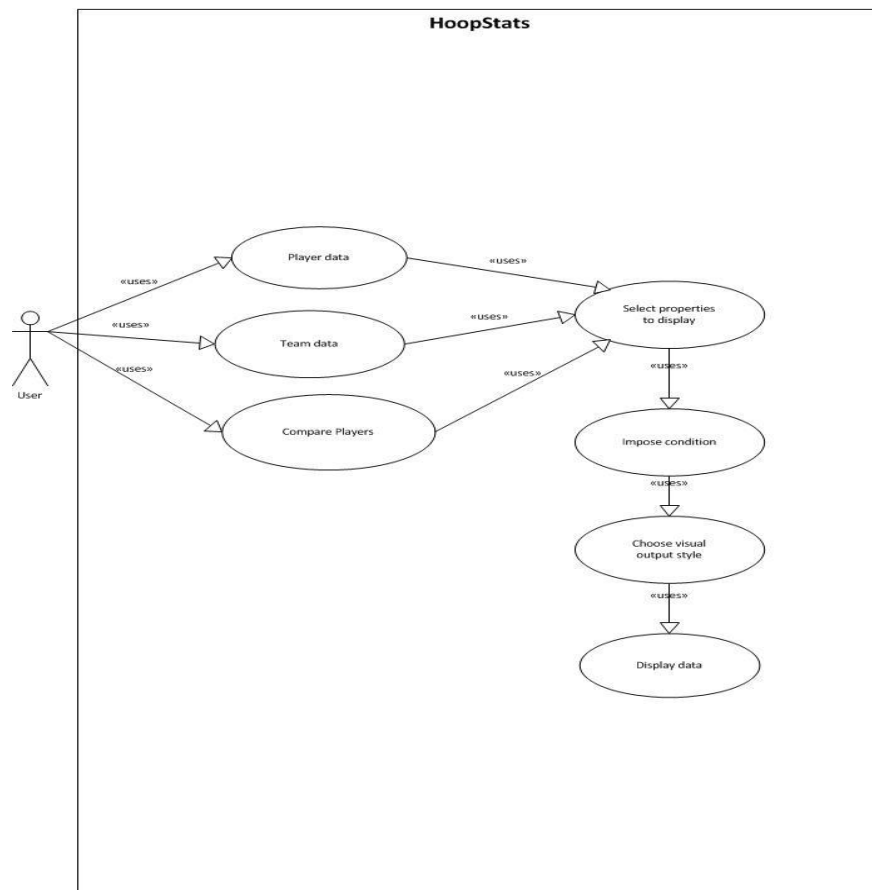
### 2.2.2 VR: Visual representation of data

The second general requirement is to provide a visual representation of the data gathered by the created queries. For this a visual output system has to be developed, which allows for different means of graphical out e.g. pie charts or tables. The system should allow the user to choose their own visual representation depending on the query they created before.

## 3. Use Cases

In this chapter the main use case model for the HoopStats application is explained and the individual use cases will be described. Because HoopStats is a single purpose application only a single use case model is necessary to describe the application which contains the three main uses cases.

### 3.1.1 Use case model 1: User interaction with web application



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### 3.1.2 Use case UC1: Player data

Use case ID	UC1
Name	<i>Player data</i>
Goal	<i>Select template for showing data for a player</i>
Participating actors	User
Precondition	
Main scenario	<ol style="list-style-type: none"> <li>1. <i>List of available templates available to choose from</i></li> <li>2. <i>User selects one template for data representation</i></li> <li>3. <i>User proceeds to the next step</i></li> </ol>
Exceptions	
Extensions	
Dependent UC	

### 3.1.3 Use case UC2: Team data

Use case ID	UC2
Name	
Goal	<i>Select template for showing data for a team</i>
Participating actors	User
Precondition	
Main scenario	<ol style="list-style-type: none"> <li>1. <i>List of available templates available to choose from</i></li> <li>2. <i>User selects one template for data representation</i></li> </ol>
Exceptions	
Extensions	
Dependent UC	

### 3.1.4 Use case UC3 Compare players

Use case ID	UC3
Name	<i>Compare players</i>
Goal	<i>Select template for showing data for comparing players</i>
Participating actors	User
Precondition	
Main scenario	<ol style="list-style-type: none"> <li>1. <i>List of available templates available to choose from</i></li> <li>2. <i>User selects one template for data representation</i></li> </ol>
Exceptions	
Extensions	
Dependent UC	



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### 3.1.5 Use case UC4: Select properties to be displayed

Use case ID	UC4
Name	<i>Select properties to display</i>
Goal	<i>Select subset of predefined properties available for particular template to be displayed.</i>
Participating actors	User
Precondition	User must have selected template.
Main scenario	<ol style="list-style-type: none"> <li>1. <i>A list of available properties for previously selected template is listed.</i></li> <li>2. <i>User defines subset of properties that want to be shown</i></li> </ol>
Exceptions	
Extensions	
Dependent UC	UC1, UC2, UC3

