| | **Agile Master Test Plan** | | --- | | **COMPASS: Support and Maintenance** | | **PSR03501** | | **Version 1.0**  **27 June 2024** | |
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**Document Approval**

| **Document Approval** | | | |
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**Document Revision History**

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**List of DEFINITIONS, ACRONYMS, AND TERMINOLOGY**

| **Item** | **Description/ Expansion** |
| --- | --- |
| BA | Business Analyst |
| Dev | Developer |
| CS | Cyber security |
| PM | Project Manager |
| PO | Product Owner |
| SA | Solution Architect |
| SM | Scrum master |
| TL | Technical Lead |
| Test Level | Multiple test types grouped together to achieve the test level objective |
| Alpha Testing | Alpha testing is an on-site user acceptance testing of the software product that is performed prior to release of the product to clients or users. |
| End-to-End Testing (E2E) | End-to-end testing is a technique that tests the entire software product from beginning to end to ensure the application flow behaves as expected |
| Beta Testing | Beta testing, a type of User Acceptance Testing, is among the most crucial software testing performed before the software's release. Considered to be a type of field test, beta testing is performed by a group of end users. |
| Contract Acceptance Testing (CAT) | Contract Acceptance Testing is a contract that specifies that once the product goes live, within a predetermined period, the acceptance test must be performed, and it should pass all the acceptance use cases. |
| Business Acceptance Testing (BAT) | Business Acceptance Testing is used to determine whether the product meets the business goals and purposes or not. BAT mainly focuses on business profits |
| Corrective Regression Testing | This type of testing is used when there are no changes introduced in the product’s specification. The existing test cases are reused to conduct the desired test. |
| Retest-all Regression Testing | The strategy involves the testing of all aspects of a particular product as well as reusing all test cases even where the changes/modifications have not been made.  Note: This type of testing is not at all advisable when there is a small change that has been introduced in the existing product. |
| Partially Regression Testing | Partial regression is performed after impact analysis |
| Unit Regression Testing | Unit regression testing is testing that focuses on testing code as a single unit with all the dependencies, integrations, and interactions left outside the scope. |
| Selective Regression Testing | Selective regression testing picks certain test cases from a set to inspect the affected parts of the code |

1. ​​**Table of Contents**

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**1. INTRODUCTION**

*COMPASS is a forecasting tool which uses advanced machine learning methods to predict key financial indicators at a portfolio level given inputs such as market conditions, production volumes, and sales volumes.*

*This tool enables strategy planners and the finance team to forecast portfolio level financial indicators, based on correlations derived by the machine learning model from historical data. In addition, the tool also provides the flexibility to run various “what-if” scenarios based on changes to market conditions, production volumes, and the impact to sales volumes within seconds, in-comparison to weeks for the analyst to collect the data required from each entity and run the scenario from bottom-up.*

1. **PURPOSE**

*This Master Test Plan for COMPASS describes in detail how the testing is being planned and how it will be managed across different test levels and test techniques. It gives a bird's eye view of the key decisions taken, the strategies to be implemented and the testing effort involved in the project.*

1. **TEST OBJECTIVES**

**This Master Test Plan supports the following objectives:**

* **Enhancement and update new features for Module 1**
* **Enhancement and update new features for Module 2**

**2. TEST APPROACH**

This Test Plan describes various Testing strategies and approaches used for complete Testing life cycle of COMPASS

1. **METHODOLOGY**

COMPASS is implementing agile software development methodologies and using adaptive approaches and teamwork to focus on continuous improvement.

1. **TEST PROCESS**

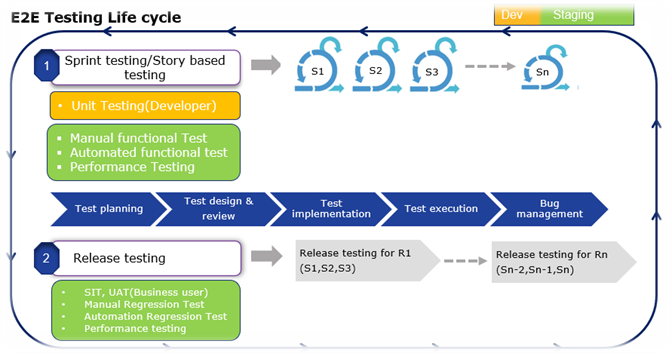
End-to-end testing(E2E) is the standard process recommended for PETRONAS project. It is a technique that test the entire software product from start to end to ensure the application works as expected. With this technique, we tried to simulate the real user scenario and validate the system under test and its components for integration and data integrity.

