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Functionally and technically describes the Goal Orientation Portlet, which is a tool helping people to find competence profiles that might be interesting to them.

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WP8, goal orientation, job, function, competence profile

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<td>RE Restricted to a group specified by the consortium (including the Commission Services)</td>
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1. Introduction

This document describes the Goal Orientation portlet created to cover objective number two from TENCompetence’s *Detailed Implementation Plan month 37-48* ([1]) for work package 8:

*Develop, test and integrate into Liferay the Goal orientation (overview) portlets, which are supposed to help users to identify their goals in terms of a specific competence profiles that is the input for a Personal Development Plan (Task Force 6).*

The Goal Orientation Portlet helps a person to get an overview of available competence profiles. The portlet is used by people who have no idea what they want to learn or what profession or career interests them. The outcome of using the goal orientation portlet is a list of competence profiles that the person may like to investigate in greater detail. Based on this list of competence profiles the person may then get in touch with a person in a competence network to make further inquiries, look up a relevant resource or even decide to choose one of the listed competence profiles as his goal for a personal development plan.

The basic idea of the portlet is simple: a user selects his likes and/or dislikes for some competences and the system shows the competence profiles that best match those preferences.

Note: for the TENCompetence domain model, with detailed information about concepts like Competence and Competence Profile, see [2].

1.1. Main process behind the idea

*Figure 1: Process* depicts the extended version of the basic idea, as it has been implemented in the portlet.

![Figure 1: Process](image)
The steps in the process, which are the steps each user goes through, are as follows:

1. **Indicate complexity**
   The user starts by indicating how easy or hard the profiles should be, on which to orientate.

2. **Shuffle and Deal**
   After starting *Shuffle and Deal*, the system selects a random set of competences and shows these in a Competence pool.
   Note: the competences are not completely random, because all of the shown competences occur in at least one competence profile of the specified complexity range.

3. **Perform action**
   The user can perform one of two actions:
   a. The user updates his likes / dislikes for a competence. This is done by marking one of the competences from the Competence pool as “Love it!”, “Interesting”, “Rather not” or “Hate it!” or by changing the like / dislike level for a previously marked competence.
      The process proceeds with step 4.
   b. The user presses *Shuffle and Deal* again to show a new random set of competences. It’s not mandatory for a user to express his like / dislike for any of the shown competences, because he might not have a strong feeling about any of them. In that case, he can use the *Shuffle and Deal* option again to get a fresh set of competences.
      The process proceeds with step 2 again.

4. **Update best matching competence profiles**
   Based on a change in the liked / disliked competences, the system automatically recalculates the best matching competence profiles and updates the list of “Best Matches” accordingly.

### 1.2. Main process in detail

#### 1.2.1. Scope

As many of the TENCompetence portlets, there is an implicit scope of the data used by the Goal Orientation portlet. When the portlet is added to a Liferay page, it will use the data of the community owning that specific page. The competences and competence profiles shown are the ones existing within that community.

During the orientation, a user can change his selection for the complexity levels. *Figure 1* doesn’t show this for simplicity’s sake. Changing the selection will affect the set of competences shown after using *Shuffle and Deal* again and will affect the competence profiles shown as Best Matches.
1.2.2. Indicate complexity
Each community has exactly one Competence Map and as part of the Competence Map, a number of (Competence) Profile Levels should be defined. The Profile Levels are used as a scale to identify per Competence Profiles in the map how easy or hard it is. E.g. the profile “Full Professor in Biology” has a higher Profile Level than “Bachelor in Biology”. The Goal Orientation portlet uses the Profile Levels scale to let a user indicate the level(s) of complexity of the Competence Profiles he might be interested in. Selecting multiple (or even all) levels of the scale is allowed, without any restrictions.

1.2.3. Shuffle and Deal
The name of this action is taken from card games. Instead of shuffling a deck of cards and dealing a random set of cards, we are shuffling a deck of competences and dealing random competences. When a user doesn’t like the “dealt” competences, he can shuffle and deal again.

In case there are many competences in a competence map, the Shuffle and Deal functionality can be used to browse through the competences. When you see a competence for which you have a strong like / dislike, mark it. Otherwise, quickly deal the next set.

1.2.4. Update best matching competence profiles
When a user sees a competence that he likes or dislikes, he can express his feeling by marking it as “Love it!”, “Interesting”, “Rather not” or “Hate it!”. It’s also possible to change or erase the marking. After changing the marking for a competence, the system automatically recalculates which competence profiles best match with the full set of marked competences. The ones matching best are shown as “Best Matches”, in order of matching.

The calculation of a match is done by scoring competence profiles for each marked competence that’s contained by it. Table 1 shows the scoring weights used. The total score determines the match: the higher the score, the better the match. A score of zero means a neutral score for a profile.

<table>
<thead>
<tr>
<th>Marking</th>
<th>Score</th>
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<tbody>
<tr>
<td>Love it!</td>
<td>+3</td>
</tr>
<tr>
<td>Interesting</td>
<td>+1</td>
</tr>
<tr>
<td>Rather not</td>
<td>-1</td>
</tr>
<tr>
<td>Hate it!</td>
<td>-3</td>
</tr>
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Table 1: Scoring

Example: the competence profile Software Architect contains the competences Communication Skills, Analytical Skills, Database Knowledge, Quality Attributes Knowledge and Programming Skills. Marking Database Knowledge as Interesting (+1), Programming Skills as Interesting (+1) and Quality Attributes Knowledge as Hate it! (-3) results in a total score of 1 + 1 – 3 = -1. This is even lower than a neutral score, so it’s not a good match.
1.3. **User guide**

The previous sections explained the ideas behind the Goal Orientation portlet. This section is a short user guide of the portlet.

