# NBA Data Analysis Project
# Project Plan Document

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## 1. Project Scope

### Included:

- Development of a web-based NBA analytics platform using Kaggle data.
- Data cleaning, processing, and visualization of NBA player statistics.
- Implementation of an interactive dashboard for player comparisons.
- Development of team-based analytics and performance insights.
- A responsive, user-friendly UI accessible on desktop and mobile.

### Not Included:

- Real-time live game updates (only static Kaggle datasets).
- AI-powered predictive analytics or machine learning models.
- Betting, gambling, or fantasy basketball integrations.
- Video highlights or player clips.

## 2. Project Organization - Roles & Responsibilities

| Role | Team Member(s) | Responsibilities |
|---|---|---|
| **Project Manager** | All team members | Oversees project progress, ensures deadlines are met. |
| **Lead Developer** | All team members | Develops backend and frontend of the web application. |
| **Data Analyst** | All team members | Cleans and processes NBA dataset from Kaggle. |
| **UI/UX Designer** | All team members | Designs user-friendly and visually appealing UI. |
| **Tester** | All team members | Performs testing, ensures application stability and bug fixes. |

# 3. Project Objectives (Execution & Management)

- Ensure smooth data integration and processing from Kaggle datasets.
- Develop a scalable and efficient NBA analytics platform.
- Maintain a responsive and user-friendly interface.
- Complete all key project phases on time.
- Ensure seamless collaboration and communication among team members.

# 4. Key Phases and Timeline

| Phase | Start Date | End Date | Deliverable |
|---|---|---|---|
| **Requirements Gathering** | Feb 15, 2025 | Feb 25, 2025 | Finalized feature list & project scope |
| **Data Collection & Processing** | Feb 26, 2025 | Mar 1, 2025 | Cleaned & structured NBA dataset |
| **UI/UX Design & Prototyping** | Mar 1, 2025 | Mar 25, 2025 | Wireframes & UI prototype |
| **Backend & Database Development** | Mar 1, 2025 | Mar 25, 2025 | Functional backend with data integration |
| **Frontend Development** | Mar 1, 2025 | Mar 25, 2025 | Fully responsive web app |
| **Testing & Debugging** | Mar 26, 2025 | Mar 31, 2025 | Bug fixes & performance optimization |
| **Deployment & Final Review** | May Apr 1, 2025 | Apr 4, 2025 | Deployed live application |
| **Project Closure & Evaluation** | Apr 5, 2025 | Apr 10, 2025 | Final project report & assessment |

# 5. Resource Planning

### Tools & Technologies Required:

- **Programming Languages:** Python, JavaScript (React.js), HTML/CSS
- **Database & Data Processing:** MySQL, Pandas, NumPy
- **Data Visualization:** Matplotlib, Seaborn, Plotly
- **Development Tools:** VS Code, GitHub, Docker
- **UI/UX Design:** Figma, Adobe XD

### Resource Access & Management:

- **GitHub repository** for version control and code collaboration.
- **Task management tool** GitHub for tracking progress.

# 6. Risk Management Plan

| Potential Risk | Mitigation Strategy |
|---|---|
| Data inconsistencies from Kaggle | Regular validation and cleaning of datasets |
| Technical difficulties in web development | Allocate buffer time for debugging and support |
| Delays due to unforeseen issues | Weekly progress reviews and realignment |
| Team member availability issues | Clear documentation for easy handover |
| Performance issues with large datasets | Optimize queries and implement caching |

# 7. Communication Plan

- **Weekly team meetings** (via Zoom/Google Meet) for updates.
- **Daily communication** via WhatsApp for quick discussions.
- **Progress tracking** through GitHub to ensure alignment.
- **Active and collaborative documentation** through google docs.

# 8. Change Management Plan

1. **Change Request Submission** – Any team member can submit a request for changes.
2. **Review & Approval** – The project manager evaluates the feasibility and impact of changes.
3. **Implementation Plan** – If approved, a new timeline is adjusted to accommodate the change.
4. **Execution & Testing** – The team implements and tests changes before deployment.
5. **Final Review** – Ensures the change aligns with project goals and does not introduce risks.

# 9. Task Assignments:

Detailed task assignments and phases can be found in the Gantt chart below.
**Gantt chart**

**Rationale for Task Assignment**
The task assignments were made by carefully considering the skills, interests, and learning objectives of each team member. This approach ensures a fair and effective distribution of responsibilities, maximizing productivity while providing opportunities for skill development.

