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Ambiguities and Clarifications in MRTD System Requirements

1. Introduction

This report identifies ambiguities in the current SSW 567 final project requirements related to the system for processing Machine-Readable Travel Documents (MRTD) and presents clarifications and assumptions made to improve these requirements. The goal is to enhance the clarity of the project specifications, ensuring that the development process proceeds smoothly without any confusion.

2. Ambiguities Identified and Clarifications

2.1 MRZ Scan Method Specification

Ambiguity Identified: The requirement mentions that the system should "scan the MRZ of a travel document using a hardware device scanner and get the information in MRZ as two strings." However, there is no clarification on the format or structure of these strings. Specifically, it's unclear how the scanned data will be returned.

Clarification/Assumption: We assume that the system will return the two lines of the MRZ as plain text strings. The scanned data will include special characters (such as ">") encoded properly and will be free from extra spaces or invalid characters. The text will be returned in ASCII encoding to maintain consistency across systems.

2.2 Decoding MRZ Strings into Fields

Ambiguity Identified: The requirement specifies that the system must decode the two MRZ strings "into their respective fields," but does not clarify the expected output format or how the decoded fields should be structured. It is also unclear whether the output should be a structured object or a set of separate variables.

Clarification/Assumption: The decoded fields will be stored in a structured format such as a dictionary or a class object for clarity and easy access. The fields to be decoded from the MRZ strings include:

- Passport Type
- Issuing Country
- Holder's Name
- Passport Number
- Country Code
- Birth Date
- Gender
- Expiration Date
- Personal Number

2.3 Encoding Information into MRZ Strings

Ambiguity Identified: The specification says the system should "encode travel document information fields queried from a database into the two strings for the MRZ." However, it does not define how the database query results will be structured or how the system will handle missing or invalid data.

Clarification/Assumption: The database will return the travel document information in a structured format. The encoding process will map these fields into the MRZ strings, ensuring the correct order and format. If a required field is missing or invalid, the system will replace it with a placeholder value and return an error indicating which field is problematic.

2.4 Reporting Mismatch Between Fields and Check Digits

Ambiguity Identified: The specification mentions the system must "report a mismatch between certain information fields and the check digit," but does not clarify how this report should be formatted or what information it should contain. For example, should the report simply indicate the mismatched field or should it provide detailed feedback on the mismatch?

Clarification/Assumption: The system will provide a detailed report that includes the following:

- The field name where the mismatch occurred
- The expected check digit
- The calculated check digit
- A description of the mismatch
- A timestamp indicating when the mismatch was detected for logging purposes

3. Revised Requirement Specifications with Clarifications

3.1 MRZ Scan Method Specification

Clarified Specification: The system shall be able to scan the MRZ of a travel document using a hardware device scanner and return the information as two separate strings. The scanned data will be returned in plain ASCII text format, with special characters encoded properly. The text will be free from extra spaces or invalid characters.

3.2 Decoding MRZ Strings into Fields

Clarified Specification: The system shall decode the two MRZ strings into their respective fields: Passport Type, Issuing Country, Holder's Name, Passport Number, Country Code, Birth Date, Gender, Expiration Date, and Personal Number. The decoded fields will be stored in a structured format for easy access.

3.3 Encoding Information into MRZ Strings

Clarified Specification: The system shall encode travel document information fields queried from a database into the MRZ format. The database query results will be returned in a structured format and the system will map these fields to the MRZ strings following the standard format. If any required field is missing or invalid, the system will replace it with a default value and return an error.

3.4 Reporting Mismatch Between Fields and Check Digits

Clarified Specification: The system shall report mismatches between the information fields and their respective check digits. The report will include the field name, the expected check digit, the calculated check digit, and a detailed description of the mismatch. The report will also include a timestamp for logging purposes.

4. Conclusion

The clarifications provided above address the ambiguities in the original project requirements. These changes will improve the understanding of the system's functionality, ensuring clear and consistent communication between the development team. The system will be more reliable with well-defined processes for handling the MRZ scan, field decoding, encoding, and reporting of check digit mismatches.