### 3.1.6 Use case UC5: Impose conditions

Use case ID	UC5
Name	<i>Impose conditions</i>
Goal	<i>Give constraints to the system by which the data will be filtered.</i>
Participating actors	User
Precondition	User must have selected template and columns that want to be displayed.
Main scenario	<ol style="list-style-type: none"> <li>1. <i>User selects some of the predefined conditions to apply to the data set.</i></li> </ol>
Exceptions	
Extensions	
Dependent UC	UC4

### 3.1.7 Use case UC6: Select visual output style

Use case ID	UC6
Name	<i>Select visual output style</i>
Goal	<i>Select visual elements to represent the obtained data.</i>
Participating actors	User
Precondition	UC1-3, UC4, UC5 must be completed
Main scenario	<ol style="list-style-type: none"> <li>1. <i>User selects some of the predefined conditions to apply to the data set.</i></li> </ol>
Exceptions	
Extensions	
Dependent UC	UC5, UC7

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### 3.1.8 Use case UC7: Display data

Use case ID	UC7
Name	<i>Display data</i>
Goal	<i>Display data obtained from server as a result to a user query.</i>
Participating actors	User
Precondition	UC1-3, UC4, UC5 and UC6 must be completed
Main scenario	<ol style="list-style-type: none"> <li>1. <i>Data is displayed.</i></li> <li>2. <i>Start the process again or go to some of the previous states.</i></li> </ol>
Exceptions	
Extensions	
Dependent UC	UC6

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#### 4. Requirements Definition

##### 4.1 Requirement Group Definitions

Identification	Description	Rem.
VR	Requirements for the visual data representation	
FQ	Requirements for the flexible data querying	
DI	Requirements for the integration of external data sources	

##### 4.2 Requirement Sources

Source	Description	Rem.
Ctm	Requirements from customer for the HoopStats application	
Tm	Internal Requirements	

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### 4.3 Requirement definitions

Identity	Status	Priority	Reference	Description	Source
VR	I	1	2.2.1	Visual representation of data	Ctm
VR 1	I	1	2.2.1.1	Provide static graphical data output	Ctm
VR 1.1	I	1	2.2.1.1.1	Provide table output	TM
VR 1.2	I	1	2.2.1.1.1	Provide pie chart output	TM
VR 1.3	I	1	2.2.1.1.2	Provide graph output	TM
VR 2	I	2	2.2.1.2	Provide dynamic graphical data output	Ctm
VR 2.1	I	2	2.2.1.2.1	Provide table output	TM
VR 2.2	I	2	2.2.1.2.2	Provide pie chart output	TM
VR 2.3	I	2	2.2.1.2.3	Provide graph output	TM
VR 3	I	1	2.2.1.3	Provide webpage to display graphical output	Ctm
FQ	I	1	2.2.2	Flexible creation of queries	Ctm
FQ 1	I	1	2.2.2.1	Deliver templates to create queries	Ctm
FQ 1.1	I	1	2.2.2.1.1	Player table template	Ctm
FQ 1.2	I	1	2.2.2.1.2	Team table template	Ctm
FQ 1.3	I	1	2.2.2.1.3	Player comparison template	Ctm
FQ 1.4	I	1	2.2.2.1.4	templates for properties	TM
FQ 1.5	I	1	2.2.2.1.5	templates for conditions	TM
FQ 2	I	1	2.2.2.2	workflow to structure the template selection of the user	Ctm
FQ 2.1	I	1	2.2.2.2.1	Selection of table or comparison template	Ctm
FQ 2.2	I	1	<b>Error! Reference source not found.</b>	Selection of property template	TM
FQ 2.3	I	1	<b>Error! Reference source</b>	Selection of condition template	Tm

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			<b>not found.</b>		
FQ 2.4	I	1	<b>Error! Reference source not found.</b>	Selection for different graphical output	Ctm
FQ 3	I	1	<b>Error! Reference source not found.</b>	Constraints to cut out unreasonable queries	Ctm
FQ 3.1	I	1	<b>Error! Reference source not found.</b>	Constraint to cut out unreasonable properties	Tm
FQ 3.2	I	1	<b>Error! Reference source not found.</b>	Constraint to cut out unreasonable comparisons	Tm
DI	I	1	<b>Error! Reference source not found.</b>	Integration of basketball information	Tm
DI 1	I	1	<b>Error!</b>	Integration of CSV files from Databasebasketball.com	Tm

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			<b>Referen ce source not found.</b>		
DI 1	I	1	<b>Error! Referen ce source not found.</b>	Integration of team images from Wikipedia.com	Tm
DI 1	I	3	<b>Error! Referen ce source not found.</b>	Integration of player images from Wikipedia.com	TM

Requirement status:

- I = initial* (this requirement has been identified at the beginning of the project),
- D = dropped* (this requirement has been deleted from the requirement definitions),
- H = on hold* (decision to be implemented or dropped will be made later),
- A = additional* (this requirement was introduced during the project course).

Requirement priority:

- 1 = First iteration of development
- 2 = Second iteration of development
- 3 = Third iteration of development