



DigiEduHack Solution Saint Petersburg - ITMO DigiEduHack Challenge: Artificial intelligence in education

Answer Way

Service for analysis of the most difficult topics to study

A service for the analysis of questions from user forums on most challenging aspects of online courses and for the visualization of the analytical data. It is based on the use of semantic text analysis and clustering algorithms.

Team: Starlight Memories

Members roles and background

We are developers and data scientists with math background.

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Solution Details

Solution description

The solution is presented in the form of an **online service** for collecting **analytical information from forums**, namely for analyzing questions asked by forum users taking an online course. This solution is in demand by the organizations that provide online training, since it allows them to

redesign their courses more finely depending on tracking challenging aspects of a course where the most questions arise. All the information is presented in the form of **infographics**, which gives a complete picture of the demand for various topics. A unsupervised neural network combined with highlighting context by vector space is used to analyze the text and solve the k-means clustering problem in the service.

Solution context

Unstructured information reduces the effectiveness of corporate training and frequently makes learners look for answers on specialized forums. However, there is no guarantee that the answer will be found or that it will be correct. This causes **a large number of duplicate questions**, which remain unanswered. Educational organizations can fill in these gaps by analyzing the most popular forum topics and questions.

Solution target group

The prospective target groups are **centers of online education** and **private educational organizations**. These institutions will be able to improve the effectiveness of their courses by analyzing forum data. As a result, most challenging aspects of an online course will be identified, and more intensive and focused training will be offered to cover these aspects.

Solution impact

The quality of the online education will be improved because educational organizations will be better informed about their learners' needs.

Solution tweet text

A service for the analysis of questions from user forums on most challenging aspects of online courses and for the visualization of the analytical data. The use of semantic analysis of the text and clustering algorithms.

Solution innovativeness

Innovativeness lies in the approach, since such methods of analyzing user information are rarely used in the field of education. Forums are a clear example of how the learners' inquiry for specific topics is formed. With a detailed examination of the contribution of forums to modern education, it is possible to flexibly adjust the learning experience and **create more in-depth online courses** on specific topics. The task of highlighting the context is one of the main ones in text processing, therefore, when developing the project, it is necessary to reduce the noise level of the formed clusters.

Solution transferability

The proposed solution can be applied to any field of activity with a large number of specialized forums. Regardless of the purpose of the resource, it is possible to highlight the topics that most interest users, and further supplement the existing courses with specialized modules.

Solution sustainability

The portal continues to function and develop being supported by a team of moderators. The further development of the project implies the provision of access to analytical data for users and companies that exploited the services earlier. Monetization comprises rendering services for the provision of analytics of the collected data. Both options are possible: one-time provision of services and subscription. The main strategy for the development of the service is to increase the number of datasets collected from forums, this will help increase the number of companies interested in creating courses on topics that are in demand.

Solution team work

Our team work allowed us to carefully refine the algorithm and create a prototype for the universal solution that can process data on any topic. The separation of duties and team decision-making accelerated the development of the product. Further work of the same team would help to improve the algorithm and expand the functionality of the service.