LES FUTURS TALENTS DU NUMÉRIQUE

End of study project 5th year Master degree.

2023 – 2024

Flight Booking Chatbot.

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Flight Booking Chatbot.

With the purpose to provide a better a service to their customers, a flight company decide to build a chatbot that can help to book flights. The specific chatbot should consider biometric information to deliver a flight ticket, and take bank card information to make a ticket reservation.

Project Description:

This project combines two crucial aspects: **flight price generation or eprediction** and **the subsequent development of a Flight Booking Chatbot**. Initially, students will predict flight prices using a provided dataset without this specific information. Upon successfully predicting flight prices, the generated dataset (now containing predicted flight prices) will serve as the foundation for building an advanced Flight Booking Chatbot.

Objectives:

1. *Flight Price Generation or Prediction*: Utilize the provided dataset (without flight prices) to develop and train an AI model capable of accurately generate or predict flight prices based on various attributes.
2. *Dataset Enrichment*: Generate a new dataset incorporating the predicted flight prices.
3. *Chatbot Development*: Develop a user-friendly and intuitive chatbot interface allowing users to search and book flights seamlessly using the ***enriched dataset*** with predicted flight prices.
4. *Integration and Testing*: Integrate the price prediction model output into the chatbot system, ensuring accurate and functional flight booking capabilities.
5. *Evaluation and Refinement*: Evaluate the accuracy of the predicted flight prices, assess the chatbot's effectiveness, and refine both components based on testing and user feedback.

Key Tasks:

1. *Flight Price Generation or Prediction Model*: Utilize machine learning or deep learning techniques to generate or predict flight prices based on the provided dataset attributes. You should document your method in your document.
2. *Dataset Enrichment*: Create a new dataset by incorporating the predicted flight prices into the original dataset.
3. *Chatbot Interface Implementation:* Design and implement a conversational interface for the flight booking chatbot using the enriched dataset.
4. *Integration and Testing*: Integrate the price prediction model output with the chatbot system and conduct thorough testing to ensure functionality and accuracy.
5. *Documentation and Presentation*: Document the process, techniques or methods you choose for flight price generation or prediction, chatbot development, integration, challenges faced, and outcomes. Prepare a detailed presentation summarizing the project's objectives, methodologies, and findings.

Skills and Technologies Involved:

1. Data science/analysis, feature engineering, and machine learning model development,
2. Python programming language and relevant libraries/frameworks (e.g., Scikit-learn, TensorFlow, Pandas, …),
3. Chatbot development frameworks or libraries (e.g., NLTK, TensorFlow, Dialogflow),
4. Data handling and manipulation.

Expected Deliverables:

At the end of you project in the respected delay, you will deliver (directly on https://exams.ecole-it.com) *a zip file* containing:

1. The *AI Model*: this have to be a notebook (google collab or other notebook tools),
2. The *enriched dataset (csv, Json or xlsx)* including predicted flight prices (result of your AI Model),
3. The *Chatbot application and its source*, using the enriched dataset,
4. A *Comprehensive Documentation (docx, md or latex)* encompassing *dataset analysis, model development, and chatbot implementation.* This report should describe your approach and method.
   Between 2 to 10 pages describing any steps used to solve each problems, your approach, the method you choose, and any additional features (improvements) you did. Used the following for the document:
   For title:
   font=Times New Roman,
   size=16,
   style=Bold, center, underline.
   For paragraph:
   font=Times New Roman,
   size=12,
   style=justify,
   Interline=Normal.
5. A *Clear and concise presentation (pptx, canvas or Prezi)* highlighting project milestones, methodologies and results (findings).

RESPECT THE DEADLINE MENTION ON https://exams.ecole-it.com

Technologies involve:

You have to choose within this technologies and only this. Your choices have to be clearly mention in your document and presentation.

- *Programming Language*: Python, JavaScript (NodeJS), Java.
- *Database engine*: SQL(MariaDB, MySQL), NoSQL(MongoDB).
- *Web development/frameworks*: Flask, React, Angular, PHP, Symphony, Laravel.

For all group of technologies (like API, NLP libraries, Python libraries for Data science, …) you can use what ever you want. But keep in mind that your choices have to be clearly describe in your report and presentation.

Evaluation Criteria:

The project will be evaluated based on the following criteria:

1. The *accuracy* of the price generation or prediction model **(40 pts)**,
2. The *functionality and usability* of the chatbot **(80 pts)**,
3. The documentation *quality* **(10 pts)**,
4. The *presentation* of the *project's outcomes* **(20 pts)**,
5. All *improvements* you did on your project (only if *it is well documented*) **(10 pts)**.

Resources:

Access to the provided :

1. *The dataset* : **do not work on the git, fork it on your git or clone it on your computer before make any changes.**
   The project (without the dataset) URL : https://github.com/FabriceNolack/PFE_23-24_5eme.git
   The dataset URL: https://ecoleit-my.sharepoint.com/:f:/g/personal/fabrice_nolack_ecole-it_com/Ejnq_GVV0pNBonMiFha19CsBmZ3U9Ssh21Vk7cYZBTSiww?e=SpmOjd
2. *Programming tools* : be careful to use only those mention above (in the section Technologies envolve),
3. *Libraries* : libraries will highly depend on the programming tool you choose. Take care to describe it in the report.
4. *Mentorship & support* : I will be available throughout the project duration.

Recommendations:

You can use any knowledges and materials you got during your courses (all level included) at Ecole-IT or eithers to make your project.

You can cross borders and propose more features in your project, but just keep in mind to include it in the document. Any improvements not documented will not be considered.

Citations and references are highly recommended. Source code and Capture are not welcome in your documentation.

The secret of success lies in the discipline you bring to every task you perform.

GOOD LUCK !!!