

# **AI Test Case Generation System - Project Report**

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## 1. Project Overview

This project is an AI-powered tool developed using Python and the MVC (Model-View-Controller) architecture.

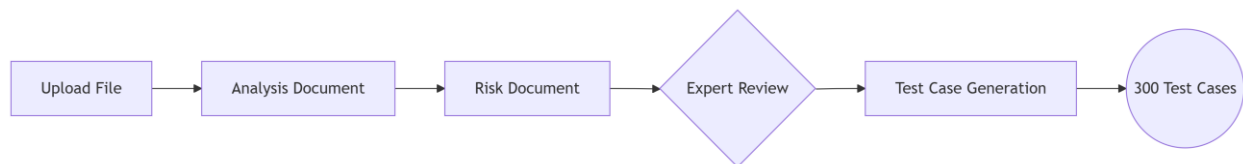
It facilitates automated document analysis and test case generation. The tool allows users to upload a file, which is then processed through several stages:

Analysis

Risk evaluation

Expert review

Testcasegeneration



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## 2. Workflow Map

User uploads a document.

The system sends the file for analysis using GPT API.

An analysis document is generated.

The analysis document is sent for risk evaluation.

A risk document is generated.

Both the analysis and risk documents are sent to an expert module for review.

A final reviewed document is created.

All three documents (analysis, risk, reviewed) are used to generate test cases.

The system can generate up to 300 test cases.

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## 3. Technologies Used

Programming Language: Python

Architecture: MVC (Model-View-Controller)

AI Engine: GPT API for document analysis and test case generation

File Processing: Word Document generation via python-docx

## 4. Enhancements for Tomorrow

Planned improvements for the upcoming development cycle:

Make test case titles more descriptive and clear.

Embed relevant test data within the Test Steps field.

Make the Test Steps more detailed and structured for better understanding and automation.

## 5. Test Cases

Test_Case_ID	Title	Priority	Module_Feature	Test_Type	Description	
1	TC_GovPay_CustOnboarding_ProductEntitlement_HappyPath	High	Customer On-Boarding	Functional	Entitle a customer with all Governmental Payments products during onboarding	Verify successful e
2	TC_GovPay_CustOnboarding_ProductEntitlement_MandatoryFieldValidation	High	Customer On-Boarding	Validation	Attempt to save product entitlement without selecting any product	Ensure system enf
3	TC_GovPay_CustOnboarding_ProductEntitlement_EntitlementRemoval	Medium	Customer On-Boarding	Functional	Remove a product entitlement from a customer profile	Verify product enti
4	TC_GovPay_CustOnboarding_ProductEntitlement_UIElements	Low	Customer On-Boarding	UI	Verify presence and state of all UI elements on Product Entitlement screen	Ensure all UI eleme
5	TC_GovPay_CustOnboarding_ProductEntitlement_EntitlementPersistence	Medium	Customer On-Boarding	Data Integrity	Verify that product entitlements persist after logout/login	Ensure entitlement
6	TC_GovPay_CustOnboarding_AccountEntitlement_HappyPath	High	Customer On-Boarding	Functional	Entitle a customer account for Tax Collection	Verify account is e
7	TC_GovPay_CustOnboarding_AccountEntitlement_MandatoryFieldValidation	High	Customer On-Boarding	Validation	Attempt to save account entitlement without selecting any account	Ensure system enf
8	TC_GovPay_CustOnboarding_AccountEntitlement_AccountRemoval	Medium	Customer On-Boarding	Functional	Remove an account entitlement from Tax Collection	Verify account ent

