Monnig Meteorite Gallery + Native Earth Native Sky

NaMe Interactive Map Learning Tool
Software Requirements Specification

Version 1.1

Revision History

Date	Version	Description	Author
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12/01/2023	1.1	Updates to original after Winter Iteration	Erika Rebollo Diaz Ayomide Ayowole-Obi
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Software Requirements Specification

1. Introduction

1.1 The Purpose of the Interactive Map Learning Tool

The purpose of this tool is to serve as a platform for free-choice STEM learning through map-based interactive learning. The curator of the Monnig Meteorite Gallery acquired funding from the Native Earth Native Sky project in partnership with the Oklahoma State University to develop this system. This system is geared towards K-12 youth and educators from the partner Native American Nations which participate in the program: the Cherokee Nation, the Chickasaw Nation, and the Choctaw Nation in Oklahoma. The purpose of this tool is to serve as a platform for free-choice STEM learning through map-based interactive learning that engages students in their surroundings to see science in everyday life.

1.2 The Purpose of this Document

The purpose of this document is to describe the functional and nonfunctional requirements for software release of the Native Earth Native Sky project. Its role is to describe the problem to be solved. This document is intended to be used by the members of the project team who will implement and verify the correct functioning of the system.

1.3 Document Conventions

<Describe any standards or typographical conventions used, including the meaning of specific text styles, highlighting, or notations. If you are manually labeling unique requirement identifiers, you might specify the format here for anyone who needs to add one later. The example below shows one way to format each of the requirement , please note, this is not the same as the format I introduced later on)>

Example:

This document contains a mixture of formal requirements and supporting information. The latter is descriptive only and does not form part of any formal delivery commitment. It is important to be able to distinguish the formal requirements from other information and to be able to unambiguously refer to each individual requirement. This is achieved by using the following standard format for the requirements themselves:

Requirement ID	Priority	Requirement Definition
	<<n>>	<<A clear statement of what is required>>

The meaning of each of these columns is as follows:

- *Column 1: Consultant Tom Gilb suggests a text-based hierarchical tagging scheme for labeling individual requirements. Consider this requirement: "The system shall ask the user to confirm any request to print more than 10 copies." This requirement might be tagged Print.ConfirmCopies. This indicates that it is part of the print function and relates to the number of copies to print. Hierarchical textual tags are structured, meaningful, and unaffected by adding, deleting, or moving other requirements. This sample functional requirements in section 3 illustrates this labeling technique.*
- *Column 2: Priority: This states how important the requirement is.*
- *Column 3: Definition: This is the description, in EARS syntax, that formally defines the requirement.*

Each requirement is a single, measurable objective. A requirement should not lump two or more things together, although there are situations where it is more practical to list several things at once rather than cause an explosion in the number of requirements (for example, when listing the fields that must appear on a particular screen).

1.4 Product Scope

Refer to Vision Document

1.5 Definitions, Acronyms, and Abbreviations

Refer to Glossary

1.6 References

1. NativeLandNativeEarth Glossary - 1 Glossary
2. NativeLandNativeEarth Vision and Scope Document - 2 Vision
3. NativeLandNativeEarth Use Cases and Business Rules - 3 Use Cases
4. NativeLandNativeEarth User Interface Wireframe - TES_Wireframe_Edited_V3.pdf
5. Firebase quotas -Usage and limits | Firestore | Firebase

2. Overall Description

2.1 Product Perspective

Refer to Vision document

2.2 User Classes and Characteristics

Refer to Use case document

2.3 Operating Environment

OE-1: The system shall operate correctly with the following web browsers: Windows Internet Explorer versions 7, 8, and 9; Firefox versions 12 through 26; Google Chrome (all versions); and Apple Safari versions 4.0 through 8.0.

OE-2: The system shall operate on a server running the current corporate-approved versions of Red Hat Linux and Apache HTTP Server.

OE-3: The system shall permit user access from the corporate intranet; from a VPN Internet connection; and by Android and iOS smartphones and tablets.

2.4 Design and Implementation Constraints

CO-1: The system shall use Firebase 9.