There are two types of Testing to be conducted in Agile projects:

1.Sprint Testing: Which concentrates on the story-based testing.

2.Release Testing: Testing to be conducted before Release.

Below is an overview of the End-to-end(E2E) testing life cycle:



1. **TEST LEVEL**

The sub-section below listed the test levels to be performed with their respective testing approach and strategies.

1. **SPRINT TESTING**
2. **UNIT TESTING**

| **Unit Testing** | |
| --- | --- |
| Owner / Test Consultant | COMPASS Developers & Technical Lead |
| Test Type and Deliverables | The check boxes below which are checked are the test type that will be performed in this test level.    The respective test types deliverables such as test case, environment setup document and test report will be available in project repository.     | ​​☒​ Functional Testing | ​​☒​ Authorization Testing | | --- | --- | | ​​☐​ Interface Testing | ​​☒​ Data Validation Testing | | ​​☒​ Specify Other Testing |  | |
| Scope | Module 1  Module 2 |
| Out of scope | N/A |
| Tools | XUnit  Sonar Cloud |
| Environment | Local Environment  Dev Environment |
| Entry Criteria | Completion of integration and development component/unit in build phase  The development environment is built, accessible and ready for testing |
| Exit Criteria | Defect Management is not applicable. However, it will be recorded locally with the configuration and integration team, and any defects not resolved for Unit Testing will be discussed and agreed prior to SIT (System Integrity Test) execution with test leader |
| Additional Deliverables | To deliver source code and report about coverage percentage of Unit Testing |
| Others | N/A |

1. **SYSTEM TESTING**

| **System Testing** | |
| --- | --- |
| Owner / Test Consultant | COMPASS Tester & Developer |
| Test Type and Deliverables | The check boxes below which are checked are the test type that will be performed in this test level.    The respective test types deliverables such as test case, environment setup document and test report will be available in project repository.     | ​​☒​ Functional Testing | ​​☐​ Authorization Testing | | --- | --- | | ​​☐​ Interface Testing | ​​☐​ Data Validation Testing | | ​​☐​ Confidence Testing | ​​☐​ Specify Other Testing | |
| Scope | System test takes place after unit and integration testing for every sprint    The QA team tests critical checkpoints in the overall process to determine whether business objectives are being met    This activity includes any necessary defect rectification activities (may include in Product Backlog as it depends on complexity).    To test that this interface works as per business scenario defined for the current sprint.    To test all the data flowing from the start of the business scenario through the interface is correct and results are as expected as per business scenario. |
| Out of scope | N/A |
| Tools | Azure DevOps  Katalon (Test automation) |
| Environment | Staging/QA/Test environment |
| Entry Criteria | Coverage:   * When unit and integration testing are complete. * When the desired requirements are complete. * When specified testing conditions are designed.     Test Artifact:   * User stories and acceptance criteria completed, reviewed, and approved by identified internal stakeholders. * Appropriate user story, test cases and test scripts in the appropriate test tool and ready for execution.     Test Environment:   * Test user account has been created/set-up for ST execution purposes. * SIT test environment is available, accessible, and ready for ST execution including third party environment that required for ST. * Data has been defined and available for ST execution. * All interfaces of the system are ready for ST. |
| Exit Criteria | Coverage**:**   * Progress of test execution is 100% for agreed ST Test Scope. * The percentage passing coverage is 90%.     Quality:   * Opened ST defects with ’Critical’ and ’High’ severity is equal to 0. * Opened ST defects with ’Medium’ severity is lower than 10% of total defects. * Opened ST defects with ’Low’ severity is lower than 20% of total defects. |
| Suspension criteria and resumption requirements | When the following conditions happen, testing will be suspended:   * Defects that affect continuation of any major business flow or function from being executed e.g., high defects >=10 * The system crashes due to the application. * Data corruption is found or detected.     Testing will resume when the following criteria are met:   * When defects as specified in item 1 above are fixed and validated. * System crashes no longer occur after the fix, if there are any or it is proven the crash is not caused by the application. * The reason for the data corruption has been identified and fixed if it requires a fix or a comprehensive report is provided on the occurrence and a prevention method is in place.> |
| Additional Deliverables | User Stories for each of sprints |
| Others | Risks:   * QA (Quality Assurance) or Staging environment is not available. * Some User Stories from previous phases of COMPASS lack test case coverage. |

