SINCE 2067

ACADEMIC LIVE PROJECTS 2025-26

takeoff edu GROUP

COMPUTER SCIENCE

- Python
- Android
- PHP
- Java & more

+91 9030 333 433, +91 8776 681 444

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S. No.	Project id	Titles	Domain
1.	TCMAPY1283	**Advancing Fake News Detection: Hybrid Deep Learning With FastText and Explainable AI** The project aims to create a fake news detection system using XLNet, FastText, and CNNs for accuracy, combined with Explainable AI techniques like SHAP to ensure transparency and reliability in misinformation identification.	DL
2.	TCMAPY1613	**EffNet SVM A Hybrid Model for Diabetic Retinopathy Classification Using Retinal Fundus Images.** The objective of this study is to develop an efficient and accurate computer aided diagnosis system for diabetic retinopathy using a hybrid model, EffNet SVM. By combining EfficientNetV2 Small for feature extraction with an SVM classifier, the model aims to enhance diagnostic accuracy and reduce manual intervention, enabling reliable and automated analysis of retinal fundus images.	DL
3.	TCMAPY1602	**Machine Learning Based Approaches and Comparisons for Estimating Missing Meteorological Data and Determining the Optimum Data Set in Nuclear Energy Applications** The primary objective of this project is to develop and compare machine learning based models for accurately estimating missing meteorological parameters, specifically Snowpack Depth, which is crucial for nuclear energy applications. The study aims to identify the most effective predictive model among Linear Regression, Random Forest, and XGBoost Regressor, and apply Explainable AI (XAI) techniques to enhance interpretability and optimize the input feature set.	ML
4.	TCMAPY1604	**An Explainable Deep Learning Network With Transformer and Custom CNN for Bean Leaf Disease Classification** The objective of this study is to develop an efficient and accurate deep learning based system for the classification of bean leaf diseases to support smart	DL

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Email: info@takeoffprojects.com
Phone: +91 9030333433, +91 877668144

		agriculture practices. Recognizing the limitations of traditional manual inspection methods—which are labor intensive, costly, and unsuitable for large scale deployment—this work aims to harness the potential of advanced computer vision techniques to automate disease detection. By leveraging state of the art Convolutional Neural Network (CNN) architectures, specifically DenseNet and MobileNet, the system is designed to accurately classify three key categories of bean plant health: healthy, angular leaf spot, and bean rust. These models are selected for their proven ability to extract intricate features while maintaining computational efficiency, making them ideal for real time field applications.	
5.	**TCMAPY1615**	**Advanced Fraud Detection Leveraging KSMOTEENN and Stacking Ensemble to Tackle Data Imbalance and Extract Insights** Develop an AI powered fraud detection system using CNN and LSTM models to accurately classify financial transactions, handle data imbalance, and provide explainable predictions through LIME for transparent decision making	**ML**
6.	**TCMAPY1600**	**Weapon detection with audio alert using efficientdet** The primary objective of this project is to develop an automated, real time weapon detection system that identifies the presence of weapons and triggers an audio alert to warn authorities or nearby personnel. The project uses the EfficientDet deep learning model trained on a custom dataset containing images of various weapons and people	**DL**
7.	**TCMAPY1617**	**Improving Sleep Disorder Diagnosis Through Optimized Machine Learning Approaches** Develop and compare machine learning models to accurately classify Sleep Apnea, Insomnia, and Healthy individuals, and deploy them in a Flask web application for accessible, efficient sleep disorder diagnosis.	**ML**
8.	**TCMAPY1601**	**COCO object detection** The primary objective of this project is to design and implement a real time object detection system that is	**DL**

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Email: info@takeoffprojects.com
Phone: +91 9030333433, +91 877668144

		accurate, fast, and user friendly. By leveraging the latest advancements in deep learning, specifically the YOLOv8 and YOLOv9 models, the system aims to deliver high performance in diverse scenarios such as video surveillance, smart traffic management, and public safety applications	
9.	**TCMAPY1618**	**Machine Learning in Hospitality Interpretable Forecasting of Booking Cancellations** The primary objective of this project is to develop a machine learning model to predict hotel booking cancellations using historical data.	**ML**
10.	**TCMAPY1607**	**Developing a Transparent Anaemia Prediction Model Empowered With Explainable Artificial Intelligence** The objective of this project is to develop an accurate and interpretable machine learning model for anemia prediction using medical and demographic data. By integrating explainable AI techniques such as LIME, SHAP, and PDP, the model aims to support clinical decision making with transparent insights into feature importance and prediction logic for reliable healthcare outcomes.	**DL**
11.	**TCMAPY1616**	**Addressing Adversarial Attacks in IoT Using Deep Learning AI Models** To develop and evaluate four classification models—CNN, GRU, Random Forest, and Stacking Classifier—for detecting 11 types of adversarial attacks in IoT networks..	**ML**
12.	**TCMAPY1595**	**Enhancing Defect Classification in Solar Panels with Electroluminescence Imaging and Advanced Machine Learning Strategies** The objective of this project is to design and implement an automated system for detecting and classifying defects in solar panels using Electroluminescence (EL) imaging combined with advanced deep learning algorithms. The project aims to leverage the capabilities of YOLOv8 and YOLOv9 object detection models to accurately identify common faults such as microcracks, broken finger lines, and inactive regions in solar cells.	**ML**
13.	**TCMAPY1597**	**Predicting the Classification of Heart Failure Patients Using Optimized Machine Learning Algorithms**	**ML**

