

KRZYSZTOFA MARIA KAROLAK

Skills

- SQL (SQL Server: JOIN, VIEW, CTE, temporary tables)
- Python (Pandas, NumPy, Matplotlib, BeautifulSoup, Seaborn, Scipy)
- Tableau
- Excel (VLookup, Conditional Formatting, Pivot Tables, VBA)
- R (ggplot2, dplyr, caret)
- PowerPoint
- Microsoft Power BI

Projects

OPTION PRICING & PRICE SIMULATION – Polish Actuarial Exam Task – *Python* October 2024

- Developed a Python solution for option pricing and portfolio hedging using the Black-Scholes model, with applications in **risk management** and derivative pricing; calculated option delta for precise portfolio adjustments and demonstrated asset price simulations using Monte Carlo methods.
- Visualized simulated asset price paths and payoff distributions to support data-driven decisions, providing insights into portfolio performance over time. Used Python libraries (NumPy, pandas, Matplotlib) for **statistical modeling**, simulation, and reporting.

SEA LEVEL PREDICTOR – Data Analysis with Python – *Python* September 2024

- Analyzed global sea level data from 1880 to predict sea level rise through 2050 using **Pandas** and **Matplotlib**, creating **scatter plots** and visualizing trends.
- Applied **linear regression** with **Scipy** to calculate and plot the lines of best fit, forecasting future sea level changes based on historical data.
- Developed **predictive models** to estimate sea level rise, focusing on two trends: full dataset (1880-2050) and post-2000 data, enhancing data-driven insights for climate analysis.

MEDICAL DATA VISUALIZER – Data Analysis with Python – *Python* August 2024

- Analyzed medical data using Pandas, Seaborn, and Matplotlib to explore the relationship between cardiovascular disease, body metrics, and lifestyle factors.
- Applied **data cleaning**, feature engineering (BMI), and **normalization** to prepare the dataset for analysis and improve data consistency.
- Visualized **correlation matrices** and **categorical plots** to identify trends in blood markers, smoking, alcohol use, and physical activity linked to cardiovascular risk.

DEMOGRAPHIC DATA ANALYZER – Data Analysis with Python – *Python* July 2024

- Analyzed 1994 Census data using **Pandas** to calculate demographic statistics such as race distribution, average age, and education levels.
- Leveraged **data wrangling** and **aggregation** techniques to identify trends in salary distribution, work hours, and nationality, with a focus on high-earning individuals, applying **filtering** and **groupby** functions.
- Utilized **statistical analysis** and **data manipulation** techniques to extract actionable insights, employing Pandas, and data visualization to support decision-making.

DATA PROFESSION SURVEY – Personal Project – *Power BI* August 2023

- Cleaned data with custom delimiting and string manipulation, and applied statistical methods to compute the average salary range from provided intervals, enabling a more precise assessment of income trends among survey respondents.
- Created a clear and intuitive dashboard featuring diverse visualizations, including stacked bar and column charts, treemaps, gauges, and donut charts.

COVID-19 DATA EXPLORATION – Personal Project – *Ms SQL Server & Tableau Public* August 2023

- Employed **SQL queries** to manipulate and aggregate data, using techniques such as calculating death percentages, population infection rates, and continent-level analysis.
- Created a structured codebase, implementing Common Table Expressions (CTEs) and **temporary tables** for improved code organization and analysis efficiency, and generated a **view** for easier data visualization.
- Transformed covid-19 data from Ms SQL Server databases into visualizations in **Tableau**, such as text table, bar chart, map, and line chart, employing **forecasting** techniques to predict future infection trends.

Work Experience

ACCOUNTING INTERN – Grażyna Olczyk's Accounting Office – Ozorków, POLAND

Summer 2022

- Managed the bookkeeping processes for multiple clients, accurately recording various types of financial documents.
- Converted financial documents from one currency to another, with a strong grasp of exchange rates.

Education

DATA ANALYSIS WITH PYTHON CERTIFICATION – Free Code Camp – remote

Projects: Mean-Variance-Standard Deviation Calculator; Demographic Data Analyzer; Medical Data Visualizer; Page View Time Series Visualizer; Sea Level Predictor

MASTER OF SCIENCE IN MATHEMATICS – University of Lodz – Łódź, POLAND

Majors: Actuarial and Financial Mathematics

Classes: Accountancy, Insurance Modeling and Simulations, Theory of Insurance Risk, Credit Risk Assessment, Statistics etc.

Volunteering Experience

SUBTITLE TRANSLATOR – Rakuten Viki – remote

February 2021-present

- Contributed with over 11 000 English-Polish subtitle translations.
- Take (or took) part in over 10 English-Polish translation projects.
- Lead two English-Polish subtitle translation projects.