
Software Requirements Specification

for

ATTRITION ANALYSIS SYSTEM

Version 1.0 approved

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Revision History

Name	Date	Reason For Changes	Version

1. Introduction

1.1 Purpose

This document is a software requirement specification (SRS), which specifies all the functional requirements for release 1.0 of the “Attrition Analysis System” software. This document will be used by the members of the project team while developing the software in order to ensure the smooth functioning of the software product. This software is essential in the IT industry for predicting attrition and cost-saving. The scope covers all features and behaviors needed for this release. Future versions may expand upon these requirements.

1.2 Document Conventions

This SRS document for the “Attrition Analysis System” software adheres to standard typographic conventions, employing special fonts or highlighting exclusively for section headings, which are rendered in bold and larger fonts to distinguish them from the rest of the content. The remainder of the SRS document maintains a consistent use of standard fonts in Italics with no additional highlighting or formatting. Priorities for higher-level-requirements are assumed to be inherited by detailed requirements, but explicit priorities may be assigned to individual requirement statement when necessary to ensure clarity and consistency in specifying the functional requirements for this software product.

1.3 Intended Audience and Reading Suggestions

The SRS for “Attrition Analysis System” caters to developers, project managers, marketing staff, testers, and documentation writers. Section 1 introduces conventions and offers software overview, beneficial for documentation writers to maintain conventions in further SRS versions as the requirements are added, and the marketing staff to understand the software’s scope in the market. Section 2 provides an overall product description, vital for developers to implement requirements and for project managers to ensure final product satisfaction. Section 3 details User Interface (UI) hardware, software, and communications requirements, intended for developers and testers. Section 4 outlines system features for the developers. Section 5 covers non-functional requirements for the developers and the testers. This concise structure facilitates easy access to relevant information for all stakeholders.

1.4 Product Scope

The “Attrition Analysis System” software is designed to fulfill the critical role of managing employee attrition within organizations. The core purpose of the software is to provide insights into attrition trends, thereby assisting companies in reducing costs associated with employee turnover, optimizing their workforce, and improving employee retention rates. The software’s objectives encompass cost savings for the company, strategies for workforce optimization, enhanced employee satisfaction and data-driven decision-making. By aligning with these goals, the software directly supports corporate objectives, contributing to talent retention, cost-effectiveness, and informed decision making in areas such as human resources and talent management. This synergy between the software and broader business strategies positions the software as a valuable tool for achieving corporate goals, including increased productivity, customer satisfaction, and overall profitability. For a more comprehensive understanding of the product functions, refer Section 2.2 (Product Functions).

1.5 References

No external documents or web addresses are referenced in this SRS. This document contains all the necessary information for the specification of the “Attrition Analysis System” software.

2. Overall Description

2.1 Product Perspective

The Attrition Analysis System is a novel, self-contained software solution targeting employee attrition in organizations. It's neither a successor of an existing product nor a replacement. Instead, it complements existing HR systems. Attrition Analysis System software interfaces with HR Information system for employee data, Performance Management Systems for job metrics, Survey Tools for feedback, and uses Email systems for notifications. It's envisioned as an integrative tool, bridging gaps between various HR-related subsystems, enhancing workforce management capabilities through focused attrition analysis.

2.2 Product Functions

2.2.1 Data Collection:

Gather employee data from HRIS, performance management systems, and surveys.

2.2.2 Data Analysis:

Utilize machine learning and statistical algorithms to analyze attrition trends and calculate attrition risk scores.

2.2.3 Reporting and Visualization:

Provide user-friendly dashboards, reports, and visualizations to present attrition insights.

2.2.4 Recommendations:

Generate actionable recommendations based on data analysis to mitigate attrition risks.

2.2.5 Security and Privacy:

Ensure data privacy and security through encryption and role-based access control.

2.2.6 Performance:

Deliver timely analysis results and maintain acceptable response times as mentioned in 5.1.

2.2.7 Scalability:

Accommodate growing datasets and handle concurrent user access efficiently.

2.2.8 Usability:

Offer an intuitive user interface with training and documentation for users.

2.2.9 Tracking employees:

Tracks the growth of employees after leaving the company for 5 years in case they join again.

2.3 User Classes and Characteristics

HR Professionals: Frequent users with high technical expertise, responsible for data analysis, attrition management, and decision making.

Managers and Executives: Frequent users with moderate technical skills, rely on AAS insights for strategic decisions.

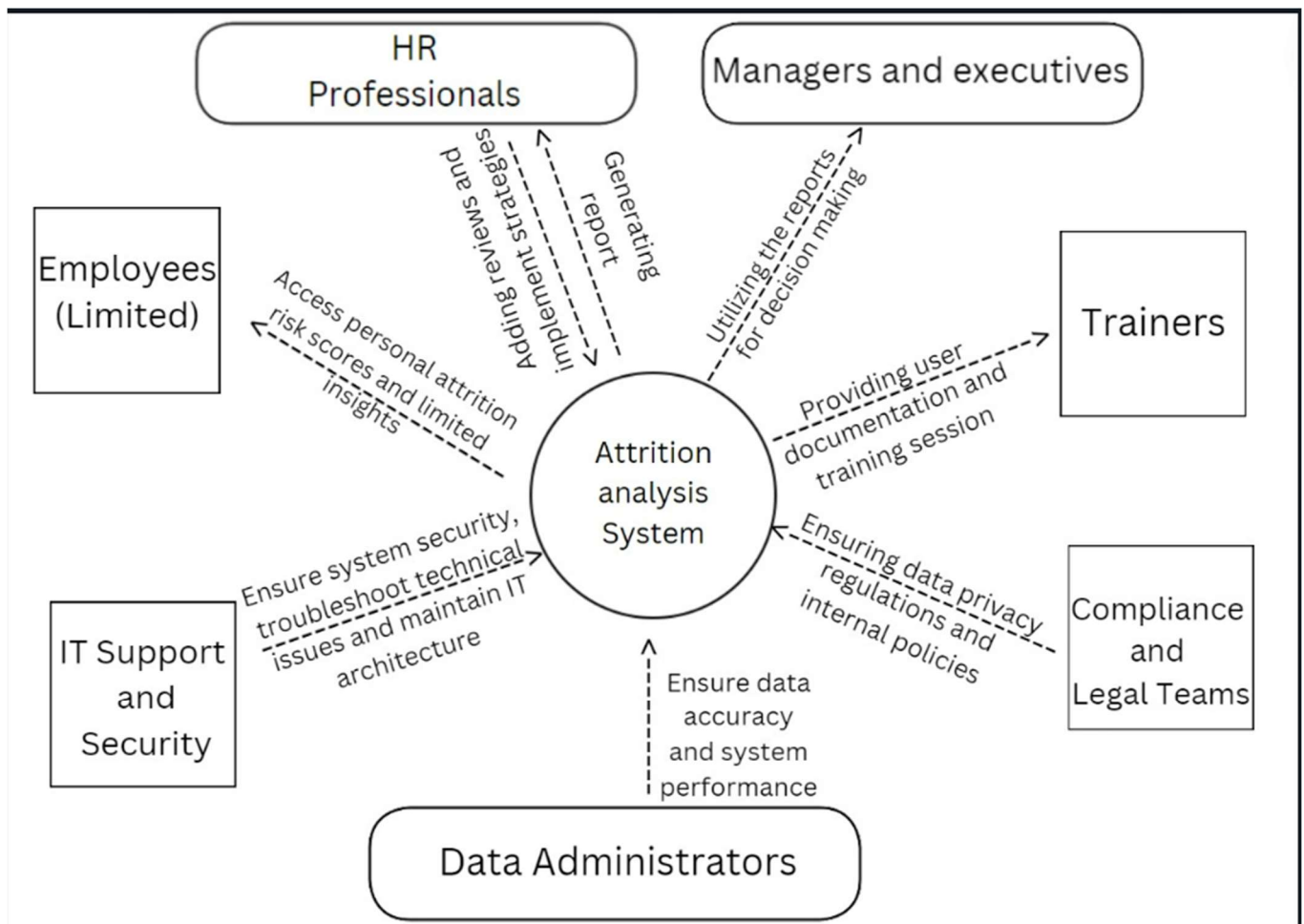
Data Administrators: Frequent users with high technical expertise, maintain data accuracy and interfaces. Critical for data accuracy and system performance.

Employees (Limited Access): Occasional users with basic technical skills, view personal information.

IT Support and Security: Occasional users with high technical expertise, ensure system security and stability.

Trainers and Educators: Occasional users with moderate technical skills, provide training and documentation.

Compliance and Legal Teams: Occasional users with legal expertise, ensure data privacy and compliance.



Note: Users with high priority are denoted by curved rectangles while users with lower priority are denoted by rectangles.

2.4 Operating Environment

- OE-1: Attrition analysis System shall operate with the following Web browsers, Microsoft Internet Explorer versions 5.0 and 6.0, Netscape Communicator version 4.7, and Netscape versions 6 and 7.
- OE-2: It shall operate on a server running the current corporate approved versions of Red Hat Linux and Apache Web Server.
- OE-3: It shall use MySQL for storing the employee information.
- OE-4: It shall permit user access from the corporate intranet and, if a user is authorized for outside access through the corporate firewall, from an internet connection at the user's home.

2.5 Design and Implementation Constraints

- CO-1: *The analysis must seamlessly interface with HR information system, performance management systems, survey tools, and email/notification systems, requiring precise integration protocols and data exchange mechanisms.*
- CO-2: *All the scripts shall be written using Python Programming Language*
- CO-3: *Developers must implement robust security measures, including data encryption and role-based access control, to safeguard sensitive data and meet security standards.*
- CO-4: *If the customer's organization will be responsible for maintaining the software, developers must ensure that the system is designed with maintainability in mind, including comprehensive documentation and ease of updates.*
- CO-5: *The software shall use python's pyplot library to visualize the various plots.*
- CO-6: *The software shall use the standard MySQL database to store the employee information.*

2.6 User Documentation

- UD-1: Comprehensive user manuals will provide detailed instructions on how to navigate and utilize the Attrition Analysis System, including step-by-step guides for each major function.
- UD-2: Interactive online help will be integrated into the Attrition Analysis System user interface, offering context-sensitive guidance and tool tips for users.
- UD-3: Video and written tutorials will be available to assist users in getting started and mastering the system's features.
- UD-4: A set of FAQs will address common user queries and troubleshooting issues.

- UD-5: In-depth technical documentation for system administrators and IT personnel will cover installation, configuration, and maintenance procedures.
- UD-6: A guide outlining data privacy and security practices will be provided to ensure compliance with regulatory requirements.
- UD-7: User documentation will adhere to established formatting and writing standards, ensuring consistency and ease of comprehension.
- UD-8: A feedback mechanism will be included to gather user input for continuous improvement of the documentation and the AAS itself.

2.7 Assumptions and Dependencies

2.7.1 Assumptions

- AS-1: *The project assumes that third-party libraries and components, such as machine learning frameworks or database management systems, will function as intended and remain compatible throughout development.*
- AS-2: *The project relies on the assumption that relevant employee data from HRIS, performance management systems, and surveys will be consistently available and accessible for integration.*
- AS-3: *It is assumed that the organization's data privacy and security policies will align with regulatory requirements, and any changes will be communicated promptly.*
- AS-4: *The project assumes that the organization's hardware and network infrastructure will meet the system's performance and scalability requirements.*

2.7.2 External Dependencies :

- ED-1: *The project depends on the availability and cooperation of the HRIS team to establish data interfaces and maintain data accuracy.*
- ED-2: *The project relies on the functionality and accessibility of survey tools for data collection.*
- ED-3: *The project depends on compliance with data privacy regulations, which may affect data handling processes.*
- ED-4: *Compatibility with third-party systems, such as email and notification systems, is essential for seamless communication*

3. External Interface Requirements

3.1 User Interfaces

The Attrition Analysis System will have a graphical user interface (GUI) that will be used by HR professionals to enter employee data, analyze attrition trends, and generate reports. The GUI should be easy to use and navigate, and it should be consistent with the user interface standards of the organization. The following are some specific requirements for the user interface:

- UI-1: *The user interface should be divided into two main sections: a data entry section and an analysis section.*
- UI-2: *The data entry section should allow users to enter employee data, such as name, job title, department, and date of hire.*
- UI-3: *The analysis section should allow users to analyze attrition trends by various factors, such as department, job title, and years of service.*
- UI-4: *The user interface should provide a variety of reports that can be generated, such as a list of employees who are at risk of attrition and a comparison of attrition rates between different*

departments.

3.2 Hardware Interfaces

The Attrition Analysis System software does not require any specific hardware interface requirement for this version of the SRS document.

3.3 Software Interfaces

The Attrition Analysis System will interface with the following software:

- *A database management system (DBMS) to store employee data*
- *A reporting tool to generate reports*

3.4 Communications Interfaces

The Attrition Analysis System will not have any communications interfaces.

4. System Features

4.1 Data Entry

This system feature allows HR professionals to enter employee data, such as name, job title, department, and date of hire. The data entry screen should be easy to use and should provide clear instructions on how to enter the data.

4.1.1 Description and Priority

This system feature is of high priority. It is essential that HR professionals be able to easily enter employee data in order to track attrition trends.

4.1.2 Stimulus/Response Sequences

The following are the stimulus/response sequences for this system feature:

Stimulus: The user clicks on the "Data Entry" button.

Response: The system displays the data entry screen.

Stimulus: The user enters the employee data.

Response: The system saves the data to the database.

4.2 Analysis

This system feature allows HR professionals to analyze attrition trends by various factors, such as department, job title, and years of service. The analysis screen should provide clear visualizations of the data, such as charts and graphs.

4.2.1 Description and Priority

This system feature is of high priority. It is essential that HR professionals be able to easily analyze attrition trends in order to identify areas where the organization can improve employee retention.

4.2.2 Stimulus/Response Sequences

The following are the stimulus/response sequences for this system feature:

Stimulus: The user clicks on the "Analysis" button.

Response: The system displays the analysis screen.

Stimulus: The user selects the factors to analyze.

Response: The system displays the data for the selected factors.

4.3 Report Generation

This system feature allows HR professionals to generate reports that summarize the attrition data. The reports should be easy to read and should provide clear insights into the data.

4.3.1 Description and Priority

This system feature is of high priority. It is essential that HR professionals be able to easily generate reports in order to communicate the findings of the analysis to other stakeholders.

4.3.2 Stimulus/Response Sequences

The following are the stimulus/response sequences for this system feature:

Stimulus: The user clicks on the "Report Generation" button.

Response: The system displays the report generation screen.

Stimulus: The user selects the report to generate.

Response: The system generates the report and displays it to the user.

5. Other Nonfunctional Requirements

5.1 Performance Requirements

PE-1: The system should process and analyze historical attrition data for a given department within 2 minutes.

PE-2: The system must handle an increasing volume of employee data as the organization grows, with performance degradation not exceeding 10%.

PE-3: The UI (user Interface) interactions, such as filtering and data visualization, should have a response time of less than 2 seconds.

PE-4: The system should retain historical attrition for at least 5 years without affecting query performance.

PE-5: Data encryption and user authentication should not result in a performance decrease of more than 5%.

5.2 Safety Requirements

- SR-1: *The software must have a backup in place to prevent data loss in case of system failure.*
- SR-2: *The software must have clear and concise error messages to help the manager understand and fix errors.*

5.3 Security Requirements

- SE-1: *The system must employ robust encryption algorithms to protect sensitive employee data during storage and transmission.*
- SE-2: *Access to sensitive data must be restricted to authorized personnel only, based on well-defined roles and permissions.*
- SE-3: *Any changes to critical data must be logged, time-stamped, and attributed to the responsible user.*
- SE-4: *Access control should be regularly viewed and updated to reflect changes in organizational structure or responsibilities.*
- SE-5: *Strong password policies, including minimum length, complexity, and expiration requirements, must be enforced.*
- SE-6: *The system must have intrusion detection mechanisms in place to monitor for potential security breaches.*

5.4 Software Quality Attributes

5.4.1 Scalability

1. *The system should be capable of handling a significant increase in the volume of employee data without significant degradation in performance. This should be tested with simulated data growth.*
2. *The system should support concurrent usage of minimum 100 users without performance degradation, as verified in load testing.*

5.4.2 Interpretability

1. *The system should provide explanations in the form of graphs and charts, allowing the users to understand the factors leading to attrition.*
2. *Attrition trends and insights must be presented in visually intuitive manner, with user satisfaction ratings for data visualization exceeding on a scale of 1 to 5 in user surveys.*

5.4.3 Maintainability

1. *The system must be designed for easy scalability, and updates to analytical models must be straightforward to implement without causing downtime.*
2. *Code changes should not introduce critical defects, with a maximum of 2 high-priority defects per month, as tracked in the bug tracking system.*

5.4.4 Reliability

1. *The system must be available 95% of the time during business hours, with scheduled maintenance outside of the business hours.*
2. *A robust disaster recovery plan must be in place, with recovery time objective*

(RTO) of no more than 3 hours in the event of system failure.

6. Other Requirements

There are no other specific requirements for the version 1.0 of this SRS document for the Attrition Analysis System.