**HoopStats
Project Plan**

Version 1.0

Revision History

Date	Version	Description	Author
2012-11-02	0.01	Initial Draft	Andreas Köhle, Predrag Filipovikj
2012-11-22	0.02	Revised Version	Andreas Köhle
2013-01-20	1.0	Final version	Predrag Filipovikj

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1. Introduction

1.1 Purpose of this document

The purpose of this document is to give an overall insight of the HoopStats development project carried out by distributed development team at the Mälardalen University (MDH) in Västerås Sweden and the Faculty of Electrical Engineering and Computing (FER) in Zagreb, Croatia. The document is the basic document and will be used as basis and major reference for all subsequent activities and deliverables during the project. During the project document life cycle the document will be revised and updated if changes in the nature of the project occur, e.g. changes in project roles or milestones.

1.2 Intended Audience

The document is intended for the following audience as the project reference:
- Project team members
- Supervisor
- Customer
- External project stakeholders
  - SCORE competition judges

1.3 Scope

The scope of this document is to give a broad explanation about the structure, content, scope and direction of the HoopStats project. It contains the activities carried out during the project, as well as the artifacts produced by the team during the lifecycle of the project. Furthermore it explains the projects roles and activities of each of the team members and how the communication between the distributed members is handled. Another part is to give an idea how the project is carried out as well as the risk management.

1.4 Definitions and acronyms

1.4.1 Definitions

Keyword	Definitions
HoopStats	The name of the project and the applications (web and Android client)

1.4.2 Acronyms and abbreviations

Acronym or abbreviation	Definitions
MDH	Mäladarlen University
FER	Faculty of Electrical Engineering and Computing
QA	Quality Assurance
UI	User Interface
SVN	Apache Subversion
MoM	Minutes of Meeting
ASAP	As soon as possible

1.5 References

- ❖ Project Home
  - ➢ http://www.fer.unizg.hr/rasip/dsd/projects/basketball
- ❖ DatabaseBasketball Home
  - ➢ http://www.databasebasketball.com/
- ❖ Project Home Page
  - ➢ http://hoopstats.tk/

2. Background and Objectives

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 the user wants to display are limited. Figures 1 and 2 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

Figure 1 Player data from databasebasketball.com

Regular Season Stats
Click on **column header** to sort

Year	Age	Team	Lg	G	Min	Pts	PPG	FGM
1972-73	3	GSW	NBA	46	629	208	4.5	82
1972-73	3	BUF	NBA	9	134	53	5.9	25
1990-91	21	DEN	NBA	67	1505	942	14.1	417
1991-92	22	DEN	NBA	81	1538	837	10.3	356
1992-93	23	DEN	NBA	81	2710	1553	19.2	633
1993-94	24	DEN	NBA	80	2617	1437	18.0	588
1994-95	25	DEN	NBA	73	2082	1165	16.0	472
1995-96	26	DEN	NBA	57	2029	1095	19.2	414
1996-97	27	SAC	NBA	75	2131	1031	13.7	411
1997-98	28	SAC	NBA	31	535	227	7.3	103
2000-01	31	VAN	NBA	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 Table season statistics from databasebasketball.com

The goal for the HoopStats project is to take the free-to-use data from the web application and create a new, more dynamic web application with advanced visualization elements for data display. The Users will have control over which data is being displayed as a result to their flexible created queries. This is possible by providing the users templates for building queries. Figure 3 shows how this template tool system might look like. Here the users can choose from different templates e.g. player or team and choose the data he wants to know about. After that they can combine this template with restrictions to filter out the data they are interested in.
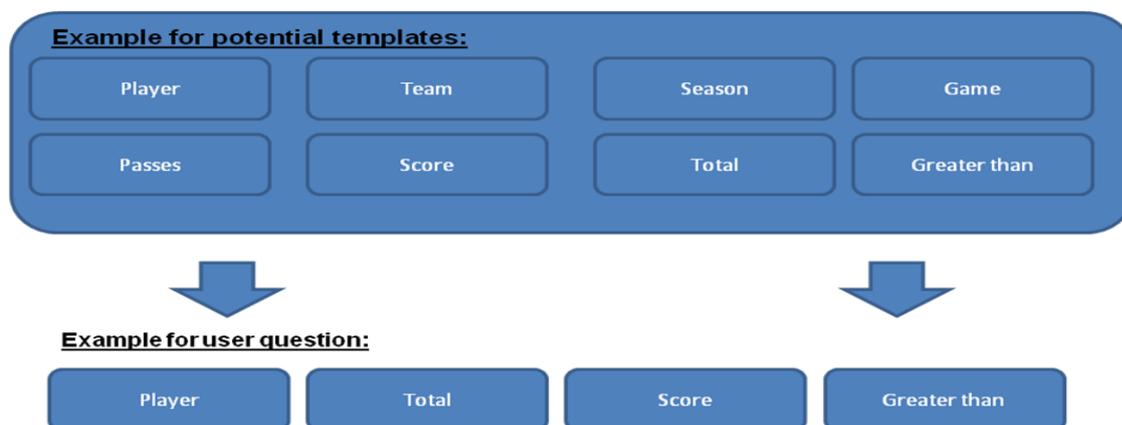

