
(Assignment -4 ...Spring -2022)

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The Data Science case study means data analyzing, data manipulation, data representation, and solving a problem statement intensively. In this regard solving case

studies will help you show unique and amazing data science use cases in real-time examples.

a. Text Emotions Detection

b. Hotel Recommendation System

c. Customer Personality Analysis

Solving a Data Science case study means analyzing and solving a problem statement intensively. Solving case studies will help you show unique and amazing data science use cases in your portfolio. In this article, I'm going to introduce you to 3 data science case studies solved and explained using Python.

Data Science Case Studies

If you've learned data science by taking a course or certification program, you're still not that close to finding a job easily. The most important point of your Data Science interview is to show how you can use your skills in real use cases. Below are 3 data science case studies that will help you understand how to analyze and solve a problem. All of the data science case studies mentioned below are solved and explained using Python.

Case Study 1: Text Emotions Detection

If you are one of them who is having an interest in natural language processing then this use case is for you. The idea is to train a machine learning model to generate emojis based on input text. Then this machine learning model can be used in training Artificial Intelligent Chatbots.

Use Case: A human can express his emotions in any form, such as the face, gestures, speech and text. The detection of text emotions is a content-based classification problem.

Detecting a person's emotions is a difficult task, but detecting the emotions using text written by a person is even more difficult as a human can express his emotions in any form.

Recognizing this type of emotion from a text written by a person plays an important role in applications such as chatbots, customer support forum, customer reviews etc. So you have to train a machine learning model that can identify the emotion of a text by presenting the most relevant emoji according to the input text.

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Case Study 2: Hotel Recommendation System

A hotel recommendation system typically works on collaborative filtering that makes recommendations based on ratings given by other customers in the same category as the user looking for a product.

Use Case: We all plan trips and the first thing to do when planning a trip is finding a hotel. There are so many websites recommending the best hotel for our trip. A hotel recommendation system aims to predict which hotel a user is most likely to choose from among all hotels. So to build this type of system which will help the user to book the best hotel out of all the other hotels. We can do this using customer reviews.

For example, suppose you want to go on a business trip, so the hotel recommendation system should show you the hotels that other customers have rated best for business travel. It is therefore also our approach to build a recommendation system based on customer reviews and ratings. So use the ratings and reviews given by customers who belong to the same category as the user and build a hotel recommendation system.

The output of the Hotel Recommendation System

Case Study 3: Customer Personality Analysis

The analysis of customers is one of the most important roles that a data scientist has to do who is working at a product based company. So if you are someone who wants to join a product based company then this data science case study is best for you.

Use Case: Customer Personality Analysis is a detailed analysis of a company's ideal customers. It helps a business to better understand its customers and makes it easier for them to modify products according to the specific needs, behaviours and concerns of different types of customers.

You have to do an analysis that should help a business to modify its product based on its target customers from different types of customer segments. For example, instead of spending money to market a new product to every customer in the company's database, a company can analyze which customer segment is most likely to buy the product and then market the product only on that particular segment.

Summary

So these three data science case studies are based on real-world problems, starting with the first; Text Emotions Detection, which is completely based on natural language processing and the machine learning model trained by you will be used in training an AI chatbot. The second use case; Hotel Recommendation System, is also based on NLP, but here you will understand how to generate recommendations using collaborative filtering. The last use case; customer personality analysis, is based on someone who wants to focus on the analysis part.

All these data science case studies are solved using Python, here are the resources where you will find these use cases solved and explained:

1. *Text Emotions Detection*
2. *Hotel Recommendation System*
3. *Customer Personality Analysis*