**Non-functional Requirements**

1. Mandatory Non-Functional Requirements (MNFR)

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| **MNFR-1** | Name of Requirement: Performance |
| **Criticality:** High | I/O: Performance metrics, resource optimization, fast response time, resource efficient processing |
| **Priority: 8**/10 | |
| **Description:**  The system should generate appropriate hyper-personalized books within reasonable timeframe, ensuring users do not experience significant delays. | |
| **Dependencies:** MNFR-5 | |
| **Cost :** Low | |
| **Schedule:** 2-3 weeks | |
| **Technical issues:** Slow response time which could impact user experience negatively | |

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| **MNFR-2** | Name of Requirement: System reliability and stability |
| **Criticality:** High | I/O: Error handling, fault tolerance, graceful failure recovery, real-time monitoring |
| **Priority:** 10/10 | |
| **Description:**  In case of unexpected errors, the system should be able to recover gracefully and operate reliably without crashing frequently or experiencing heavy downtime. | |
| **Dependencies:** MNFR 1/MNFR 5 | |
| **Cost :** Low | |
| **Schedule:** 3 weeks | |
| **Technical issues:** Lack of fault tolerance resulting in service disruptions, insufficient system monitoring which could lead to lateness in detection and resolution of issues. | |

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| **MNFR-3** | Name of Requirement: Protection of user data and integrity |
| **Criticality:** High | I/O: Access control policies, user authentication mechanisms |
| **Priority:** 7/10 | |
| **Description:**  The system should follow best practices for access control, and secure communication protocols for storing and protecting user data, including personalization parameters. | |
| **Dependencies:** MNFR-4 | |
| **Cost :** Low | |
| **Schedule:** N/A | |
| **Technical issues:** Vulnerability in authentication mechanisms could lead to unauthorized access to sensitive data. Weak access control mechanisms can allow lesser privileged user to tamper with the data and resources of the system. | |

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| **MNFR-4** | Name of Requirement: Well-designed user interface |
| **Criticality:** High | I/O: UI design, accessibility features, user guidance, user feedback mechanisms |
| **Priority:** 9/10 | |
| **Description:**  In order to ensure a positive user experience for both parents/guardians and children, the user interface should be friendly and intuitive. The system should provide clear instructions and feedback throughout the personalization process so that users with varying levels of technical expertise can use it. | |
| **Dependencies:** N/A | |
| **Cost :** Low | |
| **Schedule:** 3 weeks | |
| **Technical issues:** Poor UI could lead to user being confused, insufficient user guidance could hinder user interaction with the system, complexity in user hyper-personalization could lead to user dissatisfaction. | |

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| **MNFR-5** | Name of Requirement: Maintainability of the system |
| **Criticality:** High | I/O: Version control, testing, documentation, error logging |
| **Priority: 7**/10 | |
| **Description:**  Set up coding standards and use version control systems such as Git to ensure consistency in collaboration and code review. Validate system functionality and ensure stability during development and deployment using standardized testing practices. | |
| **Dependencies:** N/A | |
| **Cost :** High | |
| **Schedule:** 2/3weeks | |
| **Technical issues:** Codebase complexities, inconsistent coding standards, limited testing coverage which could lead to difficulty in identifying and fixing bugs. | |

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| **MNFR-6** | Name of Requirement: Accessibility |
| **Criticality:** Medium | I/O: Accessibility guidelines, color contrast, keyboard navigation |
| **Priority:** 6/10 | |
| **Description:**  To make the system usable by individuals with disabilities, the Text-to-Speech function should be made available for those who are visually impaired. The UI should have sufficient color contrast between text and background to improve readability for users. The UI should also be able to support keyboard navigation. | |
| **Dependencies:** MNFR-5 | |
| **Cost :** N/A | |
| **Schedule:** N/A | |
| **Technical issues:** As a result of a lack of accessibility testing, a less diverse audience may be attracted to the system since users may have difficulty using it if it wasn't designed with them in mind. | |

1. Optional Non-Functional Requirements (ONFR)

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| **ONFR-1** | Name of Requirement: Cross-platform support of the system |
| **Criticality:** Medium | I/O: Cross-platform support, responsive design, feature parity |
| **Priority:** 5/10 | |
| **Description:**  The system supports all devices as it uses responsive design which caters to all users being able to have the same experience with the system whether they use a laptop, phone or tablet. | |
| **Dependencies:** MNFR-5 | |
| **Cost :** High | |
| **Schedule:** N/A | |
| **Technical issues:** Ensuring that the responsive design adapts to all different screen sizes and resolutions to warrant a consistent and user-friendly experience. | |

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| **ONFR-2** | Name of Requirement: Offline Access of generated books |
| **Criticality:** low | I/O: Local storage, offline functionality |
| **Priority:** 4/10 | |
| **Description:**  Create an option for users to download generated books for offline viewing so that children can read them even without an internet connection, these books can be downloaded in acceptable formats like pdf. | |
| **Dependencies:** N/A | |
| **Cost :** low | |
| **Schedule:** N/A | |
| **Technical issues:** Designing the option to download the book in a pdf format which will then go to the downloads folder on any device. | |

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| **ONFR-3** | Name of Requirement: Integration with external online services |
| **Criticality:** low | I/O: External services API, data formats, integration code, reliability measures |
| **Priority:** 2/10 | |
| **Description:**  Integrate other external services into the system, such as social media platforms or educational content providers, to enhance the reading experience. Enable the sharing of personalized books through social media platforms. | |
| **Dependencies:** N/A | |
| **Cost :** high | |
| **Schedule:** N/A | |
| **Technical issues:** Different external services may use different protocols or data formats which makes the compatibility challenging leading to a difficult integration. Integrating with different services could also introduce new security vulnerabilities to the system. | |

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| **ONFR-4** | Name of Requirement: Regular backup procedures |
| **Criticality:** medium | I/O: Backup schedule, data storage locations, backup files, data restoration procedures |
| **Priority: 5**/10 | |
| **Description:**  Creating copies of system data and storing them securely is part of regular backup procedures, which help prevent data loss in case of system failures, hardware malfunctions, or human errors. All critical system components, databases, and user-generated content should be backed up regularly according to a predefined schedule. | |
| **Dependencies:** N/A | |
| **Cost :** high | |
| **Schedule:** N/A | |
| **Technical issues:** In order to maintain correct data protection, the frequency of backups needs to be balanced with the performance and resource utilization of the system. | |