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Email: info@takeoffprojects.com
Phone: +91 9030333433, +91 877668144

		The primary objective of this project is to develop an accurate and efficient machine learning based system for predicting the classification of heart failure patients based on their risk of mortality. The system aims to analyze critical clinical parameters to identify high risk individuals, enabling early diagnosis and timely medical intervention. Specifically, the project utilizes two predictive models: a Decision Tree Classifier for baseline comparison and a Long Short Term Memory (LSTM) neural network optimized using Particle Swarm Optimization (PSO) to enhance prediction performance.	
14.	**TCMAPY1599**	**Intrusion Detection and Prevention System IDPS Model for IIoT Environments Using Hybridized Framework** The objective of this study is to design and implement a highly accurate and scalable Intrusion Detection and Prevention System (IDPS) tailored for Industrial Internet of Things (IIoT) environments. By utilizing a hybrid machine learning approach that integrates XGBoost with a Stacking Classifier framework, the proposed system aims to enhance intrusion detection accuracy, minimize response time, and address the limitations of existing deep learning models such as CNNs, which often suffer from overfitting and poor generalization. Validated using the NSL KDD dataset, this model demonstrates superior performance in detecting diverse attack patterns with high precision, recall, and F1 score. The ultimate goal is to provide a real time, reliable security mechanism capable of protecting critical IIoT infrastructures from evolving cyber threats while ensuring operational continuity.	**ML**
15.	**TCMAPY1620**	**A Novel Image Segmentation Technique for Improving Plant Disease Classification With Deep Learning Models** Develop a deep learning based system to segment leaf regions in images for plant disease detection using UNet++, DeepLabV3, and Swin Transformer, deployed via a Flask web application.	**DL**
16.	**TCMAPY1580**	**Aerial Image Classification in Post Flood Scenarios Using Robust Deep Learning and Explainable Artificial Intelligence** The certain objectives this study intends to achieve by developing a robust deep learning system in post flood	**ML**

Email: info@takeoffprojects.com
Website: www.takeoffprojects.com
Phone: +91 9030333433, +91 877668144

		aerial image classification using MobileNet and DenseNet architectures are Classes: building, flooded, forest, mountains, sea, and street in aerial images. The study also aspires for the integrated use of Explainable Artificial Intelligence (XAI) techniques because Grad CAM provides visual explanations for model output predictions so that model transparency and trust could be achieved. This, with plenty of hope, will come in handy when it comes to effective assessment by disaster management professionals during and after flooding.	
17.	**TCMAPY1603**	**Transfer Learning Based Ensemble Approach for Rainfall Class Amount Prediction** The objective of this project is to accurately predict the occurrence of rainfall using meteorological data by leveraging a hybrid ensemble model. It aims to enhance forecasting reliability through a Voting Classifier combining Random Forest and MLP.	**ML**
18.	**TCMAPY1638**	**Heart Sync Ensemble for Heart Disease Prediction Using Ensemble Learning with SMOTE** The primary objective of this research is to develop HeartSync Ensemble, a predictive framework that accurately identifies the risk of heart disease using a blend of machine learning and deep learning techniques,to address class imbalance in heart disease datasets using the Synthetic Minority Oversampling Technique (SMOTE), thereby enhancing model fairness and recall.	**ML**
19.	**TCMAPY1639**	**Capsule Endoscopy Classification using Inceptionv3** Develop an AI powered Django web application utilizing a custom InceptionV3 model to classify Wireless Capsule Endoscopy (WCE) images into Normal, Ulcer, and AVM, enhancing diagnostic accuracy, reducing clinician workload, and supporting underrepresented medical datasets.	**DL**
20.	**TCMAPY1619**	**MPD A Meteorological and Pollution Dataset A Comprehensive Study of Machine and Deep Learning Methods for Air Pollution Forecasting** To build a predictive model that classifies the air quality of Indian cities into three categories: Good, Moderate, and Poor based on pollutant concentration levels, using various supervised machine learning algorithms.	**ML**

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Email: info@takeoffprojects.com
Phone: +91 9030333433, +91 877668144

21.	**TCMAPY1612**	**Enhancing Medicare Fraud Detection Through Machine Learning Addressing Class Imbalance With SmoteEnn** The objective of this project is to improve the efficiency and accuracy of detecting Medicare fraud by leveraging SMOTE ENN to balance datasets and employing advanced machine learning algorithms for robust fraud identification.	**ML**
22.	**TCMAPY1582**	**Statistical Insights Into Machine Learning Models for Predicting Under Five Mortality** The objective of this project is to predict under five mortality using machine learning models by applying feature selection, data balancing, and ensemble methods. It aims to identify key risk factors, enhance predictive accuracy, and provide insights to guide public health policies targeting child mortality reduction across different regions.	**ML**
23.	**TCMAPY1562**	**Multiple disease of Kidney Heart** The primary objective of this project is to design and implement a multiple disease detection framework that can accurately identify both kidney and heart diseases using machine learning and deep learning models.	**ML**
24.	**TCMAPY1411**	**Detecting Human Life During Fire** Develop a real time detection system using YOLOv8 and YOLOv9 for human, fire, and smoke identification in emergency situations.	**DL**
25.	**TCMAPY1552**	**A Novel Weighted Loss TabTransformer Integrating Explainable AI for Imbalanced Credit Risk Datasets** collectively analyze critical financial attributes such as credit history, loan amount, employment status, and savings. However, for simplicity and faster response time, the Random Forest model is deployed at the frontend to provide real time credit risk predictions, categorizing users into 'Low Credit Risk' or 'High Credit Risk'.	**AI**
26.	**TCMAPY1550**	**Enhanced Diabetic Retinopathy Detection: An Explainable Semi Supervised Approach Using Contrastive Learning** This project proposes a hybrid deep learning model combining DenseNet , MobileNet feature extraction,	**AI**

