| <Company Logo> | <Company Name>  <Company slogan> |
| --- | --- |

<Project Name>

Non-Functional Requirement Template

Version X.X

MM/DD/YYYY

**Document Number:** <document’s configuration item control number>

**Contract Number:** <current contract number of company maintaining document>

Non-Functional Requirement Document Sign-off

<List out the name of import stakeholders responsible to sign-off the document>

Table 1: Sign-off Table

| Name | Role / Designation | Signoff Date | Signature |
| --- | --- | --- | --- |
| Name | Project Manager |  |  |
| Name | Business Analyst |  |  |
| Name | Application Architect |  |  |
| Name | Lead Developer |  |  |
| Name | Performance Test Manager |  |  |
| Name | xxxxxx |  |  |
| Name | xxxxxx |  |  |

Record of Changes

< Provide information on how the development and distribution of the non-functional requirement document were carried out and tracked with dates. Use the table below to provide the version number, the date of the version, the author/owner of the version, and a brief description of the reason for creating the revised version.>

Table 2: Record of Changes

| Version  Number | Date | Author/Owner | Description of Change |
| --- | --- | --- | --- |
| Draft | 01/11/2018 | PerfMatrix | Draft version with available details |
| 0.1 | 15/11/2018 | PerfMatrix | Added Business NFR details |
| 0.2 | 30/11/2018 | PerfMatrix | Added Quantified NFR details |
| xx | xx/xx/xxxx | xxxxxx | xxxx xxxx xxxx xxx |
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# Executive Summary

<Please write here, a summary and the purpose of non-functional requirement document>

## Overview: Project Background and Scope

<Please write here about the project, application, the purpose of the application, impacted users, benefits etc.>

# Application Architecture

<Please write here the summary of the architecture, technology used, impacted components etc.>

## Overview: System Architecture

<Please write here the detailed description of the application/system>

## Architecture Diagram

<Add architectural diagram of the application in this section>

# Performance Test Requirements

## Requirements

<Please write here the justification to include the performance testing for this project. Attach the Performance Score Metrics sheet or MOM in which Performance Testing of specific or all the components was agreed.>

### Business NFR

<This section will contain all the non-functional requirements which come from the project team. These requirements could be in the layman term or very high level. A typical example is given in the table>:

<In some cases raw NFRs or High-Level NFRs or Business NFRs are not available, so delete this section>

Table 3: Business NFR

| **Business Transactions** | User Load | SLA/response times | Transactions per hour |
| --- | --- | --- | --- |
| Business Process 1 | 100 | 5 seconds | 1452 |
| Business Process 2 | 150 | 2 seconds | 1700 |
| Business Process 3 | 75 | 4 second | 900 |
| Business Process 4 | 50 | 3 seconds | 750 |
| Business Process 5 | 200 | 3 seconds | 1980 |

## Non-Functional Requirements

<After analyzing the business NFR, refine them and convert into quantitative NFR which should be written down in the below table>

Table 3: Non-Functional Requirements Detail

| **NFR #** | Business Transactions | NFR Type / Category | NFR Description |
| --- | --- | --- | --- |
| NFR01 | Business Process 1 | Performance – User Load | Peak Load: The system must be able to support 100 active users. |
| NFR02 | Business Process 1 | Performance - Responsiveness | The system response time on peak load for user requests, as identified in the figure, shall be less than 5 seconds for any individual request |
| NFR03 | Business Process 1 | Performance – Transaction Rate | The average count of transactions received by the system by must be equal to or more than 1452 transactions per hours. |
| NFR04 | Business Process 1 | Performance – Server Side NFR | CPU utilization must be less than 60%.  Memory Utilization must not exceed more than 10%. |
| NFR05 | Business Process 1 | Performance –Generic | The acceptable limit of the failed transaction count is less than 3% of total transactions during the test. |
| NFR06 | Business Process 1 | Scalability – User Load | Stress (future) Load: The system must be able to support 150% of peak time active user load (=150). |
| NFR07 | Business Process 1 | Scalability – Responsiveness | The system response time on future load for user requests, as identified in the figure, shall be less than 5 seconds for any individual request |
| NFR08 | Business Process 1 | Scalability – Transaction Rate | The average count of transactions received by the system by must be equal to or more than 150% of peak time transaction rate (=2178 transactions per hours.) |
| NFR09 | Business Process 1 | Scalability – Server Side NFR | CPU utilization must be less than 70%.  Memory Utilization must not exceed more than 14%. |
| NFR10 | Business Process 1 | Scalability –Generic | The acceptable limit of the failed transaction count is less than 5% of total transactions during the test. |
| NFR11 | Business Process 1 | Availability – User Load | Average Load: The system must be able to support 75% of peak time active user load (=75). |
| NFR12 | Business Process 1 | Availability – Responsiveness | The system response time on average load for user requests, as identified in the figure, shall be less than 3 seconds for any individual request |
| NFR13 | Business Process 1 | Availability – Transaction Rate | The average count of transactions received by the system by must be equal to or more than 75% of peak time transaction rate (=1089 transactions per hours.) |
| NFR14 | Business Process 1 | Availability – Server Side NFR | CPU utilization must be less than 60%.  Memory Utilization must not exceed more than 10%.  Memory leakage must not occur. |
| NFR15 | Business Process 1 | Availability –Generic | The acceptable limit of the failed transaction count is less than 5% of total transactions during the test. |
| NFR16 | Business Process 1 | Capacity (Break-Point) – User Load | The user load must be increased gradually until the system break-point reached |
| NFR17 | Business Process 1 | Capacity – Responsiveness | Response time must be noted at different user load level like:   1. 50 User Load 2. 100 User Load 3. 150 User Load 4. 200 User Load 5. 250 User Load 6. ….. so on |
| NFR18 | Business Process 1 | Capacity – Transaction Rate | Note down the transaction rate at different user load. |
| NFR19 | Business Process 1 | Capacity – Server Side NFR | Note down the CPU utilization at different user load. Check at what point it reaches to 100%.  Note down the memory utilization at different user load. |
| NFR20 | Business Process 1 | Capacity –Generic | Note down the error count at different user load. |
| NFR21 | Business Process 1 | Robustness – User Load | A sudden load (spike) of 200% of peak user load must be handled by the system. The duration of the spike will be 2 minutes after every 15 minutes. |
| NFR22 | Business Process 1 | Robustness – Responsiveness | The response time must be noted at every spike and that must be less than 6 seconds. |
| NFR23 | Business Process 1 | Robustness – Transaction Rate | The transaction rate must be noted at every spike. |
| NFR24 | Business Process 1 | Robustness – Server Side NFR | CPU utilization must not be more than 80% during spike period.  Note down the memory utilization at different user load. |
| NFR25 | Business Process 1 | Robustness –Generic | Note down the error count during the spike period. |
| xxxx | xxx | xxxx | xxxxx |
|  |  |  | <Similarly analyze and write down the NFR for each business case. NFR must be clear, quantitative and understandable> |