CO-2: All code shall be written in NEXT.js version 12

CO-3: The system uses Tailwind CSS

2.5 Assumptions and Dependencies

AS-1: The people visiting the website are there to learn information about meteorites or download instructor tools, not try to go to the admin page which is only for one superuser

DE-1: The operation of the map on the website depends on Mapbox

DE-2: The operation of the website depends on Firebase BaaS

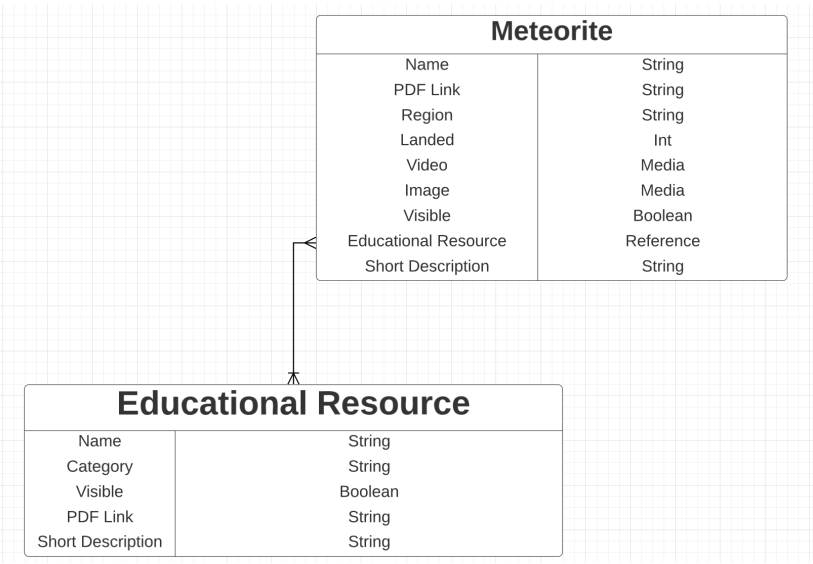
DE-3: The operation of the map on the website depends on Native Land API (Native-Land.ca)

3. Specific Requirements

Refer to the Use Case Document

4. Data Requirements

4.1 Logical Data Model



4.2 Data Dictionary

Data elements	Description	Data type	Values
Name	Title of the educational resource	String	
Category	Level of education for the resource was made for	String	Hyphens, commas allowed
Visible	State of the document	Boolean	True/False
PDF Link(s)	Links to the pdfs	String	
Short Description	A short summary of the resource	String	

Data elements	Description	Data type	Values
Name	Title of the meteorite	String	
PDF Link(s)	Links to the pdfs	String	
Region	Area/name of place where meteorite landed	String	
Landed	Specific location where meteorite landed - latitude & longitude	Numeric	Commas, dots/periods allowed
Video	Link to a video resource	String	
Image	Link to an image resource	String	
Visible	State of the document	Boolean	True/False
Educational Resource	Reference to one or more educational resources	String	
Short Description	A short summary of the resource	alphabetic	

4.3 Reports

No reports are generated by this software.

4.4 Data Acquisition, Integrity, Retention, and Disposal

DI-1: The firebase shall retain meteorite information unless deleted by administrator

DI-2: The firebase shall retain education resources unless deleted by administrator

5. External Interface Requirements

5.1 User Interfaces

UI-1: The system shall provide a menu link for navigation on each page
UI-2: The webpages shall permit complete navigation using the mouse

5.2 Software Interfaces

SI-1: Meteorite Information Database

SI-1.1: The Meteorite Information Database shall communicate to the User through a programmatic interface to transmit the different meteorites information for display

SI-1.2: The Meteorite Information Database shall communicate to the Administrator through a programmatic interface to edit or remove information

SI-2: Educational Resource Database

SI-1.1: The Educational Resource Database shall communicate to the User through a programmatic interface to transmit the different educational resources for display

SI-1.2: The Educational Resource Database shall communicate to the Administrator through a programmatic interface to edit or remove information

5.3 Hardware Interfaces

No hardware interfaces have been identified.

5.4 Communications Interfaces

No communications interfaces have been identified.

6. Quality Attributes

6.1 Usability

USE-1: 95% of new users shall be able to successfully see a specific meteorite on their first try

USE-2: 95% of new users shall be able to successfully download a specific instructor tool on their first try

6.2 Performance

PER-1: Refer to Firebase quotas

6.3 Security

SEC-1: All network transactions that involve authentication shall be using Firebase auth protocol

SEC-2: Users shall not be required to log in.

SEC-3: Only authorized admin shall be able to add, delete, edit, and update information on the website

6.4 Safety

SAF-1: The user shall be able to see a list of instructor tools. Those instructor tools shall abide by the website and U.S law guidelines

6.5 Availability

AVL-1: The System shall always be available

6.6 Robustness

ROB-1: If the connection between the user and the website is broken when they are viewing it, then the system shall take them back to the homepage upon return.

7. Internationalization and Localization Requirements

Only used in USA