Figure 3. Potential template choice

Furthermore the data output shown in Figure 1and Figure 2 will be replaced with a more modern visual style. This style will be more user-friendly and will allow users to more intuitive interpret what is presented. Figure 4 and 5 show examples of how the visual data output might look like:
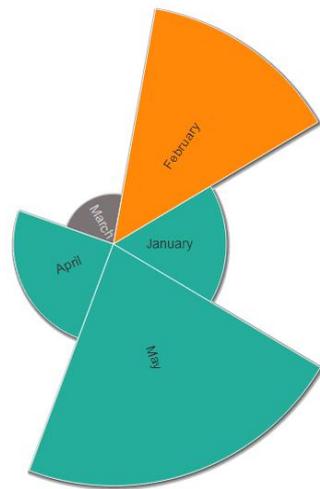

Figure 4 Pie chart for data visualization
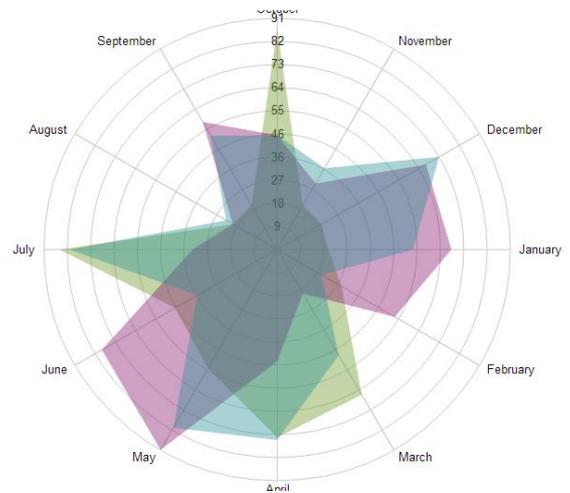
Figure 5 Net chart for data visualization

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. The application especially aims at the avid basketball fan who wants to access team statistics during a game.

The following list summarizes the main objectives of HoopStats:

- Users can design own basketball related questions
- Visuals of application are improved by using modern visual output
- Android App to use HoopStats on-the-go

3. Organization

In this chapter the organization of the project team is explained and what parts the individual members will carry out in the project. Furthermore the customer (which in this particular case is the supervisor also) will be introduced.

3.1 Customer and Supervisor

The customer and supervisor of the project is Juraj Feljan from MDH. He will give the initial requirements for the project and supervise the progress and direction it takes.

3.2 Project group

The members of this project are distributed over the two locations at MDH and FER. To ensure the project's success, roles are assigned to the individual team members. The following table shows the project roles of the HoopStats team members. The overall responsibilities of these roles are described in Chapter 3.3:

Name	Initials	Responsibility (roles)
Predrag Filipovikj	PF	*Project Manager, Database developer, .NET Developer, Web Developer*
Dino Blazeka	DB	*Team Leader*, Android Developer
Andreas Köhle	AK	Documentation Manager, Android Developer
Bal Krishna Nyaupane	BN	Quality assurance manager
Armindo Simones	AS	Web Developer, Android Developer
Igor Saric	IS	SVN Manager, .NET Developer, Web Developer

3.3 Project Roles

3.3.1 Project Manager

The main responsibility of the project manager is to control the progress of the project development and to ensure that the project is built according to the defined requirements. Furthermore he is responsible for assigning tasks to each of the team members and has to ensure that defined deadlines for project artifacts are met.