1. **PERFORMANCE TESTING**

| **Performance Testing** | |
| --- | --- |
| Owner / Test Consultant | Performance Testing Team |
| Test Type and Deliverables | The check boxes below which are checked are the test type that will be performed in this test level.    The respective test types of deliverables such as test case and test report will be available in project repository.     | ​​☒​ Load Testing | ​​☐​ Configuration Testing | | --- | --- | | ​​☒​ Stress Testing | ​​☐​ Volume Testing | | ​​☐​ Specify Other Testing |  | |  |  | |
| Scope | Performance testing any new feature/function that is developed. |
| Out of scope | N/A |
| Tools | Jmeter/Load Runner (HTTP or True Client) |
| Environment | Staging Environment |
| Entry Criteria | All feature ‘Done’ with Functional Testing  Performance Testing will be conducted before the User Acceptance Testing  The environment already done with configuration the same with Production environment |
| Exit Criteria | All performance testing scenario is ran, and the report is generated |
| Suspension criteria and resumption requirements | When the following conditions happen, testing will be suspended:   * Defects that affect continuation of any major business flow or function from being executed e.g., high defects >=10 * The system crashes due to the application. * Data corruption is found or detected.     Testing will **resume** when the following criteria are met:   * When defects as specified in item 1 above are fixed and validated. * System crashes no longer occur after the fix, if there are any or it is proven the crash is not caused by the application. * The reason for the data corruption has been identified and fixed if it requires a fix or a comprehensive report is provided on the occurrence and a prevention method is in place. |
| Additional Deliverables | Performance Testing report |
| Others | N/A |

1. **RELEASE TESTING**
2. **SYSTEM INTEGRATION TESTING**

| **System Integration Testing (Functional Testing)** | |
| --- | --- |
| Owner / Test Consultant | Developer  Technical Lead  Tester  May include business & project team if needed |
| Test Type and Deliverables | The check boxes below which are checked are the test type that will be performed in this test level.    The respective test types deliverables such as test case, environment setup document and test report will be available in project repository.     | ​​☒​ Functional Testing | ​​☒​ Authorization Testing | | --- | --- | | ​​☒​ Interface Testing | ​​☐​ Confidence Testing | | ​​☐​ Fall Back Testing | ​​☐​ Fail Over Testing | | ​​☒​ Data Validation Testing | ​​☐​ Specify Other Testing | |
| Scope | * SIT will be performed for each of the sprints * All the scopes including modules and integration that encompasses functionality, interface and authorization tested and confirmed by the project and relevant teams in an integrated manner. * This activity includes any necessary defect rectification activities. * To test that this interface works in the end-to-end business/operations scenario and not merely that it works from application to application. * To test all the data flowing from the start of the business/operation scenario through the interface is correct and results are as expected at the end of the business/operations scenario. |
| Out of scope | Testing in Mobile |
| Tools | Azure DevOps  Microsoft Excel (If needed for documentation purposes) |
| Environment | Staging Environment |
| Entry Criteria | Coverage   * Unit Test is 100% completed. * Documentation * Functionality/requirement specification document completed, reviewed, and approved by identified internal stakeholders. * SIT Test Scenarios and scope is defined and agreed by Technical Lead. * Appropriate test scenario, test cases and test scripts in the proper test tool and ready for execution. * Test Environment * A test user account has been created/set-up for SIT execution purposes. * SIT test environment is available, accessible, and ready for SIT execution including third party environment that needed for SIT. * Data has been defined and available for SIT execution. * All interfaces of the system are ready for SIT. |
| Exit Criteria | Coverage   * Progress of test execution is 100% for the agreed SIT Test Scope. * The percentage passing coverage is 90%.     Quality   * Opened SIT defects with ‘Critical’ and ‘High’ severity are equal to 0. * Opened SIT defects with ‘Medium’ severity are lower than 10% of total defects. * Opened SIT defects with ‘Low’ severity are lower than 20% of total defects.     Documentation   * User stories are final and accepted by Technical Lead. * SIT Sign-Off has been reviewed and signed-off by parties as stated in Test Deliverables section. * Any unresolved defects are fully documented including risk found, action plan developed and signed-off by relevant stakeholders. |
| Suspension criteria and resumption requirements | When the following conditions happen, testing will be suspended:   * Defects that affect continuation of any major business flow or function from being executed e.g., high defects >=10 * The system crashes due to the application. * Data corruption is found or detected.     Testing will **resume** when the following criteria are met:   * When defects as specified in item 1 above are fixed and validated. * System crashes no longer occur after the fix, if there are any or it is proven the crash is not caused by the application. * The reason for the data corruption has been identified and fixed if it requires a fix or a comprehensive report is provided on the occurrence and a prevention method is in place. |
| Additional Deliverables | N/A |
| Others | N/A |