## Other Non-Functional Requirements

<This section contains the other non-functional requirements which are provided by project team like:

1. Security Testing Requirement
2. Accessibility Testing Requirement
3. Usability Testing Requirement
4. Compatibility Testing Requirement

Ideally, some specific teams are assigned to conduct the respective NFR analysis. The outcome of the analysis may be written in this section.>

# Assumptions, Constraints, Risks and Dependencies

### Assumptions

<Assumptions should be documented concerning the available non-functional requirement associated with the performance test. Examples are shown below.>

Table 15: Assumptions

| No. | Assumption |
| --- | --- |
| 1 | The business NFRs are verified by client, BA, Architecture and Project Manager. |
| 2 | The Final NFRs are extracted from business NFRs |
| 3 | The Final NFRs are the quantitative NFRs and approved by all the stakeholders. |
| 4 | xxxxxxxxxxxxxx |

### Constraints

<Constraints should be documented concerning the available non-functional requirement associated with the performance test. Examples are shown below.>

Table 16: Constraints

|  |  |  |
| --- | --- | --- |
| No. | Constraint | Impact |
| 1 | The Performance Test environment has 50% of the servers that Production has. | The scaling factor of the Performance Test to Production is 50%. The user load and transaction rate NFR are executed in the Performance Test should be run at 50% of the full Production load Model to represent a 100% Load Test in the Test environment. |
| 2 | xxxx | xxxx |

### Risks

<Risks should be documented concerning the available non-functional requirement associated with the performance test. Examples are shown below.>

Table 17: Risks

| No. | Risk | Impact | Action/Mitigation | Assigned To |
| --- | --- | --- | --- | --- |
| 1 | If there is any change in the NFR during the performance test cycle then it may add some delay in the timelines | HIGH | Re-design the performance test scenario  Delay in performance testing cycle completion | Project Manager |
| 2 | xxxx | xxxx | xxxx | xxxx |

### Dependencies

<Dependencies should be documented concerning the available non-functional requirement associated with the performance test. Examples are shown below>

Table 18: Risks

| No. | Dependencies | Impact | Action/Mitigation | Assigned To |
| --- | --- | --- | --- | --- |
| 1 | Any further details required in business NFR should be provided by the project team | HIGH | Unavailability of information may add some delay in the timeline | Project Business Team |
| 2 | xxxx | xxxx | xxxx | xxxx |

1. Acronyms

<List out all the acronyms and associated literal translations used within the document. List the acronyms in alphabetical order using a tabular format as depicted below.

Table 21: Acronyms

| Acronym | Literal Translation |
| --- | --- |
| NFR | Non-functional Requirement |
| PT | Performance Testing |
|  |  |
|  |  |
|  |  |

1. Glossary

<Write down the clear and concise definitions for terms used in this document that may be unfamiliar to readers of the document. Terms are to be listed in alphabetical order.>

Table 20: Glossary

| Term | Definition |
| --- | --- |
| Transaction Rate | The rate at which transaction will be triggered from client to server. |
| Transaction | The bunch of requests associated with a page |
|  |  |
|  |  |

1. Referenced Documents

<List out the documents which were referred during the preparation of Performance Test plan. Also, provide who and when the reference document was prepared along with version>

Table 21: Referenced Documents

| Document Name | Document Location and/or URL | Issuance Date |
| --- | --- | --- |
| AO (Architecture Overview)  Version: 1.2 | <https://xxxxxx.xxxxx.com/project_document/architecture/ao.doc> | 30/10/2018 |
| Business NFR Document Version 0.6 | <https://xxxxxx.xxxxx.com/project_document/requirement/businessNFR.xls> | 11/11/2018 |
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