**Process Report**

Project: AL-Msiedeen2013

Process: Retrieval Process

Created by: Luciano Marchezan

Date: 07-23-2020

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| 1 |  | **Phase:** | **Extract** |
| **Activity:** | **Extract building elements from OO source code** |
| Description: | Analyze OO source code to extract OO building elements |
| Retrieval Technique: | Formal Concept Analysis |
| **Artifact:1** | **Input** | |
| **Name:** | **object oriented source code** |
| Type | Development |
| Description: | Source code of the product variants |
| Extension: | .oo |
| Link (url): | na |
| Last Update: | 07-23-2020 by Luciano Marchezan |
| **Artifact:2** | **Output** | |
| **Name:** | **object-oriented building elements** |
| Type | Development |
| Description: | packages, classes, methods, attributes of the source code |
| Extension: | .doc |
| Link (url): | na |
| Last Update: | 07-23-2020 by Luciano Marchezan |
| 2 |  | **Phase:** | **Extract** |
| **Activity:** | **Extract commonalities and variations with FCA** |
| Description: | Commonalities and variations are extracted using FCA (blocks of variations) |
| Retrieval Technique: | Formal Concept Analysis |
| **Artifact:1** | **Input** | |
| **Name:** | **object-oriented building elements** |
| Type | Development |
| Description: | packages, classes, methods, attributes of the source code |
| Extension: | .doc |
| Link (url): | na |
| Last Update: | 07-23-2020 by Luciano Marchezan |
| **Artifact:2** | **Input** | |
| **Name:** | **commonalities and variations** |
| Type | Domain |
| Description: | an XML file describing the Commonalities and variations of the system |
| Extension: | XML |
| Link (url): | na |
| Last Update: | 07-23-2020 by Luciano Marchezan |
| **Artifact:3** | **Output** | |
| **Name:** | **Blocks of variations** |
| Type | Development |
| Description: | contain source code elements for optional features |
| Extension: | . |
| Link (url): | na |
| Last Update: | 07-23-2020 by Luciano Marchezan |
| 3 |  | **Phase:** | **Categorize** |
| **Activity:** | **Identify features using FCA and LSI** |
| Description: | Blocks of variations are divided into atomic blocks and features are identified based on textual similarity using FCA and LSI; |
| Retrieval Technique: | Latent Semantic Indexing |
| **Artifact:1** | **Input** | |
| **Name:** | **Blocks of variations** |
| Type | Development |
| Description: | contain source code elements for optional features |
| Extension: | . |
| Link (url): | na |
| Last Update: | 07-23-2020 by Luciano Marchezan |
| **Artifact:2** | **Output** | |
| **Name:** | **Mandatory features** |
| Type | Development |
| Description: | mandatory features of the products |
| Extension: | . |
| Link (url): | na |
| Last Update: | 07-23-2020 by Luciano Marchezan |
| **Artifact:3** | **Output** | |
| **Name:** | **atomic blocks of variations** |
| Type | Development |
| Description: | represent a single feature from a block of variations |
| Extension: | . |
| Link (url): | na |
| Last Update: | 07-23-2020 by Luciano Marchezan |