dalchemy

The Secret of Transformative Learning using Data Analytics

dAlchemy's analytics engine helps you to gain insights into the performance of students by analysing hand written work and by using an analytics driven automatic grading system

We leverage machine intelligence and analytics to provide the data-driven foundation for transforming a student's learning experience and improving their performance.

ABOUT THE CLIENT

Headquartered in New Jersey, USA, the client offers an online, personalized Math tutoring programme for children. By combining an outstanding curriculum with the portability of a tablet, the client aims to grow a child's confidence by improving the child's capabilities in Math. The client's product has an innovative digital platform that combines best of personalized teaching with a fun and engaging learning program that can be adapted to cover all subjects. It is tailored to every student and allows sharing and review of handwritten work, automatic grading, video tutorials and adaptive analytics.

THE CHALLENGE

The client wished to leverage the power of business intelligence and data analytics for:

• **Data Insights:** Analysis of students' performance in tests and worksheets needed to be done to give powerful insights into students' capabilities and for providing personalized content.

• **Objective Campaign Analysis:** Client wanted a campaign analysis based on advertisement attributes, and identification of areas on social media platforms like Facebook, in which advertising strategy adjustments could be made. The varied media's effectiveness had to be studied in order to understand where the leads were coming from. This information could then be used to target advertisements on platforms that were found to be more effective for lead conversion and customer acquisition.

THE SOLUTION

The dAlchemy solution for the challenge was also twofold:

• The first one involved the generation of a descriptive analysis - both student wise as well as worksheet wise (submitted by the student) – this was used to summarize the available information in greater depth. The analysis helped to pinpoint students who needed support to understand certain concepts - subsequently, providing engaging and adaptive learning experiences for the child.

• To get the required information regarding effectiveness of ads, dAlchemy had to perform mining of unstructured data, which involved labour intensive data retrieval and scrubbing. In order to measure marketing effectiveness and help meet the client's advertising campaign goals, dAlchemy carried out Predictive Modelling by doing a campaign analysis of advertisements placed on Facebook and other social media. The predictive analytics encompassed various statistical techniques to anticipate where the leads would be generated

THE BENEFITS

Armed with rich findings, dAlchemy empowered the client with insights into each child's performance. The use of analytics could pinpoint each child's learning style and customise the content to suit the child's abilities and interests. The client was thus able to completely transform a student's learning experience and improve his/her performance. dAlchemy provided the data-driven foundation to identify the right channels for placing of advertisements in order to maximize leads. The content of the ads were refined which helped to convert at a higher rate. The client was, thus, able to evaluate the campaign's effectiveness and tailor their campaign tactics to dramatically boost their marketing ROI.

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THE PROCESS

dAlchemy followed the CRoss-Industry Standard Process for Data Mining (CRISP-DM) Methodology for carrying out this project. CRISP-DM methodology is based on the practical, real-world experience of how people conduct data mining projects and it is described in terms of a hierarchical process model, consisting of sets of tasks described at four levels of abstraction (from general to specific): phase, generic task, specialized task, and process instance.

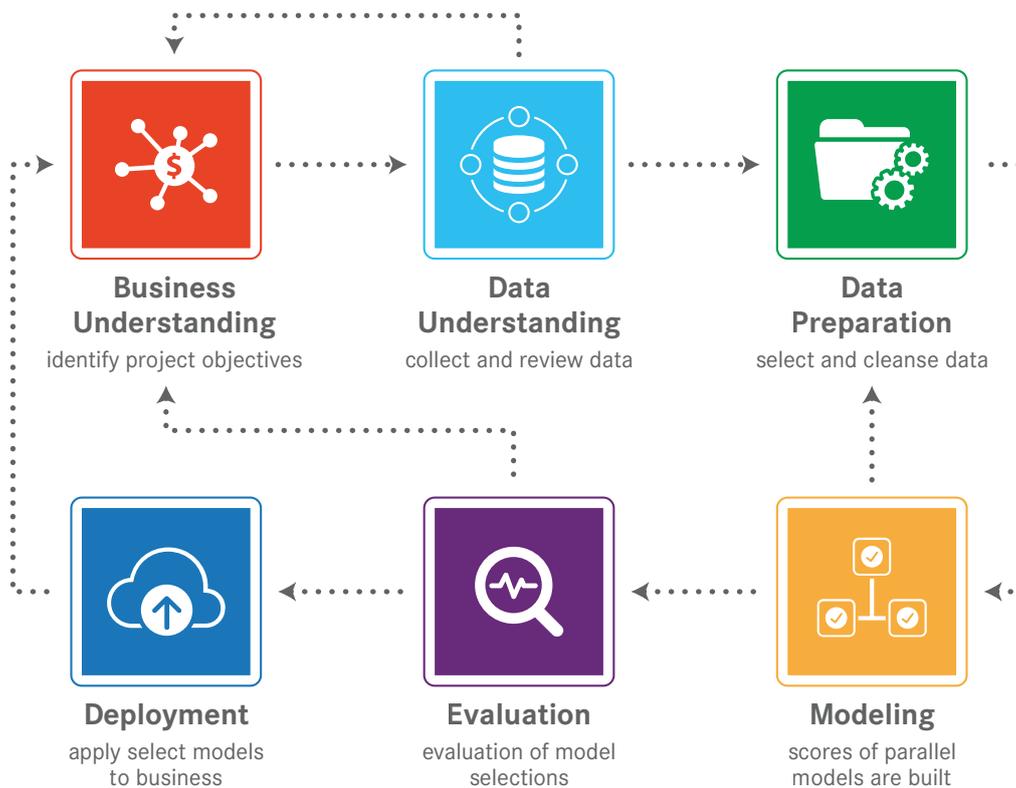The following figure shows the six phases of the CRISP-DM reference model.

Business Understanding
identify project objectives

Data Understanding
collect and review data

Data Preparation
select and cleanse data

Deployment
apply select models to business

Evaluation
evaluation of model selections

Modeling
scores of parallel models are built

Figure: The phases of the CRISP-DM reference model

Moving back and forth between the different phases is always required. The outcome of each phase determines which phase, or particular task of a phase, has to be performed next. The arrows indicate the most important and frequent dependencies between phases.

The implementation of the entire solution was completed in just 6 months after which dAlchemy made specific recommendations to the client to improve the productiveness of future advertising campaigns.

Corporate Headquaters
257 Castro Street Suite
#112 Mountain View
CA 94041 - 1286

For more information
Contact your account executive to learn how we can help you accelerate your business success.

Global Offices
Mountain View, CA   +1-650-318-1325
Bangalore, India   +91-988-605-3289

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