**Overview of decision log**

| **Decision ID** | **Description** | **Reason** | **Priority(1-10)** | **Final decision** | **Approval** |
| --- | --- | --- | --- | --- | --- |
| D\_01 | Decide on a code storage platform | The team needed a reliable and accessible platform for managing the project’s codebase. The options considered were GitHub, GitLab, and Bitbucket. | 9 | Use GitHub for code storage. | Approved |
| D\_02 | Choose a project management platform | The team required a platform to manage project tasks, timelines, and collaboration. The options considered were Trello, Jira, and Asana. | 7 | Use Trello for project management. | Approved |
| D\_03 | Select a document storage platform | The team needed a secure and accessible platform for storing and sharing documents. The options considered were Google Drive, Dropbox, and OneDrive. | 5 | Use Google Drive for document storage. | Approved |
| D\_04 | Determine the database for handling image metadata | The team needed a database capable of efficiently managing large volumes of unstructured data, such as image metadata. The options considered were MongoDB and PostgreSQL. | 5 | Use MongoDB as the database. | Approved |
| D\_05 | Establish the initial page layout framework | The team needed to select a framework that would provide a responsive and user-friendly interface. The options considered were Bootstrap and Material Design. | 5 | Use Bootstrap for the initial page layout. | Approved |
| D\_06 | Develop a model for image metadata extraction, verification, and credibility assessment | The project requires a robust model to handle the extraction, verification, and assessment of image metadata to ensure the credibility of stored images. | 9 | The proposed model was approved for implementation. | Approved |
| D\_07 | Initialize the backend design for the project | The backend design is crucial for ensuring efficient data management, security, and performance. Key components of the design include database schema creation, API development, and data security. | 8 | The backend design was Initialized and approved for implementation. | Approved |

**Note: This table is just a brief overview. Please refer to the following document for the detailed decision-making and discussion process.**

**Specific decision-making process:**

### **DECISION LOG**

#### **Decision Details**

* **Decision Maker:** Trust Indicators Group

#### **Background**

The project involves creating a website for storing and assessing the credibility of images by displaying metadata and providing visual cues. Key decisions were made to ensure that the project infrastructure is solid, with a focus on the tools, platforms, and models that will be used in development.

#### **Decision Options and Rationale**

1. **Decision ID:** D\_01
   * **Decision:** Decide on a code storage platform
   * **Reason:** The team needed a reliable and accessible platform for managing the project’s codebase. The options considered were GitHub, GitLab, and Bitbucket.
   * **Priority:** 8
   * **Discussion:** After evaluating the integration capabilities, ease of use, and popularity among team members, GitHub was chosen. It provided the best balance between feature set and usability, making it easier for all team members to collaborate effectively.
   * **Final Decision:** Use GitHub for code storage.
   * **Approval:** Approved
2. **Decision ID:** D\_02
   * **Decision:** Choose a project management platform
   * **Reason:** The team required a platform to manage project tasks, timelines, and collaboration. The options considered were Trello, Jira, and Asana.
   * **Priority:** 7
   * **Discussion:** The team discussed the complexity of Jira versus the simplicity of Trello. Given the relatively small scale of the project and the need for an intuitive interface, Trello was chosen for its straightforward task management features.
   * **Final Decision:** Use Trello for project management.
   * **Approval:** Approved
3. **Decision ID:** D\_03
   * **Decision:** Select a document storage platform
   * **Reason:** The team needed a secure and accessible platform for storing and sharing documents. The options considered were Google Drive, Dropbox, and OneDrive**.**
   * **Priority:** 6
   * **Discussion:** Google Drive was selected after considering its seamless integration with other Google services, which the team already used. The decision was also influenced by its collaboration features, allowing real-time editing and sharing among team members.
   * **Final Decision:** Use Google Drive for document storage.
   * **Approval:** Approved
4. **Decision ID:** D\_04
   * **Decision:** Determine the database for handling image metadata
   * **Reason:** The team needed a database capable of efficiently managing large volumes of unstructured data, such as image metadata. The options considered were MongoDB and PostgreSQL.
   * **Priority:** 8
   * **Discussion:** MongoDB was chosen due to its flexibility in handling unstructured data, which is more aligned with the project's needs. PostgreSQL was considered but was deemed less suitable for the dynamic and varied nature of image metadata.
   * **Final Decision:** Use MongoDB as the database.
   * **Approval:** Approved
5. **Decision ID:** D\_05
   * **Decision:** Establish the initial page layout framework
   * **Reason:** The team needed to select a framework that would provide a responsive and user-friendly interface. The options considered were Bootstrap and Material Design.
   * **Priority:** 6
   * **Discussion:** Bootstrap was selected for its wide range of pre-built components and its ability to ensure responsive design across different devices. Material Design was considered but was deemed too complex for the project's initial needs.
   * **Final Decision:** Use Bootstrap for the initial page layout.
   * **Approval:** Approved
6. **Decision ID:** D\_06
   * **Decision:** Develop a model for image metadata extraction, verification, and credibility assessment
   * **Reason:** The project requires a robust model to handle the extraction, verification, and assessment of image metadata to ensure the credibility of stored images.
   * **Priority:** 9
   * **Discussion: T**he team explored various components for the model, including:
     + Metadata Extraction: Using ExifTool for extracting image metadata.
     + Verification: Applying hash algorithms (MD5, SHA-256) to verify image integrity.
     + Credibility Assessment: Utilizing image forensic techniques (ELA, feature matching) and deep learning models (CNN) for authenticity evaluation. The model will also include user feedback analysis and A/B testing for optimal visual cue design.
   * **Final Decision:** The proposed model was approved for implementation.
   * **Approval:** Approved
7. **Decision ID:** D\_07
   * **Decision:** Finalize the backend design for the project
   * **Reason:** The backend design is crucial for ensuring efficient data management, security, and performance. Key components of the design include database schema creation, API development, and data security.
   * **Priority:** 8
   * **Discussion:** The team considered the following aspects for the backend design:
     + Database Design: Created schema, normalized data, defined tables and relationships.
     + Data Management: Migrated and cleaned data, developed migration scripts.
     + Optimization: Improved query performance, implemented indexing.
     + API Development: Built RESTful APIs, ensured secure data exchange.
     + Security: Protected against SQL injection, encrypted sensitive data.
     + Backup & Recovery: Set up automated backups, established recovery protocols.
     + Testing: Conducted comprehensive testing, resolved issues.
   * **Final Decision:** The backend design was finalized and approved for implementation.
   * **Approval:** Approved

#### **Implementation Plan**

* **Timeline:** All decisions are to be implemented immediately, with progress reviews scheduled every two weeks.

#### **Risks and Mitigation**

* **Risk:** The selected tools, platforms, and models may face integration issues or fail to scale as the project evolves.
* **Mitigation:** Regularly review the integration process and model performance. Implement fallback options and be prepared to pivot if necessary.

#### **Follow-up Actions**

* **Action 1:** Conduct integration tests for GitHub, Google Drive, and MongoDB to ensure smooth workflow.
* **Action 2:** Begin development of the metadata extraction and credibility assessment model, with initial tests to be conducted on sample data.
* **Action 3:** Implement and test the finalized backend design, focusing on security, data integrity, and API performance.

#### **Conclusion**

The decisions documented here reflect a strategic approach to building the project infrastructure, focusing on essential tools, platforms, and models. By carefully considering each aspect of the development process, the team has laid a solid foundation for a successful project, ensuring that both frontend and backend components are well-integrated and secure.