Estimation using Delphi Technique – ORACLES

Minor Project

IBM Career Education

Disclaimer

This Software Requirements Specification document is a guideline. The document details all the high level requirements. The document also describes the broad scope of the project. While developing the solution if the developer has a valid point to add more details being within the scope specified then it can be accommodated after consultation with IBM designated Mentor.

INTRODUCTION

The purpose of this document is to define scope and requirements of an Estimation tool - ORACLES using Delphi technique for a large software development house. The proposed system will enable the software house to estimate the projects more accurately. The estimates arrived at from ORACLES tool will becomes the basis for proposal being staged to the clients. The estimation tool will be integrated with their Intranet so that it is easily accessible to all while being in or out of workplace.

This document is the primary input to the development team to architect a solution for this project.

System Users

All the pre-sales consultants and subject matter experts (SMEs) of the software house will primarily use the Estimation using Delphi, ORACLES

Assumptions

1. In real life, the prospective client and project details will come directly from the prospect engagements system. To simplify the scope of this project, it can be assumed that this data will be uploaded using CSV files in the database directly from the backend. The prospective client CSV file will have (a) client id and (b) client name; the project CSV file will have (a) project id, (b) client id, and (c) project title; and the task CSV file will have (a) project id, (b) requirement id, (c) requirement title, d) requirement description; The SME CSV file will have a) Name and b) e-mail id.
2. Since ORACLES tool is expected to use Intranet's authentication, for the purpose of this project, entering user name will take you to the user's landing page displaying the active estimation activities. You may create sample users directly from the backend database.

ABOUT DELPHI TECHNIQUE

The word Delphi has its origin from a place in Greece, which was supposed to confer predictive powers to the person. A temple was built where girls were appointed to answer questions about the future. These girls were referred to as "Oracles". The Delphi technique takes cue from the Oracles whose wisdom others could rely on. You would wonder how is software estimation associated with prophecy! Strange as it may sound, the technique harnesses collective intelligence of the group of people with domain expertise. They are invited to contribute their comments as well as estimates the efforts for the task(s). Each group member is oblivious to the identity of other members. A facilitator plays an important role in communicating with the group members and providing the necessary tools and inputs to do the estimates.

The inputs received from each member on a task is evaluated, the minimum and maximum estimates are swapped between the estimating group members. These members revisit the estimates presented to them and arrive at a consensus. This drill is accomplished normally in 3 rounds. Read more about Delphi Technique at

http://en.wikipedia.org/wiki/Delphi_method URL.

Just for your interest, in the movie Matrix, there is a prophetic character Oracle who plays a significant role.

REQUIREMENTS

The facilitator from the tech team sets up the project for estimation using Delphi technique. Invites users from a pre-defined list of Subject Matter Experts fed into the system. The system sends an email communication to the participants.

On accessing the ORACLES tool, the system will display the single screen displaying the list of projects awaiting estimation or under review. This screen shall have a button to setup “New Estimate”.

The list of projects are organized in ascending order on their delivery date i.e. the projects due earlier will be appear on top. This view displays project title, prospective client name, delivery date and status (Awaiting Input, Under Review, Revisit). The entries with status “Awaiting input or Revisit” can be clicked to open up to view the activities that have to be estimated.

Each requirement is displayed in columns such as requirement id, requirement title, brief description, estimate (in hrs) and comments. The user can enter the estimate and comments ONLY for each of the requirements.

Clicking on the “submit” button saves the estimate from the user. Each activity with its estimate and comment data from an SME user shall be saved separately.

The system will automatically change the status of the Project to “under review” status once all estimates are received from the invited list of SMEs.

The Facilitator user can access projects under review status. On click of a project under this status, the system displays the list of requirements and estimates in the following matrix.

Requirement Id	Requirement Title	User 1 (in hrs)	User 2 (in hrs)	User 3 (in hrs)	Average	Mode	Range	Action
XXXXX	Create Organization Structure	30	30	25	28.33	30	5	**SWAP**

The system shall highlight minimum and maximum estimates for each of the requirements. The Mode column displays the statistical mode of estimate received with highest frequency. In this case 30 hours have been estimated 2 times for the same requirement. The next column is the Arithmetic mean computed by summing up the estimates received for a requirement id and dividing the sum by number of estimates. The Range column specifies the maximum – minimum estimate. These columns will provide input to make a decision for the next step.

On click of Swap the system swaps the minimum and maximum estimate entries from various users for each requirement. Click on button to “Revisit estimates” will send an email to the respective SME users. Please note, all participants are not invited in this case. The mail goes to only the SMEs whose estimates have been swapped.

This process may be repeated 3 times to arrive at an accurate estimate.

The facilitator may choose to consider the Mode value or Arithmetic mean as the final estimate. In such a case, revisiting of estimates is not carried out.

DEVELOPMENT ENVIRONMENT

ORACLES will be developed as a web application using Java/JSP and DB2 database. Eclipse will be used as the IDE for the same. You may consider using a JavaScript framework like Prototype/ Scriptaculous/jQuery.