Part 4 - Test Planning

- **Name of the project: Implementation of a system that can read the MRZ of a travel Document**

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1. Introduction

- Using a hardware device scanner, the system must be able to read the information from a travel document MRZ(Machine Readable Zone) as two strings. The system must be able to decode the two strings from their corresponding fields and locate the related field's check digits. The two strings for the MRZ in a travel document must be encoded by the system using travel document information fields retrieved from a database. The system must report a discrepancy between some information fields and the check digit. The system must notify the information field whose check digit does not match the information field where the miss match occurred.

- To allow the decoder to use the MRZ strings and decode them into the appropriate fields while also recognizing the check digit, we create a function that returns two strings. The two strings will be converted into their appropriate fields by the system, which must also be able to identify which check digit corresponds to which field. The newly generated function retrieves the traveler's database information, which is required by the encode function since it encodes the data in two strings for the Machine Readable Zone (MRZ). The newly generated function retrieves the traveler's database information, which is required by the encode function since it encodes the data into two strings for the Machine Readable Zone (MRZ).

- This project's development methodology is Agile.

- The project's orderly and efficient completion greatly depends on the development approach employed to develop the project. Agile allows for more effective and timely planning of the development, which has a significant impact on the testing.

2. References taken over other documents

- A machine-readable travel document consists of two parts: 1. **Machine Reading Zone(MRZ)**, 2. **Visual Inspection Zone(VIZ)**. The major emphasis of our project is MRZ. Machine Readable Zone (MRZ) is briefly introduced, then starting on page 15 of the provided document, several MRZ parts are explained. The information in the MRZ is formatted such that it may be read by any machine in the world with a standard capability, which has been used to describe the purpose of the MRZ. The MRZ is only for data that is meant for consumers worldwide, it must be noted. Several print specs for legible data printing. Additionally, it has a section where printed characters may well be read by the machine. When creating a name, there is a certain format and set of guidelines that must be adhered to. For example, the letters should be printed in a fairly traditional way. The process for calculating the check digit is also briefly explained, and it exactly matches the four phases outlined in the material that was given and in our project description. The check digit is the residual that is acquired after all the processes have been completed.

3. Testing Scope

- The area that we are required to test is the Machine Readable Zone (MRZ). Putting into place a system that can read a travel document's MRZ, parse and extract its fields, and compare those fields to the check digits. A unit test and a performance

test must be performed on the script that has been prepared based on the specifications once it has been matched up to certain pre-specified requirements.

- We are not testing the Visual Inspection Zone (VIZ) in line with the specified requirements, nor are we evaluating the MRZ document using a hardware device. Because testing is still in its early phases and a hardware device cannot be implemented until all test cases have been successfully completed, this is the reasoning.
- The sole basis for evaluating the tests according to priority is that they must be completed according to plan and follow the same testing workflow. The first stage is to write down all the criteria, create a script in accordance with the plan, and carry out unit testing. Once this section has been completed and passed, we can move on to the subsequent performance testing phase. The part of the test plan that takes up more time has to be prioritized, and it needs to be worked on more diligently to reach the deadline.

4. Testing approach

- Key factors: encoding, decoding, calculating check code.
- Some of the key risks involve the error handling, insufficient resources, continuously changing requirements.
- Success criteria is over 90% coverage.
- Contingency plan: If we lose all the data that has been produced up to this point, we are backing up all the scripts and the data.
- pass/fail criteria: Well almost all of the cases passed the tests that were conducted, and when it comes to the results, the failure rate for these specific tests is very low or negligible.
- The entry criteria occur after all of the requirements have been acquired, and when all of the tests have been completed and look to be in order, we go on to the exit criteria.
- Testing criteria: The test cases should be organized effectively to aid the tester in testing the test cases in the same sequence. By doing

this, the tester may find script issues and fix them immediately before delivering the system to the customer.
- Test deliverables: unit test results, performance test results, coverage report.
- Testing budget: The testing budget may change depending on the many requirements that may occasionally be needed, however for the time being we may estimate a testing budget of $25,000.00.
- Tools used: unit test. Mock, mutPY.
- Types of tests performed and techniques used: unittest, mutation test, performance test.
- Test platform: python unittest, python Mutpy.
- Measurement of the progress of testing: number of tests passing, % of coverage, and the execution time of the tests.
- Determination of the readiness of the shipment: % of the passing tests, expected results from the output, approvals by managers.

5. Schedule set for the project

Sl No.	**Deliverable Name**	**Key Dates**
0.	**Project Kickoff**	**01/01/2022**
1.	List down the requirements	01/02/2022
2.	Issues in the requirements	01/07/2022
3.	Improvements and corrections in each issue	01/15/2022
4.	**Unit Testing**	**02/06/2022**
5.	Implementation of the functions	02/07/2022
6.	Creation of the test cases	02/30/2022
7.	Performing the Mutation testing	03/18/2022
8.	**Performance Testing**	**04/28/2022**

9.	Performance testing with test files	04/29/2022
10.	Testing with the python time library	06/12/2022
11.	Testing Scope	06/25/2022
12.	Testing Approach	07/05/2022
13.	**Approvals from the Stakeholders**	**08/15/2022**
14.	**Delivery of the fully developed function**	**09/01/2022**

6. Approvals for our project

- Approvals to be granted by the Stakeholders.
- After the product is developed, the stakeholders are extremely important since it is up to them to approve the product before it can hit the market or the website.

Signature:	
Name:	
Role:	
Date:	