# Probabilistic Forecasting in Python

**Instructors**

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**01** AUGUST 2024

**13.00 - 15.00 London Time**

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# Probabilistic Forecasting in Python

In this 2-hour interactive session, delve into probabilistic forecasting techniques using Python. We will explore how to build and implement probabilistic forecasting models, focusing on best practices and real-world applications. Participants will gain hands-on experience with relevant Python libraries including sktime and tsbootstrap, enhancing their ability to make reliable and actionable predictions under uncertainty.

## Description

This session is structured to provide a comprehensive overview of probabilistic forecasting, combining theoretical insights with practical implementation. The session will consist of two main parts: a presentation followed by a hands-on lab.

## Part 1: Presentation (1 hour)

1. **Introduction to Probabilistic Forecasting**
   - Definition and importance of probabilistic forecasting
   - Use cases and applications in various domains such as healthcare, retail, and energy

2. **Key Concepts and Techniques**
   - Understanding uncertainty and its role in forecasting
   - Overview of probabilistic models and methods

3. **Python Libraries for Probabilistic Forecasting**
   - Introduction to key Python libraries (e.g., scikit-learn, TensorFlow Probability, PyMC3)
   - How these libraries facilitate probabilistic forecasting

4. **Case Studies and Examples**
   - Real-world examples showcasing the application of probabilistic forecasting
   - Success stories and lessons learned

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## Part 2: Hands-on Lab (1 hour)

1. **Setting Up the Environment**
   - Installation and configuration of necessary Python libraries
2. **Data Preparation**
   - Loading and preprocessing datasets for forecasting
3. **Building Probabilistic Models**
   - Step-by-step guide to building a probabilistic forecasting model using Python
   - Key functions and methods in Python libraries
4. **Model Evaluation and Interpretation**
   - Evaluating model performance using appropriate metrics
   - Interpreting probabilistic forecasts and making data-driven decisions
5. **Interactive Q&A and Troubleshooting**
   - Addressing participants' questions and issues
   - Best practices for implementing probabilistic forecasting in Python

## Objective of the training

1. Introduce participants to the fundamentals and importance of probabilistic forecasting.
2. Provide practical knowledge on using Python for probabilistic forecasting.
3. Equip participants with the skills to build, evaluate, and interpret probabilistic forecasting models.

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## Prerequisites

1. Basic knowledge of Python programming.
2. Familiarity with basic statistical and machine learning concepts.

## Intended Audience

1. Data scientists and analysts looking to enhance their forecasting capabilities.
2. Python enthusiasts interested in learning about probabilistic forecasting.
3. Professionals in domains such as healthcare, retail, and energy seeking to apply advanced forecasting techniques.

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