Objective	Preconditions	Test Steps
Verify successful entitlement of all products	Admin user logged in Customer profile exists	1. Admin navigates to Home → Customer Profile → Product Entitlement 2. Admin selects 'Governmental Payment', 'Tax Collection', 'Custom Collection', 'Universal Collection' checkboxes 3. Admin clicks 'Save'
Ensure system enforces mandatory product selection	Admin user logged in Customer profile exists	1. Admin navigates to Home → Customer Profile → Product Entitlement 2. Admin leaves all product checkboxes unchecked 3. Admin clicks 'Save'
Verify product entitlement removal updates profile	Admin user logged in Customer profile has all products entitled	1. Admin navigates to Home → Customer Profile → Product Entitlement 2. Admin unchecks 'Custom Collection' 3. Admin clicks 'Save'
Ensure all UI elements are present and correctly enabled/disabled	Admin user logged in Customer profile exists	1. Admin navigates to Home → Customer Profile → Product Entitlement 2. Admin verifies presence of: Product checkboxes, 'Save', 'Cancel' buttons 3. Admin logs out and logs in again
Ensure entitlements are saved to database	Admin user logged in Customer profile updated with entitlements	1. Admin navigates to Home → Customer Profile → Product Entitlement 2. Admin verifies previously selected products are still checked
Verify account is entitled for Tax Collection	Admin user logged in Customer profile exists Account exists	1. Admin navigates to Home → Customer Profile → Product → Account Entitlement 2. Admin selects 'Tax Collection' from product dropdown 3. Admin selects 'Individual Account' radio button 4. Admin selects account '1234567890' 5. Admin clicks 'Save'
Ensure system enforces mandatory account selection	Admin user logged in Customer profile exists	1. Admin navigates to Home → Customer Profile → Product → Account Entitlement 2. Admin selects 'Tax Collection' from product dropdown 3. Admin leaves all account checkboxes unchecked 4. Admin clicks 'Save'
Verify account entitlement removal updates profile	Admin user logged in Customer profile has account entitled	1. Admin navigates to Home → Customer Profile → Product → Account Entitlement 2. Admin selects 'Tax Collection' from product dropdown 3. Admin deselects account '1234567890' 4. Admin clicks 'Save'
Ensure all UI elements are present and correctly enabled/disabled	Admin user logged in Customer profile exists	1. Admin navigates to Home → Customer Profile → Product → Account Entitlement 2. Admin verifies presence of: Product dropdown, Account list, 'All/Individual' radio buttons, 'Save', 'Cancel' buttons 3. Admin logs out and logs in again
Ensure account entitlements are saved to database	Admin user logged in Customer profile updated with account entitlements	1. Admin navigates to Home → Customer Profile → Product → Account Entitlement 2. Admin verifies previously selected accounts are still checked
Verify user is entitled for selected sub-products	Admin user logged in Customer user profile exists	1. Admin navigates to Home → Customer User → Product Entitlement 2. Admin selects 'Bill Registration' and 'Dashboard' checkboxes 3. Admin clicks 'Save'
Ensure system enforces mandatory sub-product selection	Admin user logged in Customer user profile exists	1. Admin navigates to Home → Customer User → Product Entitlement 2. Admin leaves all sub-product checkboxes unchecked 3. Admin clicks 'Save'

Expected_Results	Post_Conditions	Notes
'Product Entitlement' screen is displayed		
All selected products are highlighted		
Success message "Product entitlements updated successfully" is displayed	Customer profile updated with entitlements	
'Product Entitlement' screen is displayed		
No products are selected		
Error message "At least one product must be selected" is displayed	No changes made to customer profile	
'Product Entitlement' screen is displayed		
'Custom Collection' is no longer selected		
Success message "Product entitlements updated successfully" is displayed	'Custom Collection' removed from entitlements	
'Product Entitlement' screen is displayed		
All elements are visible and enabled		
Admin is logged in		
'Product Entitlement' screen is displayed		
Previously saved entitlements are displayed		
'Product – Account Entitlement' screen is displayed		
'Tax Collection' is selected		
'Individual Account' is selected		
Account is highlighted		
Success message "Account entitlement updated successfully" is displayed	Account is entitled for Tax Collection	
'Product – Account Entitlement' screen is displayed		
'Tax Collection' is selected		
No accounts are selected		
Error message "At least one account must be selected" is displayed	No changes made to account entitlements	
'Product – Account Entitlement' screen is displayed		
'Tax Collection' is selected		
Account is no longer selected		
Success message "Account entitlement updated successfully" is displayed	Account is removed from Tax Collection entitlement	
'Product – Account Entitlement' screen is displayed		
All elements are visible and enabled		
Admin is logged in		
'Product – Account Entitlement' screen is displayed		
Previously saved account entitlements are displayed		
'Product Entitlement' screen is displayed		
Both sub-products are selected		
Success message "User product entitlements updated successfully" is displayed	User profile updated with sub-product entitlements	
'Product Entitlement' screen is displayed		
No sub-products are selected		
Error message "At least one sub-product must be selected" is displayed	No changes made to user profile	