**Latha Vani Derangula**

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**Career Objective:**

**Programming Languages**

* Python
* SQL

**Skillset**

* Computer Vision
* CNN
* RNN
* ANN
* Rasa Chatbot
* BERT
* LSTM
* Cross-validation
* NLP
* SVM
* Neural Networks
* Ensemble Methods
* KNN Classification
* Agglomerative Clustering
* Naïve Bayes
* A/B Testing
* Hypothesis Testing
* TensorFlow
* Tf – idf
* AWS Cloud

**Python Packages**

* SciKit Learn
* Pyspark
* SciPy
* PyTorch
* Stats model

**Project Management**

* GitHub
* JIRA
* Jupyter Notebook

**Visualization Skills**

* Matplotlib
* Seaborn
* Plotly
* Tableau
* Microsoft PowerPoint

Having 5+ years of experience in data science, machine learning and Artificial Intelligence with a strong background in statistical modelling, analytics and data visualization. Dedicated to leveraging data-driven insights to solve complex business problems and drive strategic decision-making. Seeking a challenging middle level role in a dynamic organization where I can apply my expertise in data science to uncover valuable insights and deliver actionable solutions that contribute to business growth and success.

**Experience and Responsibilities:**

**Edventure Software Private Limited: (November 22, 2021 to Till now)**

**S&P Capital IQ (India) Pvt Ltd: (January 02, 2018 to November 15, 2021)**

* Worked with large, complex dataset with ability to handle difficult, non-routine analysis problems, applying advanced analytical methods as needed. Conducted end-to-end analysis of **Data Science**, **Artificial** **Intelligence**, **Machine Learning, Natural** **Language Processing(NLP)** and **Deep Learning** projects that includes data gathering and requirements specification, **Database Management**, **Data pre-processing**, **Exploratory Data Analysis, Data Warehousing, Data Storytelling, Data Manipulation, Data Integration, Model building, Feature Engineering and Model Deployment** on-going deliverables.
* Build and prototype analysis pipelines iteratively to provide insights at scale for Regression (**Linear Regression**, **Random Forest**, **Decision Tree**), Classification (**Logistic Regression**, **Naïve Bayes**, **XG Boost**) and Clustering projects (**K-Means**, **Agglomerative**) and **Dimensionality** **Reduction**. Develop a comprehensive understanding of data structures and metrics, advocating for changes were needed for sales and operations activity.
* Demonstrated ability to work with ambiguous problem definitions, recognize dependencies and deliver impactful solutions through logical problem solving and technical ideations.
* Experience in Data Science and Machine Learning workflows using Python, **Matplotlib**, **Seaborn**, **Plotly**, **Pandas**, **Numpy**, **Flask**, **AWS Cloud**.
* Experience in preprocessing the data using **Exploratory Data Analysis** and **Statistical Methodologies** (**Descriptive** and **Inferential Statistics**), **Univariate and Bivariate Analysis**, **Outlier treatment** and **Label Encoding**.
* Executed analytical and validation advancements like **Principal Component Analysis**, **Variable Reduction Techniques**, **K-Fold Validation**, **Grid** **Search CV**, **Ada Boosting** with determined and delivered through right algorithm for suitable solutions.
* Capable of making business recommendations with effective presentations of findings at multiple levels of stakeholders through visual displays of quantitative information through Visualization Skills.

**Projects:**

**1. Title: Enhancing Retail Customer service, improving efficiency and personalization using Chatbot**

**Description:** The problem is that traditional retail customer service often lacks efficiency and personalization, leading to customer dissatisfaction and reduced sales. Customers may face long wait times, limited availability of service representatives, and difficulty finding relevant information about products and services.

**Roles and Responsibilities:**

* Responsible for Cleaning and preparing the chatbot training data, including text normalization, tokenization, and data formatting.
* Performed Feature engineering by Identifying relevant features from the training data that will help the chatbot understand and respond to customer queries effectively.
* Developed and implemented NLP models using the Python packages mentioned above, such as NLTK and SpaCy, to enable the chatbot to understand and interpret customer queries accurately.
* Evaluated and assessed the performance of the chatbot models using metrics like accuracy, precision, recall, and F1-score to ensure they meet the desired standards.

**Python Packages Used:**

* Pandas
* Numpy
* Scikit-learn
* Matplotlib
* Seaborn
* Linear Regression
* Lasso Regression
* Ridge Regression
* ElasticNet Regression
* Hyperparameter Optimization
* Model Deployment
* AWS Cloud

**2. Title: Analyzing factors affecting delivery time using Regression techniques for Optimization**

**Description:** The problem is to analyze the factors that affect delivery time and identify the key drivers using linear regression, Lasso regression, Ridge regression, and ElasticNet regression techniques. The objective is to understand the relationship between various variables and delivery time to optimize and improve the delivery process.