Besides that, he is working as a main contact person between the project team and the customer and supervisor.

3.3.2 Team Leader

The team leader is situated on the Croatian site of the project. His tasks include the management of the team at Croatian site and works as a single point of contact for the project manager to discuss project management related topics for both sites.

3.3.3 Documentation Manager

The tasks of the documentation manager include the work on important documents throughout the project e.g. the requirements engineering document and to ensure that the defined overall quality for the required documents is assured. Furthermore he integrates the documentation tasks of other team members.

3.3.4 SVN Manager

The SVN manager controls and manages the versioning system of the project. Through the subversion system the SVN manager manages the code base of the system and is responsible for resolving potential conflicts in the repository. He is also in charge to build milestones builds and merge the project to the final deliverable.

3.3.5 QA Manager

The task of the QA Manager is to ensure that the defined application quality criteria are fulfilled. He develops a test plan for the application and ensures that it is carried out by the team members. He furthermore checks that the defined coding styles and conventions are properly used in the entire project development lifecycle. Writing integration test and validating unit test written by developers.

3.3.6 Web Developer

The Web Developer works on the overall User Interface (UI) of the project. He develops and documents the HTML pages through which the user interacts with the system and handles the design and layout of the pages.

3.3.7 Database Developer

The Database developer handles the design and maintenance of the data backend of the application. The main responsibility is the development of the initial schema and updating it as the project progress. Database

developer activities also include the import of the initial data obtained from databasebasketball.com into the HoopStats database. He also documents the developed schema and database.

3.3.8 .NET Developer

The .NET Developer handles the development of the application logic which is done with the .NET Framework. The main responsibilities of a .NET developer are producing C# code and writing unit test for that particular code.

3.3.9 Android Developer

The Android Developer develops the mobile application for the HoopStats project. He adapts the UI for mobile use and implements it with the Android SDK. Furthermore he tests and documents the developed Android application.

4. Development process

The development process used to build the HoopStats application is an adapted iterative approach to meet the demands of the project. Figure 6 shows the development process. The description of the process parts are found in the following section.
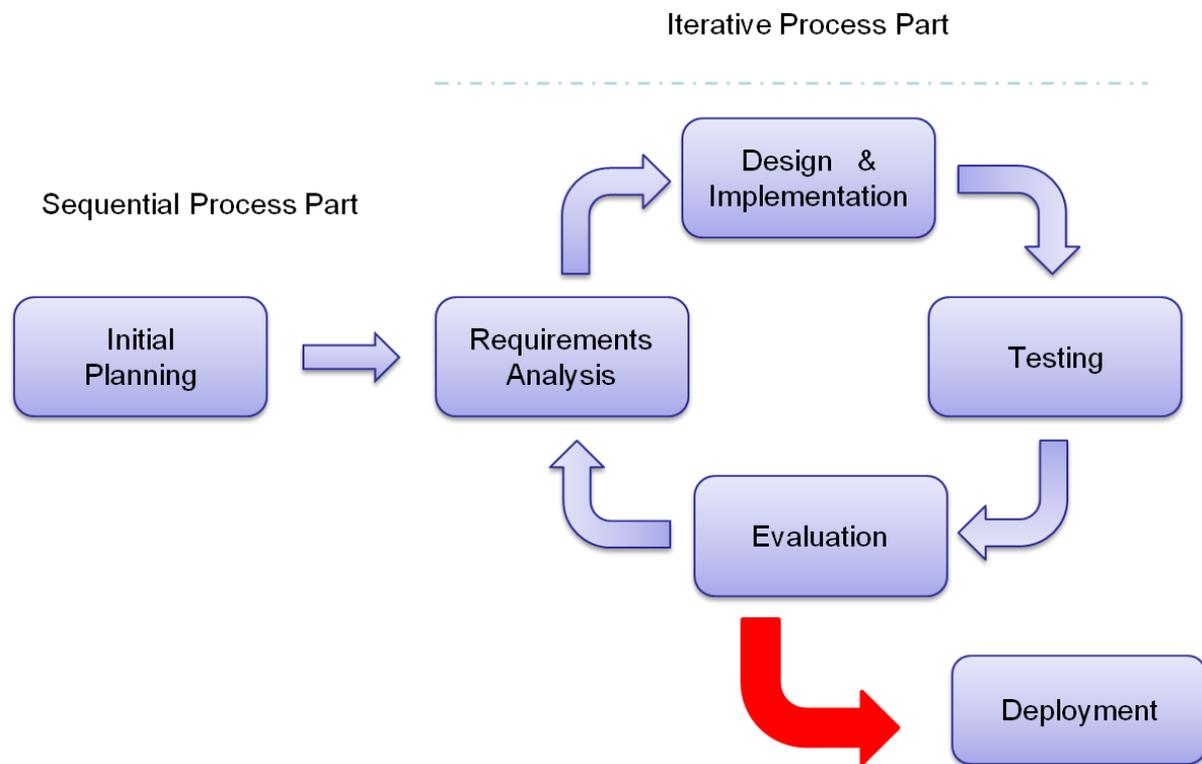