Email: info@takeoffprojects.com
Website: www.takeoffprojects.com
Phone: +91 9030333433, +91 877668144

		and Graph Convolutional Networks (GCN) for early Diabetic Retinopathy (DR) detection. Trained on the Kaggle APTOS dataset, the system uses a Flask web interface for real time retina image classification across five DR stages, improving diagnostic accuracy and explainability	
27.	**TCMAPY1654**	**Enhancing Phishing Detection: A Machine Learning Approach With Feature Selection and Deep Learning Models** Phishing attacks have evolved as a major cybersecurity threat, exploiting user trust and compromising sensitive information. This study proposes an advanced phishing detection framework combining feature selection techniques with machine learning and deep learning models. Using a labeled dataset with the status field indicating legitimate or phishing websites, we evaluate and compare the performance of various models including Graph Convolutional Network (GCN), TabTransformer, Autoencoder, Feedforward Neural Network (FNN), and Deep Neural Network (DNN).	**DL**
28.	**TCMAPY1551**	**Improving Cardiovascular Disease Prediction With Deep Learning and Correlation Aware SMOTE** project introduces a comprehensive cardiovascular disease prediction system developed using a Flask based web application seamlessly integrated with multiple machine learning models. The platform enables users to conveniently register, login, and input essential health related features, including gender, height, weight, blood pressure, cholesterol levels, glucose levels, smoking habits, and physical activity status. After processing the inputs, the system predicts the risk of cardiovascular disease, offering users an accessible early warning tool.	**DL**
29.	**TCMAPY1619**	**MPD: A Meteorological and Pollution Dataset: A Comprehensive Study of Machine and Deep Learning Methods for Air Pollution Forecasting** Sleep disorders, including Sleep Apnea and Insomnia, significantly affect individuals' health and quality of life, necessitating accurate and accessible diagnostic methods. Traditional diagnostic tools, such as Polysomnography (PSG), are expensive, time consuming, and limited in accessibility, often leading to delayed or missed diagnoses. This project aims to address these limitations by leveraging machine	**ML**

Email: info@takeoffprojects.com
Website: www.takeoffprojects.com
Phone: +91 9030333433, +91 877668144

		learning algorithms for the classification of sleep disorders using the Sleep Health and Lifestyle Dataset	
30.	**TCMAPY1641**	**Artificial Flora Algorithm Based Feature Selection With Support Vector Machine for Cardiovascular Disease Classification** The primary objective of this project is to design and implement a robust machine learning based classification system for cardiovascular disease (CVD) detection and severity assessment using an optimized feature selection mechanism. Specifically, the project aims to integrate the Artificial Flora Algorithm (AFA) for selecting the most relevant features from medical and behavioral data inputs, which include age, gender, chest pain type, fasting blood sugar, heart rate, and slope of the ST segment. These features will be used to predict not just the presence of heart disease, but also its severity level—categorized into normal, mild, moderate, and severe.	**ML**
31.	**TCMAPY1642**	**An Explainable Artificial Intelligence Model for the Classification of Breast Cancer** The primary objective of this project is to develop an Explainable Artificial Intelligence (XAI) model for the classification of breast cancer using a combination of machine learning and deep learning algorithms. Specifically, the project aims to: (1) implement CatBoost, LSTM, MLP, and CNN models to analyze breast cancer datasets; (2) compare the performance of these models in terms of classification accuracy and computational efficiency; and (3) integrate explainability tools such as SHAP or LIME to visualize and interpret the decision making process of each model. The ultimate goal is to assist medical professionals in understanding model outputs, identifying the most important tumor related features, and making informed clinical decisions based on reliable AI support.	**ML**
32.	**TCMAPY1643**	**Ad Click Fraud Detection Using Machine Learning and Deep Learning Algorithms** This project focuses on detecting fraudulent ad clicks in mobile advertising, a growing concern causing major financial losses. Using a dataset with features like IP address, app ID, device type, and timestamps, the system predicts whether a click results in an actual app download. A wide range of machine learning models—	**ML**

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Website: www.takeoffprojects.com
Phone: +91 9030333433, +91 877668144

		such as Logistic Regression, Random Forest, SVM, XGBoost, and LightGBM—alongside deep learning models including ANN, CNN, LSTM, and GRU were implemented. A Stacking Classifier further improves performance by combining multiple models. The system is deployed via a Flask web application, enabling users to input click data and receive real time fraud predictions.	
33.	**TCMAPY1613**	**EffNet SVM: A Hybrid Model for Diabetic Retinopathy Classification Using Retinal Fundus Images** Diabetic Retinopathy (DR) is a progressive eye disease caused by diabetes, and early detection is critical to prevent vision loss. This project, titled *"Efficient SVM: A Hybrid Model for Diabetic Retinopathy Classification Using Retinal Fundus Images"*, presents a hybrid deep learning and machine learning framework for the accurate classification of DR stages. Leveraging pre trained MobileNet for efficient feature extraction and Support Vector Machine (SVM) for robust classification, the system aims to balance computational efficiency with high predictive performance.	**DL**
34.	**TCMAPY1650**	**Migration of Deep Learning Models Across Ultrasound Scanners** The primary objective of this project is to evaluate and enhance the migration performance of deep learning models across heterogeneous ultrasound scanners for the task of breast ultrasound image classification	**DL**
35.	**TCMAPY1651**	**Scalable Hybrid Deep Models for Individual Pharmacy Cost Prediction** The main objective of this research is to develop a scalable and interpretable framework for individual pharmacy cost prediction using hybrid deep learning models.	**ML**
36.	**TCMAPY1652**	Using Deep Learning Transformers for Detection of Hedonic Emotional States by Analyzing Eudaimonic Behavior of Online Users1 This study aims to develop a deep learning based framework utilizing transformer models, including LSTM, Bi LSTM, GPT2 LSTM, BERT, and XLNet, integrated with Explainable AI (XAI) techniques, to detect hedonic emotional states by analyzing eudaimonic behaviors of online users.	**ML**

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Website: www.takeoffprojects.com
Phone: +91 9030333433, +91 877668144

37.	**TCMAPY1654**	**Enhancing Phishing Detection A Machine Learning Approach with Feature Selection and Deep Learning Models** The primary objective of this project is to design and implement a robust phishing detection framework that uses advanced machine learning and deep learning models to distinguish between legitimate and phishing websites. The key goals are preprocess and clean the dataset containing labeled website features and apply feature selection techniques for reducing dimensionality and improving model performance.develop and compare the effectiveness of various models, including GCN, TabTransformer, Autoencoder, FNN, and DNN	**DL**
38.	**TCMAPY1649**	**A Machine Learning Based Framework for a Stage Wise Classification of Date Palm White Scale Disease** The main objective of this project is to design and implement an integrated machine learning framework that can:Automatically classify date palm leaf images into healthy, brown spots, or white scale stages.	**ML**
39.	**TCMAPY1648**	**An Effective Temporal Convolutional Networks Based Method For Detecting Android Malware Using Dynamic Extracted Features** The primary objective of this project is to design and develop an advanced Android malware detection framework that utilizes dynamic behavioral features and leverages the power of Temporal Convolutional Networks (TCNs) along with ensemble learning techniques.	**ML**
40.	**TCMAPY1669**	**Multi Stage Neural Network Based Ensemble Learning Approach for Wheat Leaf Disease Classification** This project aims to build and evaluate deep learning based models for automated classification of wheat plant diseases using a publicly available Kaggle dataset. Various architectures are compared to identify the most accurate model, enabling early disease detection and supporting farmers with timely diagnosis and intervention in precision agriculture.	**DL**
41.	**TCMAPY1656**	**Real Time Detection Of Forest Fires Using Fire Net CNN And Explainable AI Techniques**	**DL**

Website: www.takeoffprojects.com
Email: info@takeoffprojects.com
Phone: +91 9030333433, +91 877668144

		The primary objective of this project is to develop a real time forest fire detection system using deep learning based image classification techniques. The system aims to accurately classify forest images into two categories: Fire and No Fire, enabling early detection and rapid response to wildfire incidents.	
42.	**TCMAPY1655**	**Multi Pathway 3D CNN Wit Conditional Random Field for Automated Segmentation of Multiple Sclerosis Lesions in MRI** The primary objective of this project is to develop an automated, accurate, and accessible deep learning based framework for segmenting Multiple Sclerosis (MS) lesions in brain MRI scans. The system aims Design and implement a Multi Pathway 3D CNN that captures both fine grained and contextual information from volumetric MRI data.	**DL**
43.	**TCMAPY1647**	**A Multimodal Deep Learning Model Integrating Cnn And Transformer For Predicting Chemotherapy Induced Cardiotoxicity** The main objective of this project is to design and implement a multimodal deep learning framework that can accurately predict chemotherapy induced cardiotoxicity by analyzing Temporal Dynamic Imaging data. Specifically, the project aims to extract spatial features using Convolutional Neural Networks (CNN), model sequential dependencies using LSTM, GRU, and Transformer based architectures, and evaluate the classification performance of various model combinations, including CNN + LSTM, CNN + GRU, and CNN + Transformer. The objective also includes identifying the best performing architecture based on accuracy, F1 score, and other relevant metrics, with the intent to support clinical decision making and early intervention strategies.	**ML**
44.	**TCMAPY1644**	**Integration of Deep Learning Architectures With GRU for Automated Leukemia Detection in Peripheral Blood Smear Images** This project presents a web based system for automated leukemia detection and classification from peripheral blood smear images using deep learning. It identifies four stages—Benign, Early, Pre leukemic, and Pro leukemic—using models like Xception BiGRU, EfficientNetB3 BiGRU, EfficientNetB3 ViT, and	**DL**

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Website: www.takeoffprojects.com
Phone: +91 9030333433, +91 877668144

		MobileNetV3 LSTM. These models combine spatial and sequential feature extraction for high diagnostic accuracy. A Flask based backend handles image processing and prediction, while the HTML frontend enables secure login, image upload, and result display. Trained on a Kaggle dataset, the system provides fast, reliable leukemia classification and aims to assist early diagnosis, reducing dependence on time consuming manual analysis in clinical environments.	
45.	**TCMAPY1645**	**False Data Injection Detection in Power System Based on LASSO and Ensemble Machine learning** The rise of smart grids in power systems introduces vulnerabilities such as False Data Injection Attacks (FDIAs), threatening real time data integrity. This project proposes a detection framework using LASSO for feature selection and a combination of models including Decision Tree, Random Forest, AdaBoost, CNN LSTM, and Graph Neural Networks. To enhance interpretability, LIME is integrated for model explanation. A Flask based web application enables user registration, data upload, prediction, and visualization. Evaluated on a Kaggle FDIA dataset, the system achieves high accuracy and low false alarm rates, offering a practical and intelligent solution for enhancing cybersecurity in modern power grid infrastructures.	**ML**
46.	**TCMAPY1646**	**WEARABLE DESIGN FOR INFECTIOUS DISEASE DETECTION THROUGH MACHINE LEARNING** The primary objective of this project is to design and implement a machine learning based detection system that can analyze wearable health data and accurately predict the presence of infectious diseases such as COVID 19.	**ML**
47.	TCMAPY1680	Nutrient deficiency detection and classification in Coffee plants The primary objective of this study is to develop and evaluate deep learning models for the accurate detection and classification of nutrient deficiencies in coffee leaves using convolutional neural networks (CNNs).	**DL**
48.	TCMAPY1681	Artificial Intelligence in agriculture	**DL**

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Email: info@takeoffprojects.com
Phone: +91 9030333433, +91 877668144

		The primary objective of this study is to develop and implement AI driven solutions to enhance agricultural productivity, sustainability, and efficiency through advanced deep learning models like InceptionV3, ResNet50V2, EfficientNetB0, and MobileNet.	
49.	TCMAPY1698	**Deep learningbased automated detection system for diagnosing glaucoma disease** Model Development and Comparison: Design, implementation, and evaluation of several DL architectures CNN, MobileNet, ViT, ResNet, DenseNet for glaucoma binary classification. Improving Interpretability: Using Grad CAM an XAI method to create heat maps to highlight areas of interest that influence model prediction, thereby allowing greater confidence and usability in clinics.	**DL**
50.	TCMAPY1699	**Speech Emotion Recognition** To develop a robust end to end deep learning framework for Speech Emotion Recognition using raw audio inputs, leveraging R CNN, Conformer Transformer, LSTM, and RNN to enhance emotion detection accuracy and generalization.	**DL**
51.	TCMAPY1700	**Two Stage Job Title Identification System for Online Job Advertisements** To develop an intelligent system that accurately classifies job titles and recommends contextually relevant roles using machine learning, deep learning, and semantic similarity techniques on job description data.	**DL**
52.	TCMAPY1701	**A Novel Method for News Recommendation on Websites Using the Clustered Vectors Optimization Algorithm** The objective of this project is to develop an effective news recommendation system for websites that enhances personalization and scalability by combining content based and collaborative filtering techniques. It aims to address challenges such as the cold start problem and recommendation diversity by leveraging advanced text embeddings (TF IDF and BERT) and clustering algorithms. By grouping users and news articles based on interaction vectors, the system optimizes recommendations within similar clusters, reducing noise and improving relevance. The project uses the large scale MIND dataset to validate the	**DL**

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Email: info@takeoffprojects.com
Phone: +91 9030333433, +91 877668144

		approach, ultimately providing users with timely, accurate, and diverse news tailored to their interests.	
53.	TCMAPY1702	**A Survey of Deep Learning Approaches for Pedestrian Detection in Autonomous Systems** To enhance pedestrian detection for autonomous systems by analyzing YOLOv8, developing improved YOLOv9–YOLOv12 models with advanced features, and evaluating their performance on benchmark datasets for increased accuracy and safety.	**DL**
54.	TCMAPY1703	**Shape Penalized Decision Forests for Imbalanced Data Classification** The primary objective of this project is to develop a robust and interpretable ensemble learning framework, called Shape Penalized Decision Forests (SPDF), specifically designed for imbalanced tabular datasets. By integrating Surface to Volume Ratio Trees as base classifiers and penalizing irregular decision boundaries, SPDF aims to improve minority class detection without resorting to data resampling. The project seeks to enhance classification performance on highly imbalanced real world data, such as credit card fraud detection, while maintaining dataset integrity and reducing overfitting risks common in deep learning models. Ultimately, it strives to provide smoother, more generalizable decision boundaries and reliable predictions for critical minority classes.	**DL**
55.	TCMAPY1704	**PDF Knowledge Extraction System with RAG and CAG Models** To develop a robust PDF Knowledge Extraction System using RAG and CAG models with dual embedding pipelines and ChromaDB, enabling efficient, intelligent querying and rapid response generation for diverse documents.	**DL**
56.	TCMAPY1721	**Comparative Analysis of Pixel Based Segmentation Models for Accurate Detection of Impacted Teeth on Panoramic Radiographs** The primary objective of this project is to develop an accurate and efficient deep learning based system for adult tooth segmentation using medical images. By leveraging multiple cutting edge models such as U Net, Unet2, Unet++, DeepLabv3+, and SwinUNet, the project aims to identify and isolate tooth structures from complex oral imagery. The goal is to enhance the	**DL**

