

Industry Projects

Project Title: Coursera Classification Project Analysis.

Company: AI Adventures.

Job Profile: Machine Learning Trainee Engineer (Intern).

Description: The project revolved around analysing the Coursera Classification Project dataset available on Kaggle. This dataset contains information about various online courses offered on the Coursera platform, including course characteristics, student demographics, and course completion rates. The objective of the project was to conduct classification analysis to predict student course completion based on various features provided in the dataset.

Responsibilities:

Utilized Python and libraries such as Pandas, NumPy, and Scikit-learn to perform data analysis and machine learning tasks on the Coursera Classification Project dataset.

Conducted data pre-processing, feature engineering, and model building using classification algorithms such as Logistic Regression, Random Forest, and Support Vector Machines (SVM).

Evaluated model performance using appropriate metrics such as accuracy, precision, recall, and F1-score.

Created visualizations to interpret model results and present key insights derived from the dataset.

Documented findings and insights on the Kaggle platform to contribute to the data science community.

Skills/Technologies:

- Python Programming.
- Data Analysis.
- Machine Learning.
- Classification Algorithms (KNN, SVM, Decision Tree, Naïve Bayes, Stacking Classifier, Logistic Regression).
- Data Visualization.
- Google Colab and Jupyter Notebooks.

Achievements:

- Implemented multiple classification algorithms achieving competitive performance metrics.
- Recognized for innovative approaches to feature engineering and model interpretation.
- Implemented stacked machine learning model to give more accuracy.

Lessons Learned:

- Enhanced proficiency in machine learning algorithms and data analysis techniques.
- Improved skills in model evaluation and performance optimization.

Project Title: KNN Implementation

Company: AI Adventures.

Job Profile: Machine Learning Trainee Engineer (Intern).

Description: Implemented K-Nearest Neighbors (KNN) algorithm from scratch on Kaggle, showcasing Python and machine learning skills. Aimed to deepen understanding of KNN principles and demonstrate proficiency in Python programming and machine learning concepts.

Responsibilities:

- Independently developed KNN algorithm in Python.
- Utilized Kaggle for data exploration and analysis.
- Designed functions for distance calculation, neighbour selection, and prediction.

Skills/Technologies:

- Python Programming.
- Machine Learning Algorithms.
- Data Analysis.
- Google Colab and Jupyter Notebooks

Achievements:

- Successfully implemented KNN without external libraries.
- Received positive feedback from peers and Kaggle community.
- Featured as a noteworthy project on Kaggle's platform.

Lessons Learned:

- Enhanced understanding of KNN and Python programming.
- Improved data analysis techniques.
- Gained experience in collaborative projects on algorithm implementation.

Project Title: Amdocs Billing Product at Amdocs**Company:** Amdocs Development Centre India LLP.**Job Profile:** Software Engineering Associate.**Duration:** January 2022 - August 2022.

Description: Led Amdocs Receivable and Collection Application, ensuring seamless performance by proactively monitoring daily operations in production. Efficiently handled incidents for quick resolutions, minimizing downtime, and managed SLAs to uphold application performance and availability standards. Assumed on-call duties during critical production runs. Monitored and analysed application job logs for optimal performance and issue identification. Conducted data reconciliation activities between Amdocs Billing Product applications. Led deployment processes, ensuring smooth transitions and conducting sanity checks. Additionally, spearheaded Root Cause Analysis (RCA) processes for critical incidents, addressing underlying issues.

Skills/Technologies Used:

- Python
- SQL
- Unix
- Shell Scripting
- Eyeshare Tool
- Oracle DB

Achievements:

- Ensured seamless performance of Amdocs Receivable and Collection Application through proactive monitoring and incident management.
- Minimized downtime by efficiently handling incidents and managing SLAs, maintaining application performance and availability standards.
- Conducted thorough data reconciliation activities and led deployment processes, ensuring smooth transitions and optimal application performance.
- Spearheaded Root Cause Analysis (RCA) processes, addressing underlying issues and improving application reliability.

Lessons Learned:

- Strengthened problem-solving skills through incident management and Root Cause Analysis processes.
- Enhanced proficiency in application monitoring, deployment, and data reconciliation activities.

- Developed effective communication and collaboration skills through on-call duties and leading deployment processes.
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Project Title: Krrish Migration Project at Amdocs

Company: Amdocs Development Centre India LLP.

Job Profile: Software Engineering Associate.

Duration: September 2021 - June 2022.

Description: Led a team of 3 members for a migration project at Amdocs, involving end-to-end processes from creating flows using Python and SQL to testing in various environments and deploying the flows. Additionally, created visualization reports of daily output data using Data Science tools (Pandas, NumPy, Seaborn, Matplotlib). Conducted thorough sanity checks and monitored logs in production post-flow deployment to ensure smooth operation. Handled responsibility for flow deployment after confirming readiness with different teams and created/updated product documentation on Confluence.

