# Non-Functional Requirements

## Usability

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| Aspect | Metric | Target |
| Goal | Ensure users can effectively use the system for healthy lifestyle recommendations. |  |
| Satisfaction | User satisfaction score from post-use surveys (scale: 1–5). | ≥ 4.5/5 average score. |
| Learnability | Average time for new users to complete their first weekly health plan. | ≤ 3 minutes. |
| Efficiency | Time to generate a weekly plan. | ≤ 10 seconds. |
| Few Errors | Percentage of users experiencing errors during use. | ≤ 5%. |
| Memorability | Percentage of users who can navigate and use the system without help after 1 week of non-use. | ≥ 90%. |

## Performance

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| Aspect | Metric | Target |
| Goal | Ensure fast response times and smooth operation under various load conditions. |  |
| Concurrent Users | Maximum number of concurrent users supported without performance degradation. | 500 users (normal); 2000 users (stress testing). |
| Stress Test | Number of concurrent users during stress tests where the system remains functional. | Handle 2000 concurrent users with response times ≤ 2 seconds. |
| Response Time | Average time for generating recommendations or loading dashboards. | ≤ 500ms (normal), ≤ 2 seconds (stress). |
| Throughput | Number of transactions processed per minute. | ≥ 1000 TPM under normal load. |
| Latency | Average latency for data transmission between client and server. | ≤ 200ms. |
| CPU Utilization | Average CPU usage under load. | ≤ 70% (normal), ≤ 90% (stress). |
| Memory Usage | Average memory usage during normal and peak operations. | ≤ 1.5GB (normal), ≤ 2GB (stress). |

## Security

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| Aspect | Metric | Target |
| Goal | Protect sensitive user data and ensure secure system operations. |  |
| Confidentiality | Percentage of sensitive data encrypted. | 100%. |
| Integrity | Percentage of data consistency in the database after stress testing. | ≥ 99%. |
| Authorization | Number of unauthorized access attempts successfully blocked. | 100%. |
| Authentication | Average login time under various loads. | ≤ 2 seconds (normal and peak). |
| Availability | Percentage uptime over 30 days. | ≥ 99.9%. |
| Non-Repudiation | Percentage of user actions successfully logged. | 100%. |

## Scalability

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| Aspect | Metric | Target |
| Goal | Ensure the system can handle an increasing number of users and data efficiently. |  |
| Horizontal Scaling | Number of additional servers required to maintain performance with 10,000 users. | ≤ 2 additional servers. |
| Vertical Scaling | Percentage performance improvement with 50% more resources (ex., CPU, RAM). | ≥ 40% performance improvement. |

## Maintainability

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| Aspect | Metric | Target |
| Goal | Simplify system maintenance and updates to minimize downtime. |  |
| Bug Resolution Time | Average time to fix high-priority bugs after detection. | ≤ 24 hours. |
| Update Deployment | Time to roll out minor updates. | ≤ 30 minutes. |
| Code Quality | Percentage of code coverage by automated tests. | ≥ 85%. |

## Accessibility

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| Aspect | Metric | Target |
| Goal | Ensure the system is usable for people with disabilities. |  |
| Compliance Level | WCAG (**Web Content Accessibility Guidelines )**compliance level achieved (e.g., A, AA, AAA). | AA compliance. |
| Screen Reader Compatibility | Percentage of critical features accessible with screen readers. | 100%. |

## Reliability

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| Aspect | Metric | Target |
| Goal | Ensure consistent system performance and availability over time. |  |
| Mean Time Between Failures | Average time between system failures. | ≥ 1000 hours. |
| Mean Time to Repair | Average time to restore full system functionality after a failure. | ≤ 1 hour. |