1. **USER ACCEPTANCE TESTING**

| **User Acceptance Testing** | |
| --- | --- |
| Owner / Test Consultant | COMPASS End-User  COMPASS Tester  COMPASS Data Science team |
| Test Type and deliverables | The check boxes below which are checked are the test type that will be performed in this test level.    The respective test types of deliverables such as test case and test report will be available in project repository.     | ​​☒​ Functional Testing | ​​☐​ Alpha Testing | | --- | --- | | ​​☐​ Beta Testing | ​​☐​ Contract Acceptance Testing | | ​​☒​ Business Acceptance Testing | ​​☐​ Specify Other Testing | |  |  | |
| Scope | To test on enhanced features within web application  To test system calculation performance before each release |
| Out of scope | Testing on mobile application |
| Tools | Azure Devops  Microsoft Excel |
| Environment | Staging Environment |
| Entry Criteria | User story is in "Closed" status    Test Package is deployed to Staging environment    Test cases are created & prioritized    All Sanity tests have "Passed" result & Sanity testing task is marked "Closed/ Resolved" |
| Exit Criteria | All UAT scripts give "PASS" result    All related bugs must be "Closed"    Minor bugs decided to be moved to next sprint, if any, must be linked to failed test case(s)  UAT Sign off by Users |
| Suspension criteria and resumption requirements | When the following conditions happen, testing will be suspended:   * Defects that affect continuation of any major business flow or function from being executed. E.g. high defects >=10 * The system crashes due to the application. * Data corruption is found or detected.     Testing will **resume** when the following criteria are met:   * When defects as specified in item 1 above are fixed and validated. * System crashes no longer occur after the fix, if there are any or it is proven the crash is not caused by the application. * The reason for the data corruption has been identified and fixed if it requires a fix or a comprehensive report is provided on the occurrence and a prevention method is in place. |
| Additional Deliverables | |  |  |  | | --- | --- | --- |   N/A |
| Others | N/A |

1. **REGRESSION TESTING**

| **Regression Testing** | |
| --- | --- |
| Owner / Test Consultant | Tester |
| Test Type and Deliverables | The check boxes below which are checked are the test type that will be performed in this test level.    The respective test types of deliverables such as test case, environment setup document and test report will be available in project repository.     | ​​☐​ Corrective Regression Testing | ​​☐​ Retest-all Regression Testing | | --- | --- | | ​​☐​ Selective Regression Testing | ​​☐​ Progressive Regression Testing | | ​​☒​ Partial Regression Testing | ​​☐​ Unit Regression Testing | | ​​☐​ Specify Other Testing |  | |
| Scope | Feature/functions that has any changes due to the following:   * Defect fix * New feature * Change in an existing feature * Code refactoring * Change in technical design / architecture * Change in configuration / environment (hardware, software, network) |
| Out of scope | Test cases are not affected by changes and does not have dependency with the function. |
| Tools | Azure DevOps  Katalon (Test automation)  Microsoft Excel (If needed for documentation purposes) |
| Environment | Staging Environment |
| Entry Criteria | * Access to Test Management tool (If applicable) * Finalized test scenarios/Test cases * Finalized feature file (If applicable) * System test data is available * Smoke testing test cases (If applicable) * Automation script developed and made available in Azure DevOps (If applicable) |
| Exit Criteria | Coverage   * Progress of test execution is 100% for the agreed Regression Test scope.     Quality   * Opened RT defects with ‘Critical’ and ‘High’ severity are equal to ‘0’. * Opened RT defects with ‘Medium’ severity are lower than 10% of total defects. * Opened RT defects with ‘Low’ severity are lower than 20% of total defects. |
| Suspension criteria and resumption requirements | When the following conditions happen, testing will be suspended:   * Defects that affect continuation of any major business flow or function from being executed e.g., high defects >=10 * The system crashes due to the application. * Data corruption is found or detected.     Testing will **resume** when the following criteria are met: -   * When defects as specified in item 1 above is fixed and validated. * System crashes no longer occur after the fix, if there is any or it is proven the crash is not caused by the application. * Reason for the data corruption has been identified and fixed if it requires a fix or a comprehensive report is provided on the occurrence and a prevention method is in place. |
| Additional Deliverables | N/A |
| Others | *N/A* |