Part1-RequirementTesting Report

Requirements:

Suppose you are a developer for the project to implement a system that can read the MRZ of a travel document, process and obtain its fields, and check the fields against the check digits. Following are some requirements and specifications of your system:

1. The system shall be able to scan the MRZ of a travel document using a hardware device scanner and get the information in MRZ as two strings (line 1 and line 2 from the above Figure). Note that you do not need to worry about the implementation of the hardware device. But you need to define this method for the software part. This means that you define an empty method for this function.
2. The system shall be able to decode the two strings from specification #1 into their respective fields and identify the respective check digits for the fields, following the same format in the above example.
3. The system shall be able to encode travel document information fields queried from a database into the two strings for the MRZ in a travel document. This is the opposite process compared to specification #2. Assume that the database function is not ready. But for testing purposes, you need to define a method for database interaction and leave it empty.
4. The system shall be able to report a mismatch between certain information fields and the check digit. The system shall report where the miss match happened, i.e., which information field does not match its respective check digit.

Deliverables:

1. Ambiguity in Existing Specification

1.1 In Requirement specification 1, the requirement asks us to define an empty method to implement the function for hardware device scanner that means the method is going to return nothing. But as mentioned in Requirement specification 2 that "the system shall be able to decode the two strings from specification 1".

1.2 In requirement specification 2, As I mentioned in my first ambiguity that there will be nothing to return after writing an empty method how will the system decode the two strings and store them in respective fields. Is the developer supposed to create a dummy data of MRZ content in the sample format and pass it on.

1.3 In Requirement specification 4, it says "The system shall be able to report a mismatch between certain information fields and the check digit." However, we do

not know what the certain information fields are, as they can be all the fields both in line 1 and line 2 or just few fields in line 2.

1.4 In Requirement specification 4, if we were to consider the certain information fields as given in the sample passport,
what happens if someone has date of birth only in years and month and no date? this might affect the check digit as it's not mentioned what should be the fixed length of these information fields such as passport number, personal number, and date of birth.

1.5 One ambiguity is that what kind of characters are allowed to be used in the MRZ for MRTD document and to what limit and combinations can "<" be used and significance of using "<<" versus "<".

1.6 What should the decode and encode function return exactly is not defined clearly.

2. Respective clarification/assumptions identified or made to improve each specification

2.1 For Requirement specification 1.1, I am assuming we are going to use a dummy list of MRZ format values to pass it on for requirement specification 1.2

2.2 For Requirement specification 1.2, the assumption we made in 2.1 is going to hold good and we will be using the dummy list of values to pass onto and store those values in respective variables.

2.3 we assume the certain information fields which are going to be checked for check digits would be as follows only:
- Passport Number
- Birth Date
- Expiration Date
- Personal Number

Came to this conclusion after seeing some more samples of MRTD document in the MRZ format in the part-3 data files provided and the doc 9303 provided in part-2 of this project.

2.4 Our assumptions regarding the length of certain information fields are:
- Passport Number = first 9 characters of second line of MRZ
- Birth Date = 6 characters in YYMMDD format and if any field is missing it's going to be substituted accordingly by the filler "<" characters.
- Expiration Date = 6 characters and in the same format as Birth Date.
- Personal Number = 9 characters followed by 6 filling "<" characters.

2.5 According to the Doc 9303, the MRTD document follows OCR-B Type of character fonts, and it includes [A-Z], [0-9] and ["<"] characters only.

- Only for the first line: There must be one "<" between document type and country code
- Two "<" between last name and first name and
- one "<" between last name and first name.
- As the result, after "document type" and one "<", next 3 letters must be country code.
- If the reader does not read an English letter in this format, point it out and let officers to check this passport.

2.6 Decode function will be returning all the information fields and the check digits in respective variables and encode function will be returning the full length MRZ string along with those information fields whose check digit is to be computed such that I can pass it to my check digit function.