



Project Summary

Reporting Platform:
Infinity Consulting

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Introduction:

The aim of this paper to summarize the project of developing a reporting platform for Infinity Consulting's request after they deployed a brand-new soft skills training platform for companies. On their request, a reporting tool was developed and delivered to them and future clients to follow user activity on their site. In the following paper, the different aspects of the project in its development and final delivery will be explained.

About the training platform:

Infinity Consulting has recently joined with an EdTech company called Agora, which has more than 20 years of experience in adult education, and launched an innovative gamified, interactive microlearning educational software targeting corporate clients. The training platform focuses on developing employees' five soft skills: communication, stress management, self-awareness, time management, and conflict resolution.

Reporting Platform:

Plan Vs Final Delivery:

In the original plan, the platform would have had two stages: one for basic charts for follow users' activity and a more advanced section for detailing weaknesses, strengths, etc. However, due to the recent launch and only usage by HRs of companies for try-outs, the available data is low and lacks for implementing high level modelling. But the project did not require these aspects considering that the developers are interested in finding potential error in the training materials and provide a reporting platform for the future clients. Therefore, the originally basic section was deepened into three sections: Behaviour, Activity, and Results. Infinity Consulting provided a list of questions and items that they would like to have on everyday basis which must be explained on the reporting platform. In addition, a fourth element was added for clustering the fields on results and the time spent on completing one section in the course. By this, the developers can have an indication on which fields have mistakes in their training materials.

On the other hand, the shiny application has intended to serve two point of views: the aspects of developers and the HRs of future partner companies. While Infinity Consulting has an interest to see results on the platform activity in more detailed in a whole, the HRs only want to see their employees' activity on an average level grouped on departments. However, Infinity Consulting decided to not to share the platform with external users yet, just show what they can expect if once it will be deployed for them as well. Therefore, some charts on the shinyapp do not have more purposes than to show them to clients so far.

Data:

The data did not have errors only the low amount caused an issue. The outliers were not dropped at the beginning but instead transformed and filtered uniquely to each plot to avoid missing meaningful data. According to the original strategy, the design would have been implemented on the existing data and tested on the gathered from that period. However, the activity almost died out on the platform by middle of May therefore the test was only performed on an additional few hundred lines.

Sections:

Behaviour:

The first section focuses on how the users behave on the platform, when and how long they usually active on the website. By this, the developers can track when, which day in which hours the users usually do the trainings on which skills. They can choose what period they would like to see and which departments even it does not serve any purpose yet.

Activity:

The Activity section aims to give a summary on how much time it takes to complete one field, one soft skill course and the whole training. Besides, it also tracks the progresses made by the users or whether they were inactive more than given period.

Results:

The Results section similarly to Activity, aims to follow the result efficiency of users and the course fields. Also, the results of each final soft skill quizzes also presented in a detailed way that is more useful for HR perspectives than for the developers.

Clustering:

The clustering part not only includes the final clusters but also the change in total within sum of squares and the average silhouette width as the cluster numbers increase. By this, as the data will increase, the developers can optimize the cluster numbers. It aims to give an insight on which group fields may face issues in their training materials that should be corrected.

Challenges:

Planning:

As one of the first full project completed for an existing client, the planning stage was a challenged to make. As it could be seen before, great changes were made through the work that transformed the amount and the way of work. Another set of skills were to meet the client needs and wishes, understanding what they would like to receive, what not, and how to deliver.

Time calculation:

The main challenge was found in how to calculate the time spent on one training field. The data was not designed to record those cases when the user left and completed it in another time. By dropping after a threshold would have result in a great loss of data which could not be allowed in current status. Therefore, based on the client request, after an hour of inactivity after starting a field, the time was check from behind:



The only remaining issue stands whether the user was active between these time ranges but considering that completing one field does not take long, it might be an acceptable loss which does not mean more than a minute.

Conflict of Interest with Shinyapps:

The greatest technical issues were found in when the application was launched on shinyapps.io. What was working in local RStudio was not operating on the shiny server that subverted the whole platform and its calculations. The filters implemented before were not working and gave back false data therefore many of the previously created and reused function codes had to be copied and pasted to the corresponding functions.

Language Barriers:

The training platform is designed in Hungarian, offering the course is in Hungarian and the future users both training and reporting platforms are Hungarians. For the University, the shiny application is created in English but will be translated to Hungarian both on site and in code (e.g. column naming for departments, plot titles, documentation).

Suggestions:

The design on low amount of data might result in a corruption on chart designs in the long run. Almost all plots do not have limits on their axes or there was no real experience on strange outliers that could have been handled previously. A continuous developing is suggested after a company launched the training platform among their employees. Also, where it was highlighted that the training on a field seems to be having some errors and problems in it, should be investigated in detail before a launch at a client corporation would be implemented.

Summary:

To sum up, the Capstone Project was about designing a reporting tool for a newly launched training platform. The final delivery was a shiny application developed in R that reports back on the activity on the platform in four sections: Behaviour, Activity, Results and Clusters. The main challenge was found in lack of data and by this, finding creative solutions to save as much as possible.