Skills/Technologies Used:

- Python.
- SQL.
- Unix.
- Shell Scripting.
- Eyeshare Tool.
- Oracle DB.
- Data Science (Pandas, NumPy, Seaborn, Matplotlib).

Achievements:

- Successfully led a team for the migration project, ensuring adherence to requirements and timelines.
- Implemented efficient data visualization reports using Python data science libraries, enhancing insights into daily output data.
- Ensured smooth operation in production post-flow deployment through thorough sanity checks and monitoring.
- Facilitated collaboration and knowledge sharing among teams through updated product documentation on Confluence.

Lessons Learned:

- Strengthened project management skills by leading a team through the migration project lifecycle.
 - Enhanced proficiency in data visualization and analysis using Python data science tools.
 - Developed effective communication and documentation skills through confluence page usage.
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Project Title: E-Learning Web App

Company: Amdocs Development Centre India LLP.

Job Profile: Software Engineering Associate.

Duration: August 2021 - August 2021.

Description: Worked on a project during onboard training program in Amdocs. Developed a web application using JSP, Servlets, Tomcat, CSS, Eclipse, and SQL (Oracle Database) technologies. The application aimed to provide various services related to e-learning. Implemented a user-friendly interface for students to register for courses. Developed a platform for both students and management to maintain and access records efficiently.

Skills/Technologies Used:

- JavaServer Pages (JSP).

- Servlets.
- Apache Tomcat.
- CSS (Cascading Style Sheets).
- Eclipse IDE.
- Oracle DB.

Achievements:

- Successfully designed and developed an e-learning web application with a user-friendly interface for student registration.
- Implemented features for efficient record management, benefiting both students and management teams.

Lessons Learned:

- Enhanced proficiency in web development technologies such as JSP, Servlets, and CSS.
 - Gained practical experience in database management using SQL with Oracle Database.
 - Improved skills in software development lifecycle, from requirements gathering to deployment and maintenance.
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Academic and Learning Project.

Project Title: Maven's Pizza Challenge Analysis

Duration: 2023.

Description: The project focused on analysing the Maven's Pizza Challenge dataset available on Kaggle. The dataset contains information about pizza orders, including order ID, date and time of order, location, order items, and customer details. The project aimed to conduct exploratory data analysis (EDA) and derive insights into customer preferences, popular pizza choices, order patterns, and delivery trends.

Skills/Technologies Used:

- Python Programming.
- Data Analysis.
- Exploratory Data Analysis (EDA).
- Data Visualization.
- Kaggle Platform

Responsibilities: Utilized Python and libraries such as Pandas, NumPy, and Matplotlib/Seaborn to perform data analysis and visualization on the Maven's Pizza Challenge dataset. Conducted exploratory data analysis to uncover trends, patterns, and correlations in the data, such as popular pizza toppings, peak order times, and customer demographics. Created visualizations, including bar charts, pie charts, and time series plots, to present key insights derived from the dataset. Documented findings and insights on the Kaggle platform to contribute to the data science community.

Project Title: Zomato Dataset Analysis and Visualization.

Duration: 2023.

Description: The project involved the analysis and visualization of the Zomato dataset, sourced from Kaggle. Zomato is a popular online food delivery and restaurant discovery platform. The dataset contains information about restaurants, their ratings, cuisines, locations, and more. The project aimed to explore the dataset using exploratory data analysis (EDA) techniques and visualize key insights to understand trends and patterns in the restaurant industry.

Skills/Technologies Used:

- Python Programming.
- Data Analysis.
- Exploratory Data Analysis (EDA).
- Data Visualization.
- Kaggle Platform.

Responsibilities: Utilized Python and libraries such as Pandas, NumPy, and Matplotlib/Seaborn to perform data analysis and visualization on the Zomato dataset. Conducted exploratory data analysis to understand the distribution of restaurant ratings, cuisines, and locations. Created visualizations, including histograms, bar charts, and heatmaps, to uncover insights and trends in the dataset. Documented findings and insights on the Kaggle platform to share with the data science community.

Project Title: Black Friday Sales Dataset Analysis and Visualization.

Duration: 2023.

Description: The project focused on the analysis and visualization of the Black Friday sales dataset, sourced from Kaggle. The dataset contains information about transactions made by customers on Black Friday, including demographic details, product categories, purchase amounts, etc. The project aimed to conduct exploratory data analysis (EDA) to gain insights into consumer behaviour, purchase patterns, and product preferences during Black Friday sales events.

Skills/Technologies Used:

- Python Programming.
- Data Analysis.
- Exploratory Data Analysis (EDA).
- Data Visualization.
- Kaggle Platform.