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Email: info@takeoffprojects.com
Phone: +91 9030333433, +91 877668144

		quality of dental diagnostics, enabling precise treatment planning, automated monitoring, and reduced manual workload for dental professionals. The implementation also seeks to compare the performance of CNN based architectures against transformer based models in the context of medical image segmentation. Evaluation metrics like Intersection over Union (IoU) and Dice coefficient are used to assess the models' accuracy. Ultimately, the objective is to propose a robust deep learning pipeline that can be adopted in dental applications, offering both high precision and computational efficiency.	
57.	TCMAPY1725	**Early Breast Cancer Prediction Using Thermal Images and Hybrid Feature Extraction-Based System** The primary objective of this project is to develop an intelligent, non-invasive, and cost-effective system for early prediction of breast cancer using thermal infrared images. By leveraging the unique physiological patterns captured through thermal imaging, the system aims to identify early signs of malignancy without exposing patients to harmful radiation. The project focuses on implementing a hybrid feature extraction approach that combines handcrafted and deep learning features to enhance diagnostic precision. Machine learning classifiers are employed to analyze these features and accurately differentiate between normal and abnormal thermal patterns, ultimately assisting clinicians in early diagnosis and improving patient outcomes.	**DL**
58.	TCMAPY1736	**Paraphrase Identification** This project investigates deep learning models such as CNNs, RNNs, BERT, and RoBERTa for classifying sentence pairs as paraphrases or non-paraphrases. The frontend will be developed using standard web technologies, including HTML, CSS, and JavaScript.	**DL**
59.	**TCMAPY1673**	**Kidney Tumor Detection in CT scans Combining 3D CNN and Transformer Networks** The primary objective of this project is to develop a robust and efficient hybrid deep learning model for accurate detection and classification of kidney tumors in CT scan volumes. By integrating 3D Convolutional Neural Networks (CNNs) with transformer based attention mechanisms, the system aims to capture both	**DL**

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Email: info@takeoffprojects.com
Phone: +91 9030333433, +91 877668144

		fine grained spatial features and long range inter slice dependencies across multi slice CT inputs.	
60.	**TCMAPY1674**	**Heart Disease Detection using Audio Dataset** The primary objective of this project is to develop an efficient and accurate model for heart disease detection using audio based heart sound recordings. By leveraging deep learning algorithms such as Convolutional Neural Networks (CNN) and Recurrent Convolutional Neural Networks (RCNN), the project aims to classify heart sounds into "Healthy" and "Unhealthy" categories.	**DL**
61.	**TCMAPY1681**	**Artificial Intelligence in agriculture** The primary objective of this study is to develop and implement AI driven solutions to enhance agricultural productivity, sustainability, and efficiency through advanced deep learning models like InceptionV3, ResNet50V2, EfficientNetB0, and MobileNet.	**AI**
62.	**TCMAPY1680**	**Nutrient deficiency detection and classification in Coffee plants** The primary objective of this study is to develop and evaluate deep learning models for the accurate detection and classification of nutrient deficiencies in coffee leaves using convolutional neural networks (CNNs).	**DL**
63.	**TCMAPY1679**	**A Solar Panel Fault Detection Deep Learning Model** The primary objective of this study is to develop a deep learning based model for accurate and automated fault detection in solar panels, capable of classifying six distinct conditions: Bird drop, Clean, Dusty, Electrical damage, Physical Damage, and Snow Covered.	**DL**
64.	**TCMAPY1675**	**An Explainable AI and Optimized Multi Branch Convolutional Neural Network Model for Eye Anemia Diagnosis** This project introduces a deep learning based system for non invasive anemia detection using eye images. The "Eyes Defy Anemia" dataset from Kaggle was enhanced with data augmentation techniques to improve model performance. CNN architectures like VGG19, MobileNet, and InceptionNet were explored, along with a MobileNet+SVM hybrid for better classification. The best models were deployed via a Flask web app, allowing users to upload images and	**DL**

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Website: www.takeoffprojects.com
Phone: +91 9030333433, +91 877668144

		receive instant diagnoses, offering a practical tool for remote and accessible healthcare.	
65.	TCMAPY1676	**Dense ShuffleGCANet An Attention Driven Deep Learning Approach for Diabetic Foot Ulcer Classification Using Refined Spatio Dimensional Features** This project introduces Dense ShuffleGCANet, a deep learning framework for classifying Diabetic Foot Ulcers (DFU) using advanced attention mechanisms. Models like DenseNet 169, ShuffleNet, and DenseNet variants with CCDGS and Triplet Attention achieved over 95% accuracy on the Kaggle DFU dataset. A Flask based web app allows users to upload foot images for real time DFU classification. This system offers an accurate, scalable, and accessible solution for remote DFU screening and early intervention in diabetic care.	**DL**
66.	**TCMAPY1679**	**A Solar Panel Fault Detection Deep Learning Model DL** This study aims to develop a deep learning model for automated solar panel fault detection across six conditions, comparing architectures like CNN and MobileNetV3 to achieve high accuracy, reduce manual inspections, and support scalable, real time photovoltaic system monitoring.	**DL**
67.	**TCMAPY1711**	**A Blockchain-Powered Loan Management System Enhanced with Smart Contract** The project aims to develop a decentralized loan platform using blockchain, where loan applications, approval, contract creation, and repayments are securely managed through smart contracts. The objective is to provide transparency, auditability, and automation, removing the need for intermediaries and reducing delays and fraud. It ensures that all actions (loan request, approval, repayment) are permanently recorded on the blockchain, enabling all stakeholders to trust the process.	**BLOCKCHAIN**

