

Machine Learning in the Travel Industry: the lastminute.com group Case ^{*}

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The online travel sector is an extremely competitive environment. For that reason, in the last decade, several online travel companies have increasingly invested in machine learning research so to gain a competitive advantages with respect to their competitors.

Some of the most interesting areas of research in the field are the following:

- Learning to rank;
- Dynamic pricing;
- Recommendation systems.

The goal of learning to rank is to build a ranking model to sort the items according to a certain criterion and display to the user at the top of the ranking the “best” results. Usually, these models are based on supervised, semi-supervised or reinforcement learning techniques.

Dynamic pricing is a pricing strategy in which flexible prices are automatically set for products or services based on current market demands. This field of research is mainly driven by reinforcement learning techniques.

Recommendation systems are machine learning architectures that support a user’s choice by identifying the most likely products he/she might purchase, thus improving the user journey and increasing the business revenues. Mostly, these techniques are based on supervised, semi-supervised or unsupervised learning.

In this tutorial, we will cover these research areas through concrete examples of applications in the online travel industry.

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