Figure 6 Development process for HoopStats

4.1 Initial Planning

In the initial planning phase the overall business concept of the application is developed and the architectural structure of the application is designed.

4.2 Requirements Analysis

In this phase the requirements initial and rather vague requirements are gathered from the customer. Later the project team discusses the client's requirements and produces a detailed list of the features the application should contain.

4.3 Design & Implementation

In the Design and Implementation Phase the requirements are broken down to design technical components for the application. After the design phase these components are implemented and unit tested by the developers themselves. After that the development and testing phase, the produced software must be documented. In the end of this phase a software build is created to use it for the next phases.

4.4 Testing

In the testing phase of the development process the integration of the developed software components is tested if it is working according to the requirements. This integration testing phase is done by testing all of the developed components, to ensure that they work correctly together.

4.5 Evaluation

In the evaluation phase the build is presented to the customer and to check if the developed application fits the customers' requirements.

4.6 Deployment

After the build is successfully evaluated by the customer, the current build is rolled out for productive use.

5.   Deliverables

The following table shows the deliverables which are presented to the project stakeholders throughout the project.

To	Output	Planned week	Late +/-	Delivered week	Rem
Customer, Supervisor	Project Plan and Requirements definition	W44	0	W44	
Customer, Supervisor	System design	W45	0	W45	
Customer, Supervisor	Alpha prototype: -Database -Business Logic -User Interface	W48	0	W48	
Customer, Supervisor	Beta prototype -Alpha Prototype -Mobile Application	W50	0	W50	
Customer, Supervisor	Final release and project presentation	W02	0	W02	

6.   Inputs

From	Required item	Planned week	Promised week	Late +/-	Delivered week	Rem
databasebasketball.com	Data from external Source	W42	W42	0	W42	1
databasebasketball.com	Scrapped Data from external Source	W04		0	W04	2

6.1.1   Remarks

Remark Id	Description
1	The Data from the source is free to use and contains player data, as well as team statistics. Data about individual games in a season are missing.
2	The imported data from the .CSV files is not enough to fulfill all the requirements. For that purpose additional data (game logs for individual player) has been scrapped from the databasebasketball.com web application.

7.   Project risks

Possibility	Risk	Preventive action
High	Problems finishing the assigned task on time.	Inform other members that you are behind schedule. Try to contact someone that is working on other task similar or related to yours to help you, if not possible inform others. Team leader and Project manager must cope with this.
High	Insufficient data	To improve the amount, data has to be retrieved from other sources by scrapping and crawling basketball related web sites
High	Insufficient skills	If you feel that your skills are not enough to finish the task, or think that you will spend more time learning the technology than work on the task – reject the task with good explanation and ask for another. If you had already taken the task – try to contact the other team members for help.
Medium	SVN problems	If there are any problems with the SVN try to solve them by your-self. If not possible contact SVN master ASAP.
Medium	Inconsistent Data	Data has to be made consistent by manual regrouping and checks
Low	Sickness of team member or a close family member.	Inform the rest of the team ASAP. In these cases the work will be divided between members of the team.
Low	Member absence due to previously scheduled obligations.	Inform the rest of the team ASAP. In these cases the work will be divided between members of the team.
Low	Communication problems.	Enforce more and more communication and try to overcome problems with help of other team members.