**Roles and Responsibilities:**

* Responsible for data preprocessing, data cleaning, handling missing values and transforming variables as necessary for the regression analysis using Pandas and Numpy.
* Performed feature selection and identified relevant variables that potentially affect delivery time based on domain knowledge and data exploration. Conducted statistical tests or correlation analysis to select the most significant features.
* Implemented regression models by using scikit-learn to implement linear regression, Lasso regression, Ridge regression, and ElasticNet regression models and set up appropriate hyper parameters for each model.
* Trained and evaluated model by splitting the data into training and testing sets. Fit each regression model on the training data and evaluate their performance on the testing data. Used metrics such as mean squared error (MSE), R-squared, and adjusted R-squared to assess model performance.
* Performed model comparison and interpretation by comparing the results of different regression models to identify the key drivers of delivery time. Analyzed the coefficients or feature importance from each model to determine the strength and direction of the relationships between variables and delivery time.

**Python Packages used:**

* NLTK (Natural Language Toolkit)
* Pandas
* Numpy
* Flask ( for building the Chatbot application)
* SpaCy
* Scikit-learn
* Keras
* CNN
* RASA
* Deep Learning
* AWS Cloud

**3. Title: Automated Document Classification in Retail using BERT**

**Description:** Document classification, also known as document categorization, is a text classification task in natural language processing (NLP) that involves assigning different classes or categories to documents based on their content. The goal is to automatically classify documents into predefined categories, enabling efficient organization, retrieval, and analysis of textual data. The documents can be of various types, such as articles, emails, customer reviews, legal documents, or any text-based information.

**Roles and Responsibilities:**

* Collaborated with data engineers to pre-process and clean the vast amount of document data, ensuring optimal performance and accuracy during classification.
* Implemented the BERT model using TensorFlow deep learning framework.
* Used BERT's bidirectional attention mechanisms to encode textual information in a contextually rich manner.
* Fine-tuned the BERT model for Classification.
* Optimizing hyperparameters and conducting experiments to improve the performance of the BERT model.
* Trobleshooted and debugged issues that arise during the development and training of the BERT model.

**Python Packages Used:**

* BERT
* NLP
* NLTK
* Spacy
* Model Deployment
* AWS Cloud

**4. Title: Developing Customer Churn models for enhanced retention strategies using supervised machine learning models**

**Description:** The problem is to develop customer churn models. The objective is to identify customers who are at risk of churning, enabling businesses to implement targeted retention strategies and reduce customer attrition.

**Roles and Responsibilities:**

* Identified relevant features that can potentially indicate customer churn. Performed feature engineering techniques such as creating new variables, scaling features, and handling outliers.
* Chose appropriate machine learning algorithms for customer churn prediction, such as decision tree, random forest and Xgboost.
* Trained and evaluated by splitting the data into training and testing sets. Fit the selected model on the training data and evaluate its performance on the testing data using metrics such as accuracy, precision, recall, and F1-score.
* Fine-tuned the hyper parameters of the chosen model to optimize its performance using techniques like grid search and random search.
* Interpreted and analyzed the trained model to understand the importance of different features in predicting customer churn.
* Deployed the model in AWS Cloud.

**Python Packages Used:**

* Pandas
* Numpy
* Scikit-learn
* Matplotlib
* Seaborn
* Xgboost
* Decision Tree
* Random Forest
* Hyperparameter Optimization
* Model Deployment
* AWS Cloud

**Python Packages used:**

* OpenCV
* NumPy
* Matplotlib
* Keras
* YOLOv5
* Convolutional Neural Networks (CNN)
* Recurrent Neural Networks (RNN)
* Generative Adversarial Networks (GAN)
* Transfer Learning
* Reinforcement Learning
* CUDA
* Model Deployment
* AWS Cloud

**5. Title: Efficient Object Detection for Automated Shelf Monitoring in Retail using YOLOv5**

**Description:** The problem is to develop an object detection model using YOLOv5 that can monitor store shelves and accurately identify and classify products. The objective is to assist retailers in tracking inventory levels, detecting out-of-stock items, and ensuring proper product placement on store shelves.

**Roles and Responsibilities:**

* Preprocessed the dataset by resizing images, converting to a compatible format, and annotating the images with bounding boxes around the products. Used tools like LabelImg or RectLabel to annotate the dataset.
* Implemented the YOLOv5 architecture and trained the object detection model using the annotated dataset. Fine-tuned the model on the specific store shelves' characteristics and optimize the model's performance using techniques like data augmentation and transfer learning.
* Evaluated the trained model's performance using metrics such as mean average precision (mAP) and intersection over union (IoU). Measured its accuracy in detecting and classifying products on a separate validation set.
* Deployed and integrated the trained model into a system that can process real-time images or video feeds from store shelves. This can be achieved by using OpenCV to capture and process frames, and then applying the object detection model to identify and classify products.
* Tested the deployed model on real-world store shelves and validated its performance in accurately detecting and classifying products. Collected feedback from users and stakeholders to improve the model's accuracy and address any potential issues.

**Education:**

* Master of Business Administration from Jawaharlal Nehru Technological University, Anantapur, 2017 with 80%.
* Bachelor of Commerce (Computer Applications) from Sri Krishnadevaraya University, 2015 with 72%.

**Declaration:** I hereby declare that all the details mentioned above are correct to the best of my understanding.

Place: Bangalore Latha Vani Derangula

Date: