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| PS2Win |
| Verification & Validation Process |
| Keep Your Time |

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| João Girão;João Martins  23-03-2013 |

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| **Authors and Contributors** | | | |
| **Date** | **Name** | **Contacts** | **Contribution** |
| 23-03-2013 | João Martins | a21170228@alunos.isec.pt | Author |
| 23-03-2013 | João Girão | a21170831@alunos.isec.pt | Author |
| 27-03-2013 | Mário Oliveira | a21170292@alunos.isec.pt | Contributor |
| 07-04-2013 | Rui Ganhoto | a21170262@alunos.isec.pt | Contributor |
| 17-04-2013 | Carla Machado | a21170460@alunos.isec.pt | Contributor |
|  |  |  |  |
|  |  |  |  |

Table 1: List of Contributors

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| --- | --- | --- | --- | --- | --- |
| **Revision History** | | | | | |
| **Date** | **Description** | **Author** | **Version** | **Approvers** | **State** |
| 23-03-2013 | First Draft | João Martins  &  João Girão | 0.1 |  | Draft |
| 24-03-2013 | Updating Document, change state and create Templates | João Girão | 0.2 |  | Ready for Revision |
| 27-03-2013 | Document reviewed | Mário Oliveira | 0.2 |  | Ready for Revision |
| 06-04-2013 | Several Changes | João Martins | 0.3 |  | Draft |
| Ready for Revision |
| 06-04-2013 | Document reviewed | Mário Oliveira | 0.3 |  | Ready for Revision |
| 06-04-2013 | Changing State | João Girão | 0.3 |  | Ready for Approval |
| 07-04-2013 | Approval |  | 0.3 | Rui Ganhoto | Ready for Approval |
| 10-04-2013 | Editing Document | João Girão | 0.4 |  | Draft |
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| 17-04-2013 | Suggestion of some changes. Some questions arose. |  | 0.4 | Carla Machado | Ready for Approval |
|  |  |  |  |  |  |

Table 2: Version history

# Purpose

The Verification and Validation Process purpose is to confirm that each software work product and/or service of a process or project properly reflects the specified requirements and to confirm that the requirements for a specific intended use of the software work product are fulfilled.

# Inputs and Outputs

# Inputs

Requirements list that is baseline;

Source Code;

Architectural and Design Diagrams;

# Outputs

In the Test Plan is specified acceptance test. This plan will be detail in Test Plan Template.

Acceptance Test Report is specified the results tests. This report will be detail in Failure Test Report Template.

# Activities

* **Verification**:
  + Several testers may be assigned by the PM and QM:
    - The person that will be assigned must have the following standards: free time, comfortable with the selected kind of verification.
  + Design Verification:
    - The design is correct and consistent with requirements;
    - The design implements proper sequence of events, inputs, outputs, interfaces, logic flow;
    - Selected design can be derived from requirements;
    - Using walkthrough;
  + Code Verification:
    - The code is traceable to design and requirements, testable, correct, and compliant with requirements and coding standards;
    - The code implements proper event sequence, consistent interfaces, correct data and control flow;
    - Use Code inspection for one section;
  + Integration Verification:
    - The software components and units of each software item have been completely and correctly integrated into the software item;
  + Document Verification:
    - Based on Document Management Process and Review Process.
* **Validation**:
  + Several testers may be assigned by the PM and QM:
    - The person that will be assigned must have the following standards: free time, comfortable with the selected kind of tests.
  + Prepare selected test requirements, test cases, and test specifications for analyzing test results;
  + Ensure that these test requirements, test cases, and test specifications reflect the particular requirements for the specific intended use.
  + Test software product for its ability to isolate and minimize the effect of errors;
  + Validate that the software product satisfies its intended use;
  + Test the software product as appropriate in selected areas of the target environment;
* **Software Testing Strategy:**
  + **Acceptance Test:** requirements established as part of software requirements analysis are validated against the software that has been constructed (Test Plan Template);
    - Create test case;
    - Acceptance Test results are specified in Verification and Validation phase;
    - If the Acceptance Test fails: it should be created a report with the failures (Failure Test Report Template);
      * If one tester: create unique report;
      * Else: create various reports.
    - Include acceptance test in Enterprise Architect tool.
    - Create Traceability Matrix (test case and functional requirements relationships) in the Enterprise Architect tool;
  + **Integration Test:** focus on the design and the construction of the software architecture;
    - These kind of tests may be applied or not, depending on the project;
    - After design and architectural phase:
      * Create a new integration plan;

OR

* + - * Update the test plan.
  + **Unit Test:** concentrates on the source code and are implemented and performed by the developers.

# Tools

For documentation Microsoft Office will be used.

Enterprise Architect Software.

# Related Processes

This process has a strong connection with Project Assessment and Control Process, Review Process, Document Management Process and Requirements Analysis Process.

# Measures

* Percentage of approved and disapproved tests;
  + Acceptance Tests;
  + Integration Tests;
* Tests number planned, executed and passed;
* Number of Unit Tests;