Responsibilities: Utilized Python and libraries such as Pandas, NumPy, and Matplotlib/Seaborn to perform data analysis and visualization on the Black Friday sales dataset. Conducted exploratory data analysis to uncover trends, patterns, and correlations in the data, such as customer demographics, popular product categories, and purchase behaviour. Created visualizations, including bar plots, histograms, and scatter plots, to present key insights derived from the dataset. Documented findings and insights on the Kaggle platform to contribute to the data science community.

Project Title: Missionaries and Cannibals Game Implementation in Python.

Duration: 2023.

Description: The project involves the implementation of the Missionaries and Cannibals game in Python. The Missionaries and Cannibals problem is a classic river-crossing puzzle where the objective is to transport missionaries and cannibals across a river while ensuring that at no point are there more cannibals than missionaries on either side of the river. The game implementation includes defining the game state, generating valid moves, and implementing a solution strategy, such as breadth-first search or depth-first search, to find the optimal sequence of moves to solve the puzzle. The implementation also includes a user interface to interactively play the game and visualize the state transitions.

Skills/Technologies Used:

- Python Programming.
- Problem-solving and algorithm design.
- Game state representation.
- Valid move generation.

Responsibilities: Utilized Python and libraries such as Pandas, NumPy, and Matplotlib/Seaborn to perform data analysis and visualization on the Zomato dataset. Conducted exploratory data analysis to understand the distribution of restaurant ratings, cuisines, and locations. Created visualizations, including histograms, bar charts, and heatmaps, to uncover insights and trends in the dataset. Documented findings and insights on the Kaggle platform to share with the data science community.

Project Title: Autonomous Vehicle Parking using Neuro-Fuzzy Control System

Duration: June 2020 – May 2021.

Description: The project aimed to address the challenges of modern vehicle parking by implementing an Autonomous Vehicle Parking system using Neuro-Fuzzy Control. With the exponential growth of population, the availability of parking space has significantly reduced, leading to traffic congestion issues. The Autonomous Vehicle Parking system eliminates human intervention in the parking process, offering an efficient solution to traffic congestion and space utilization problems. By leveraging Neuro-Fuzzy Control techniques, the system ensures safe and efficient parking operations while optimizing space utilization.

Skills/Technologies Used:

- Neuro-Fuzzy Control.
- Autonomous Systems.
- Ultrasonic Sensor.
- IR Sensor.
- Robotics.
- Sensor Integration.
- Control Systems.

Responsibilities: Led the design and development of the Autonomous Vehicle Parking system architecture. Implemented Neuro-Fuzzy Control algorithms for decision-making in parking manoeuvres. Integrated sensors and actuators for real-time environment perception and vehicle control. Conducted simulation and testing to validate the performance and safety of the parking system.

Project Title: Smart ATM Security System using PIC Microcontroller (PIC18F4520)

Duration: January 2020 - May 2020.

Description: Developed a smart ATM security system using PIC microcontroller to enhance security measures and prevent unauthorized access to ATM machines. The system is designed to detect any tampering, breaking, or attaching of external devices to the ATM machine, triggering an alarm and notifying authorities to prevent potential crimes such as theft or vandalism. By integrating advanced sensors and real-time monitoring capabilities, the system assists law enforcement agencies in maintaining public order and ensuring the safety of ATM users.

Skills/Technologies Used:

- PIC Microcontroller Programming.
- Embedded Systems.
- Sensor Integration (PIC18F452, Vibration Sensor (SW 420), GSM Module (SIM 900A), Motor Controller (L293D), Limit Switch, Buzzer).
- Alarm System Design
- Real-time Monitoring

Responsibilities: Led the design and implementation of the system architecture. Programmed the PIC microcontroller to interface with various sensors and peripherals, including motion sensors and vibration detectors. Conducted testing and debugging to ensure the reliability and effectiveness of the security system.

Project Title: 4-Node Raspberry Pi Cluster (Quad Pi)

Duration: June 2019 - August 2019.

Description: In this project, we designed a 4-node Raspberry Pi cluster comprising four Raspberry Pi boards. One Raspberry Pi serves as the 'Master Node,' while the other three function as 'Worker Nodes.' These nodes are interconnected via WiFi router. The primary functionality involves the Worker Nodes providing services to the Master Node to collectively complete tasks assigned to the cluster.

Skills/Technologies Used:

- Raspberry Pi Architecture.
- Python Programming.
- Distributed Systems.
- Wi-Fi Networking.
- Task Distribution Algorithms.

Responsibilities: Led the configuration and setup of the Raspberry Pi cluster. Implemented communication protocols for data exchange between the Master Node and Worker Nodes. Developed algorithms for task distribution and load balancing among the nodes. Conducted performance testing and optimization to ensure efficient operation of the cluster.