8.   Communication

The team is composed of two local groups – one based in Zagreb, Croatia and other in Västerås, Sweden. Each of the groups has a person responsible for organizing and coordinating other members on the same side. On the Croatian side Dino as team leader is responsible for coordinating Croatian part of the team and Predrag as the project manager holds the same responsibilities on the Swedish side.

Because of the long distance between the two groups, physical meetings are not an option. For that reason the team is going to utilize some of the most popular technologies for distance communication.
Regular global meetings will be conducted via Skype. The meeting will be organized as a discussion lead by the project manager. As there are 6 members in the team audio or video conference is not suitable because there is high possibility of total chaos. For each of these meetings a Minutes of Meeting documents will be produced.

The project manager is responsible for managing MoM documents. Before every meeting the project manager can decide who will be responsible for the MoM document for that particular meeting. The MoM is written in order to make the decisions available for every team member, along with the assigned tasks with their respective deadlines. Every task is assigned to a particular team member with a respective deadline for its completion. By producing MoM for every meeting, the group avoids possible misunderstandings and potential pitfalls.

The team members are free to use any other communication tool for asynchronous communication among them including phone calls. The asynchronous communication is informal communication and there is no

documentation produced for it. Remarks, probable changes and occurring problems which come up in such a meeting, are reported to the project manager who decides what should be done.

There is a recommendation that team members from each location should meet each other in person and share thoughts and experiences.

Official communication and meetings with the customer and supervisor are handled by the project manager, and team members who were assigned to take side in the meeting. From this meetings MoM are created, to inform the other members of the team about actions and decisions from supervisor and customer. Also it is possible to use email to inform the other team members about the meeting with the customer and/or the supervisor.

9. Configuration management

Configuration management plan is set up to protect the integrity of the documents and code.
For maintaining and sharing code SVN Subversion will be used. To be sure that everything works fine, we assigned SVN Manager – Igor for maintaining the SVN in working condition without any conflicts. Everyone should work according to predefined SVN polices and should be responsible for own acts. The maintenance and backup of the SVN repository are responsibilities of the SVN manager.

For managing our documentation in progress, we use Google Drive. By using this tool we can share our documentation and work concurrently on it. The backup process is performed by the Google Doc itself, so we do not have to consider that in our configuration management plan. Our documentation manager – Andreas is responsible for keeping the documents up to date and to resolve any potential conflicts.

10. Project plan

In this chapter the structure and the schedule of the project is detailed. It contains information about the milestones which are achieved throughout the project and activities which have to be carried out beforehand.

10.1 Time schedule

Id	Milestone Description	Responsible Dept./Initials	Finished week					Metr.	Rem.
			Plan	Forecast		Actual			
				Week	+/-				
M001	Finished first draft Project Plan and Requirements definition	PF and AK	W44	W44	0	W44	0		
M002	Finished first draft System design	Team members	W45	W45	0	W45	0		
M003	Presentation Alpha prototype	PF and DB	W48	W48	0	W48	0		
M004	Presentation Beta prototype	PF and DB	W50	W50	0	W50	0		
M005	Rollout final release and project presentation	Team members	W02	W02	0	W52	0		
M006	Final documentation	PF, AK	W03	W03	0	W03	0		

10.2   Activity plan

The following table shows the activities for HoopStats throughout the project. The blue background shows when if the activities are carried out during that week. The lighter coloring of the requirements definition and system architecture displays the sinking emphasis on that part in the course of the project.

Activity	w42	w43	w44	w45	w46	w47	w48	w49	w50	w51	w52	w01	w02	w03
Project Plan	■	■												
Requirements Definition		■	■	■	■	■	■	■	■	■	■	■	■	
System Architecture		■	■	■	■	■	■	■	■	■	■	■	■	
Implementation			■	■	■	■	■	■	■	■	■	■	■	■
Testing			■	■	■	■	■	■	■	■	■	■	■	■
Documentation			■	■	■	■	■	■	■	■	■	■	■	■
Deployment							■	■	■	■	■	■	■	■