1.3.1. **Start**

To start the orientation, click “Start…” in the opening screen of the Goal Orientation portlet, as shown in the left part of *Figure 2*.

![Figure 2: Start](image)

1.3.2. **Functionality main screen**

After clicking “Start…”, the main screen of the Goal Orientation is displayed in full screen mode, as in *Figure 3* on the next page.
Figure 3: Main screen initially

The main screen contains the following items:

1. **Return to Full Page**
   Leaves the Goal Orientation portlet and takes you back to a Liferay page.

2. **Complexity indication: “How easy or hard should the job / function be?”**
   Shows the Profile Levels defined in the Competence Map. In this case, the Competence Map contains four Profile Levels: Junior, Medior, Senior and Guru. You can check one or more of these.

3. **Shuffle and Deal**
   Fills the Competence pool with a random set of competences.

4. **Competence pool**
   Shows a set of competences that can be dragged to the four boxes at the bottom of the screen. Dragging a competence to one of those four boxes marks it for scoring, according to the weighting explained in 1.2.4 Update best matching competence profiles.

5. **Love it! / Interesting / Rather not / Hate it!**
   The title of a box indicates the marking of the competences contained in it.

6. **Best Matches**
   The Competence Profiles that best match the marked competences.
7. **Select as goal**
Clicking on a Competence Profile from the Best Matches and then clicking this button will set a Competence Profile as the goal for a new Personal Development Plan. The portlets for Personal Development Planning (My Plans, Activity Navigator, Assessment and Progress) can then be used to attain the Competence Profile. As a final step, an initial motivation for the goal can be provided (see **Figure 4**).

![Figure 4: Motivation](image)

1.3.3. **Main screen after use**
After selecting three Profile Levels, dealing the competences and dragging some to the boxes at the bottom to mark them, the screen will look similar to **Figure 5**.

In the screenshot, we see the Best Matches box contains three competence profiles. All of these contain the competence “Programming – Junior” and because that competence is also required for the Database Administrator profiles, they still are shown disregarding the “Database performance tuning” minor dislike.

**Note:** **Figure 5** shows a bug in the tool. The Competence pool is showing Competence Levels (the different levels at which a Competence can be mastered) instead of Competences. This is for instance visible in the items *Analytical skills (level 1)*, *Analytical skills (level 2)* and *Analytical skills (level 3)*, where just the one item *Analytical skills* should be shown.
1.4. *Technical implementation*

This section provides brief information how the code of the Goal Orientation portlet has been implemented.

The portlet is fully based on ICEfaces ([3]) and Java. For the screens, there are three ICEfaces views in the portlet:

1. `smallView.jspx`: the initial view of the portlet (as shown in *Figure 2: Start*), which just redirects to the next view. It is analogous to the small view of the Model Editor portlet.
2. `orientationGame.jspx`: the main view of the portlet (as shown in *Figure 3: Main screen initially and Figure 5: Main screen in use*). It contains the whole competence selection / deselection process and the view of best matching competence profiles. The `panelPositioned` ICEfaces tag is used for the implementation of the drag-and-drop behavior.
3. `motivationDialog.jspx`: the dialog window shown when the "Select as goal" button is clicked (as shown in *Figure 4: Motivation*). It allows the user to input a motivation text for his/her choice, and then registers the choice as a new Goal model object (see [5]).
The Java source code of the portlet is in package `org.tencompetence.portlet.goalorientationtool`, which is stored in the `/portal/org.tencompetence.goalorientationtool-portlet` module as part of the TENCompetence CVS repository on SourceForge ([4]). There are two main subpackages that contain all the classes:

1. **beans**: the managed beans that implement the logic of the views, containing the classes `SmallView`, for the logic of the `smallView.jspx` view and `OrientationGame`, for the `orientationGame.jspx` view. The `motivationDialog.jspx` view is such a simple view, that it doesn’t need a managed bean class.

2. **utils**: the utility classes used in the implementation of the `OrientationGame` class. The relevant classes are:
   a. `GoalMotivationDialog`: implements the IOkCancelDialog interface, and contains all the logic of the motivationDialog window.
   b. `RankedCompetenceLevel`: encapsulates a CompetenceLevel (see [5]), assigning a numeric rank to it. It also implements the Comparable interface to allow sorting of a list of ranked competence levels.
   c. `RankedProfileLevel`: encapsulates a ProfileLevel (see [5]), assigning a numeric rank to it. It also implements the Comparable interface to allow sorting of a list of ranked competence levels.
   d. `SelectableLevelValue`: encapsulates a LevelValue (see [5]) of a competence profile, adding a boolean property that indicates whether the level value is selected or not.

### 1.5. Wrap up and future work

In its current form, the Goal Orientation portlet is a very simple tool, which can already help people to quickly find competence profiles that could be interesting to them.

Because the tool is in its first release, there are obvious options for possible changes, which however require further research for their effect:

1. **Update the set of shown competences, based on the already marked ones.**
   When a few competences related to, for instance, biology competence profiles are marked in a positive category, other competences related to biology could automatically be added to the competence pool.

2. **Show the competences as a tag cloud, to emphasize popular competences.**

3. **Leave out competences that are used in only one or two competence profiles, to decrease the total number of competences to browse through.**

4. **Evaluating the scoring algorithm with pilot groups, to find out what a good weighting of the different markings is.**

These options all require research. Numbers 1-3 because they steer the user towards certain competence profiles, whereas the current approach is a neutral approach. Number 4 because it requires testing with pilot groups.

The most important remark, is that testing in user groups is essential to find out how useful the tool is and what its strengths and weaknesses are.
2. References


Links checked on 26-12-2009.