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68.	**TCMAPY1713**	**Educational Qualifications Management and Verification to Counter Forgery** The main objective of this project is to develop a digital certificate management and verification system that connects students, principals, and employers. The platform will allow principals to upload and manage student certificates, students to view and control their credentials, and companies to send verification requests. It aims to reduce forgery, speed up the hiring process, and ensure that only verified qualifications are used for employment or higher education. By enabling secure interactions and tamper-proof records, the system builds trust across stakeholders and simplifies the overall verification process	BLOCKCHAIN
69.	**TCMAPY1734**	**Trust crowdfunding using blockchain** The primary objective of this project is to develop a decentralized crowdfunding platform using Blockchain technology that ensures transparency, security, and traceability of funds. The system aims to eliminate the limitations of traditional centralized crowdfunding systems, such as data tampering, fund misuse, and lack of visibility for fundraisers. By leveraging the immutable and distributed nature of Blockchain, the project ensures that every transaction is permanently recorded across multiple nodes and cannot be altered by unauthorized parties.	BLOCKCHAIN
70.	**TCMAPY1711**	**A Blockchain Powered Loan Management System Enhanced with Smart Contract** The project aims to develop a **decentralized loan platform** using blockchain, where loan applications, approval, contract creation, and repayments are securely managed through smart contracts. The objective is to provide **transparency, auditability, and automation**, removing the need for intermediaries and reducing delays and fraud. It ensures that all actions (loan request, approval, repayment) are **permanently recorded on the blockchain**, enabling all stakeholders to trust the process.	BLOCKCHAIN
71.	**TCMAPY1705**	**EVSEB Efficient and Verifiable Searchable Encryption with Boolean Search for Encrypted Cloud Logs** The objective of this project is to develop a secure, reliable, and user-friendly User-Admin File Management System. It aims to provide features such	CLOUD COMPUTING

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		as user registration, login, file upload, download, sharing, request handling, and profile management. The system will allow administrators to manage users, authenticate requests, and oversee file activities through secure role-based access. It ensures transparency and security in file management processes. By reducing manual efforts, improving communication between users and administrators, and maintaining detailed logs of activities, the system seeks to streamline file management and enhance operational efficiency within organizations.	
72.	**TCMAPY1722**	**Reversible_Data_Hiding_in_Encrypted_Images_Based_on_Edge-Directed_Prediction_and_Multi-MSB_Self-Prediction** The objective of this project is to develop a high-capacity Reversible Data Hiding in Encrypted Images (RDH-EI) method that enables efficient embedding of additional data into encrypted grayscale images while ensuring the lossless recovery of the original image. The project aims to implement advanced data embedding techniques using Edge-Directed Prediction (EDP) and Multi-MSB Self-Prediction to enhance embedding capacity and accuracy. It also focuses on ensuring secure and reversible image recovery through encryption and data extraction processes. Furthermore, the project incorporates a user authorization system with OTP verification to prevent unauthorized access and maintain data privacy, ultimately achieving high embedding capacity without compromising image quality or security.	CLOUD COMPUTING
73.	**TCMAPY1678**	**Enhancing bone fracture classification in x-ray using deep learning models** This project improves bone fracture classification in X-ray images by combining deep learning models (VGG19, MobileNet, EfficientNet) with machine learning classifiers like SVM and Random Forest. It also features a simple web interface for testing, highlighting the benefits of hybrid approaches in medical image analysis.	ML
74.	**TCMAPY1683**	**Hybrid Method Combining Variational Mode Decomposition and Deep Neural Networks for Predicting PM2.5 Concentration in China**	ML

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		This project uses a hybrid method combining Variational Mode Decomposition (VMD) and deep learning models like LSTM and GRU to predict PM2.5 levels in China. It processes air quality and weather data to improve forecasting accuracy and understand pollution patterns.	
75.	**TCMAPY1685**	**A Novel Active Learning Technique for Fetal Health Classification Based on XGBoost Classifier** This project uses machine learning with ensemble models like XGBoost and Random Forest to classify fetal health from CTG data. It aims to improve prediction accuracy while manual labeling effort, supporting better prenatal care decisions.	ML
76.	TCMAPY1686	**Fault Condition Prediction In Power Transmission Lines** The objective of this project is to develop a real-time, web-based fault diagnosis system for Series-Compensated Power Transmission Lines (SC-PTL) using ensemble machine learning techniques. The system aims to accurately detect the faults.	ML
77.	**TCMAPY1687**	**A Machine Learning Based Real Time Remaining Useful Life Estimation and Fair Pricing Strategy for Electric Vehicle Battery Swapping Stations** The objective of this project is to develop a machine learning-based framework that accurately predicts the Remaining Useful Life (RUL) of electric vehicle (EV) batteries using multiple regression models, including XGBoost, Random Forest, KNN, Stacking, and Voting Regressor. The system aims to improve battery lifecycle management through real-time estimation, enabling predictive maintenance and optimizing fair pricing at battery swapping stations.	ML
78.	**TCMAPY1688**	**Machine and Deep Learning Models for Stress Detection Using Multimodal Physiological Data** To develop and evaluate machine and deep learning models for accurately classifying stress levels using multimodal physiological signals. The goal is to enhance real-time stress detection for mental health monitoring by comparing the effectiveness of MLP, Random Forest, Decision Tree, and Logistic Regression.	ML
79.	**TCMAPY1689**	**Application of Artificial Intelligence In Tinnitus Diagnosis and Treatment A Pilot Study**	ML

