**Project № 3: Activity Monitoring**

**Background and requirements**

The language translation house EasyLang produces language translations on demand (by contract), usually at fixed time, fixed price, and with specified predetermined criteria and quality.

One of the hardest problems is to detect early on that an activity will take longer than expected. If you can detect it early, it is possible to help the translator currently carrying out the activity, for instance by letting a seasoned expert review the work and offer guidance, or by taking some preventive actions to motivate the employee. If you detect the problem late, the activity may have run off the track, be costly to correct, and it will soon hamper many other activities.

Seasoned project managers know that they can get an early warning in this way: The translator responsible for a given activity records every day how much text he/she translated every day, and every weekend he/she gives an estimate of the remaining number of hours and text volume (they usually have some proportion). Project management now computes an estimate of the total number of hours for the activity:

total expected = hours spent + hours remaining

or

total text expected (in%) = text produced (in%) + text remaining (in %)

In a straightforward activity this figure remains constant from week to week, and when no hours remain, it is finished.

If the figure starts increasing, something is wrong, and help is most likely needed. Experience is that the problem in this way can be detected between 60% and 80% into the activity, while it otherwise tends to be detected when more than the total expected time has been used.

Unfortunately, the procedure is cumbersome to manage, especially if a large staff of translators is involved, and company management wants to support it with an IT system. At the same time, they want a better record of the work hours per activity, which many translators at present record many days too late. The recording of time and work volume is at present also used for billing some of the customers, and for collecting experience data of hours used for various sizes of projects.

When staffing a project, department managers and project managers

have troubles getting an overview of who will be available in the period where the project is carried out. They expect the system to give them an overview of this too.

**Specification**

EasyLang has around 80 translators and around 40 open projects with around 400 planned or running activities. Many projects run for just a few months, but some run for a couple of years. Most translators work on less than 5 different texts at a time, but a few may work on more than 10 each week.

Each project consists of a set of activities, usually planned weeks before they start. An activity is primarily carried out by a single translator - responsible for this activity - but sometimes other translators may assist for some hours.

EasyLang has experienced that project management is much harder if more than one person is allocated to an activity. So they take great care dividing projects into activities (or texts) for a single person. There is also a special 'overhead' project that consists of activities such as vacation, illness, lunch, and courses.

Translators must daily record how much text they have translated in their activities - with an accuracy of % of one page. The system must remind them if they have forgotten. This recording is presently considered annoying, and it is crucial that the system makes it easy. For instance, it must be easy to find the proper text numbers (or names).

Translators must once a week (Friday or Monday) give an estimate of the remaining text for translation that they are responsible for. Again, the system must remind them if they forget.

Each week (Friday) the translators must send the translated texts to the Chief Editor (Main expert) for checking. If the mistakes will be discovered the work can be send for re-writing and correcting errors. This information must be also added to the system. The remaining volume of work (% of the translated text) then should be recalculated by considering the text for correction.

The Chief Editor (main expert) is responsible for one project. He/she has to check all the works that are delivered by translators. Thus, he/she should also specify the time for checking the texts depends on the complexity of project. During the process of checking the translators may work above other activities that were assigned for them.

In the case of overloading the Chief Editor work project manager may assign the additional free Chief Editors from other projects.

The system should also specify the translators who make a lot of mistakes and slow down the project implementation. Then it can cause for replacing less efficient translators by more productive ones.

When the responsible translator reports that the remaining volume of text is zero, the activity is finished, and he doesn't have to report remaining text volume any more.

The project manager (or any other editor) must be able to create projects and activities and nominate a responsible translator for each activity. To do this, he must be able to see when this translator will be available. He must be able to see how the hours spent (text volumes completed) and the estimated total develop over time. It is particularly important to identify activities that have a growing estimated total or where little work is done. Finally, he must be able to see who is responsible for this activity and what else this translator is supposed to work on.

Project managers and department managers will typically monitor several projects in this way. It would be convenient if they can get a good overview of the projects they watch particularly closely.

**Assumptions**

Employees use initials of up to four letters and people usually know each other's initials. The company has already a system that records all employees, invoices customers based on hours used, collects experience data, plans projects with a Gantt diagram, etc. These are optional issues in this project. You can consider them if it will be possible.

Projects have a number and a name, e.g 2311NN.

An activity is denoted by the project number and an activity number.

Furthermore, it has a name, e.g.

2311-12 Novel Nomads Part 1.

Your job is to develop alpha version of the proposed system for the activity monitoring. This system should consider the sides of the translators, chief editor, and the project manager.

Assume that the system runs on the web platform or mobile devices. Please add the model of authentication system before starting the dialogue with users before they have been logged on. For the alpha testing you can use the existing (or created) user data from database so that the system should know who the user is.