**High Level Design (HLD)**

**NBA Teams & Player Performance Analysis**

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**Document Version Control**

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**Abstract**

**In the recent trend in**[**Data Science**](https://www.sciencedirect.com/topics/social-sciences/data-science)**(DS) and Sports Analytics, an opportunity has arisen for utilizing**[**Machine Learning**](https://www.sciencedirect.com/topics/computer-science/machine-learning)**(ML) and Data Mining (DM) techniques in sports. This project reviews background and advanced**[**basketball**](https://www.sciencedirect.com/topics/social-sciences/basketball)**metrics used in National Basketball Association (NBA) games. Basketball is a sport that requires full set enumeration of parameters in order to understand the game in depth and analyze the strategy and decisions by minimizing unpredictability. This research provides valuable information for team and player performance**[**basketball**](https://www.sciencedirect.com/topics/social-sciences/basketball)**analytics to be used for better understanding of the game. Hence, critical analysis of these metrics are valuable tools to understand the strengths and**[**weaknesses**](https://www.sciencedirect.com/topics/pharmacology-toxicology-and-pharmaceutical-science/weakness)**in the game and finally to make better choices for team composition.**

**Accurately evaluating the player performance of different teams and the performance of the players from all the seasons they played. The games played, average point scored each match, assisted points are evaluated.**

**1 Introduction**

**1.1 Why this High-Level Design Document?**

**The purpose of this High-Level Design (HLD) Document is to add the necessary detail to the current project description to represent a suitable model for coding. This document is also intended to help detect contradictions prior to coding, and can be used as a reference manual for how the modules interact at a high level.**

**The HLD will:**

**• Present all of the design aspects and define them in detail**

**• Describe the user interface being implemented**

**• Describe the hardware and software interfaces**

**• Describe the performance requirements**

**• Include design features and the architecture of the project**

**• List and describe the non-functional attributes like:**

**o Security**

**o Reliability**

**o Maintainability**

**o Portability**

**o Reusability**

**o Application compatibility**

**o Resource utilization**

**o Serviceability**

**1.2 Scope**

**The HLD documentation presents the structure of the system, such as the database architecture, application architecture (layers), application flow (Navigation), and technology architecture. The HLD uses non-technical to mildly-technical terms which should be understandable to the administrators of the system.**

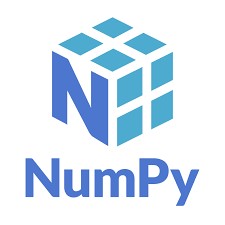
**2 General Description**

**2.1 Product Perspective & Problem Statement**

**The objective of the project is to analyze data and use the visualization techniques to understand the insight of the data. This project aims apply of various Business Intelligence tools such as Tableau or Power BI to get a visual understanding of the data and helps in getting the clear insights from the data.**

**2.2 Tools used**

**Business Intelligence tools and libraries works such as NumPy, Pandas, Excel, python, Power BI and jupyter notebook are used to build the whole framework.**



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**3 Design Details**

**3.1 Functional Architecture**

Data Sources Data Analytics Business Analytics BI

All Season Teams & Player data

Combing Reports and Creating Dashboards

Optimization Tools

Combine Data Analytics with KPI’s

Visualization Tools

Statistics

Data Cleaning

Step 1: Gather Data Step 2: Adv Search Step 3: Adv Tools Step 4: BA

**\* BI-Business Intelligence \* BA-Business Analytics**

**3.2 Optimization**

* Removal of NaN values from the datasets.
* Creating measures for points, assisted points and total points for all seasons.
* Filtering the countries
* Reshaping the data from wide data type to long data type for analysis

**4 Deployment**

**Migration of the data sources on power bi service where link will be produced after deployment, with the help of deployed link user can select any country, team, player and season of their choice. After selecting user can easily analyze the data, and analyze the performance of the teams and players.**