- Alignment with Expertise: Each team member was assigned tasks that align with their existing strengths. For instance, Tunahan, who has experience with project coordination, was given the Kick-off Meeting task to ensure smooth initial discussions. Similarly, Beyzanur, who excels in documentation, was responsible for drafting the Requirements Documentation.
- Balanced Workload: The tasks were distributed evenly to avoid overburdening any single team member. Complex tasks like Review & Iteration of Requirements were assigned to multiple members, such as Allkım, to ensure collaborative input and efficiency.
- Encouraging Growth: Assignments also factored in learning opportunities. For example, a team member interested in improving their documentation skills was given an opportunity to work on Requirements Drafting. This allows for professional development while ensuring high-quality outputs.
- Task Interdependencies: Assignments were structured to facilitate seamless collaboration. Tasks that require iterative improvements, such as Requirement Reviews, were assigned to those who had prior involvement in documentation to maintain continuity.

By adopting this strategic approach, we ensured that all team members contribute effectively while also enhancing their skills. This distribution fosters teamwork, maintains efficiency, and promotes a productive workflow.

**Team Members and Roles**

The following table outlines the main roles of each team member in the project:

| Team Member | Role |
|---|---|
| Tunahan Oğuz | Backend Developer/ Tester |
| Beyzanur Zeybek | Requirements Analyst/ Frontend Developer |
| Allkım Doryan | Project Manager/ Tester/ Scrum Master |
| Ali Eren Kurt | Frontend Developer/ Product Owner |

These roles were assigned based on each member’s expertise and interests to ensure a smooth and efficient workflow throughout the project

# 10. Effort Estimation for Each Phase

| Phase | Estimated Effort (Person-Hours) | Assumptions |
|---|---|---|

| | | |
|---|---|---|
| **Requirements Gathering** | 5 | Reviewing NBA dataset, defining features. |
| **Data Collection & Processing** | 10 | Cleaning and structuring the Kaggle dataset. |
| **UI/UX Design & Prototyping** | 20 | Creating wireframes, finalizing the UI/UX. |
| **Backend & Database Development** | 20 | Developing APIs, integrating the database. |
| **Frontend Development** | 30 | Implementing the UI with React.js. |
| **Testing & Debugging** | 20 | Identifying and fixing bugs. |
| **Deployment & Final Review** | 5 | Hosting and testing final application. |
| **Project Closure & Evaluation** | 5 | Writing reports, final assessments. |

**Total Project Effort: 115 Person-Hours**

The total estimated effort is derived by summing the effort for all phases. The team members will distribute their workload based on expertise and availability, ensuring all responsibilities are covered efficiently.

# 11. Project Plan Document Task Matrix

| Task ID | Task Description | Team Member(s) Responsible | Completion Status | Notes |
|---|---|---|---|---|
| T1 | Defining project scope | Tunahan Oğuz, Ali Eren Kurt | Completed | Scope finalized based on project goals |
| T2 | Outlining roles & responsibilities | Alkım Doryan, Beyzanur Zeybek | Completed | All roles and responsibilities assigned |
| T3 | Defining project objectives | Tunahan Oğuz | Completed | Objectives set according to project scope |
| T4 | Creating project timeline & phases | Ali Eren Kurt, Beyzanur Zeybek | Completed | Timeline structured with clear milestones |

| | | | | |
|---|---|---|---|---|
| T5 | Planning resource allocation | Alkım Doryan | Completed | Required tools and technologies identified |
| T6 | Developing risk management strategy | Ali Eren Kurt, Tunahan Oğuz | Completed | Risk mitigation strategies documented |
| T7 | Defining communication plan | Beyzanur Zeybek | Completed | Communication methods and tools selected |
| T8 | Establishing change management process | Alkım Doryan | Completed | Change request and approval process defined |
| T9 | Effort estimation for project phases | All team members | Completed | Workload distributed based on expertise |
| T10 | Writing and formatting the document | Beyzanur Zeybek, Alkım Doryan | Completed | Final document structured and formatted |
| T11 | Reviewing and finalizing the document | All team members | Completed | Final quality check completed |

# 12. Project Closure & Evaluation

- **Final project review** to assess if all objectives are met.
- **Team member feedback collection** to evaluate usability and improvements.
- **Performance & stability testing** post-deployment.
- **Final project documentation** for future reference.