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Email: info@takeoffprojects.com
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		The objective of this project is to develop an AI-based multi-label classification system for the accurate diagnosis of tinnitus using the Neurofeedback Tinnitus Dataset. It aims to leverage machine learning algorithms such as Random Forest, LightGBM, LSTM, AdaBoost, and XGBoost to effectively identify complex patterns associated with tinnitus. The project also emphasizes model interpretability by incorporating SHAP (SHapley Additive exPlanations), enabling clinicians to understand the rationale behind predictions. This approach supports transparent, personalized treatment strategies and advances the role of explainable AI in auditory healthcare.	
80.	TCMAPY1690	**Machine Learning Model To Detect Ddos Attack In Multi Uav Networks** The primary objective of this project is to develop a robust and accurate machine learning-based system for detecting Distributed Denial of Service (DDoS) attacks in multi-UAV (Unmanned Aerial Vehicle) network environments. With the growing integration of UAVs in critical communication and operational networks, ensuring their security has become paramount. Traditional detection methods often fall short in identifying covert attack patterns and managing the complex, heterogeneous nature of UAV-generated data. This research addresses these challenges by proposing an ensemble approach that leverages the strengths of Decision Trees, Random Forests, and Logistic Regression classifiers.	ML
81.	TCMAPY1706	**Robust and Lightweight Modeling of IoT Network Behaviors from Raw Traffic Packets** The primary objective of this project is to design and develop a robust and lightweight machine learning-based framework for modeling Internet-of-Things (IoT) network behaviors directly from raw traffic packets. Traditional deep learning models, although highly accurate, often require substantial computational resources and specialized hardware, making them unsuitable for deployment in resource-constrained IoT environments.	ML

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82.	TCMAPY1707	**Residential Building Energy Usage Prediction Using Bayesian-Based Optimized XGBoost Algorithm** The objective of this project is to develop an accurate and efficient tool for predicting energy consumption, specifically Heating Load (HL) and Cooling Load (CL), in residential buildings using machine learning techniques. By leveraging the eXtreme Gradient Boosting (XGBoost) algorithm optimized with Bayesian optimization, the project aims to enhance prediction accuracy by fine-tuning the model's hyperparameters. The primary goal is to provide engineers, architects, and designers with a reliable tool for analyzing energy usage based on building design characteristics at the early stages of construction, thus promoting energy-efficient and sustainable building designs that reduce long-term energy consumption and environmental impact.	ML
83.	TCMAPY1708	**Deep Learning Approach for an Analysis of Real-Estate Prices and Transactions** The primary objective of this project is to develop a robust and intelligent real estate price prediction system using advanced deep learning and machine learning algorithms. The system aims to analyze historical and current property transaction data to forecast property prices with high accuracy. By leveraging multidimensional datasets that include variables such as location, property type, number of rooms, carpet area, and transaction dates, the project seeks to identify meaningful patterns and insights that influence pricing trends.	ML
84.	TCMAPY1709	**Comparative Analysis of Machine Learning Algorithms with Advanced Feature Extraction for ECG Signal Classification** The primary objective of this project is to enhance the classification of Electrocardiogram (ECG) signals through the application of advanced machine learning algorithms, with a focus on improving the diagnosis and early detection of cardiovascular diseases. The project aims to evaluate and compare the performance of various machine learning techniques, including Gradient Boosting, Stacking Classifier, Voting Classifier, XGBoost, and CatBoost, in accurately classifying ECG	ML

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		signals into normal and abnormal categories. By employing advanced feature extraction methods, the project seeks to identify the most effective algorithms for analysing complex ECG data, offering a more reliable, automated, and cost-efficient solution for heart disease diagnostics..	
85.	TCMAPY1712	**Ensemble Learning for Precise State-of-Charge Estimation in Electric Vehicles Lithium-Ion Batteries Considering Uncertainty** This project develops a stacking ensemble model combining Random Forest, Decision Tree, and Linear Regression to accurately estimate lithium-ion battery State of Charge (SoC). It leverages features like voltage, current, temperature, and time to enhance prediction accuracy and reduce errors using machine learning.	ML
86.	TCMAPY1714	**The Effect of Input Length on Prediction Accuracy In Short Term Multi Step Electricity Load Forecasting A CNN LSTM Approach** This project focuses on short-term electricity load forecasting using deep learning models, including GRU, CNN-LSTM, BiLSTM, and a CNN-RNN hybrid, applied to a real-world dataset from Panama. The CNN-LSTM model delivered the highest accuracy for hourly and daily forecasts and was deployed through a Flask-based web application. The system allows users to input dates and view reliable load predictions with interactive graphs, providing a practical and user-friendly tool for energy demand forecasting and management.	ML
87.	TCMAPY1715	**State of Charge Prediction for Electric Loader Battery Based on Extreme Learning Machine** This project predicts the State of Charge (SoC) of electric loader batteries using machine learning models like LightGBM, Random Forest, CatBoost, MLP Regressor, and Gradient Boosting. Trained on an EV battery dataset, models were optimized with RandomizedSearchCV and explained using SHAP for feature interpretability. A secure Flask web app enables users to input voltage and current to get real-time SoC predictions. This tool supports efficient battery monitoring and energy management through an intuitive frontend.	ML
88.	TCMAPY1716	**An Automated Compliance Framework for Critical Infrastructure Security Through Artificial Intelligence**	ML

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Website: www.takeoffprojects.com
Phone: +91 9030333433, +91 877668144

		he objective of the project "An Automated Compliance Framework for Critical Infrastructure Security Through Artificial Intelligence" is to develop an intelligent system that enhances the security of critical infrastructure by predicting and recommending compliance actions based on network attack detection. Using machine learning models like Random Forest, SVR, and Logistic Regression, the system processes network traffic data to identify potential security threats, including Cross-Site Scripting (XSS), DDoS, MITM attacks, and SQL Injection. The framework integrates a secure web application built with Flask, MySQL, and joblib for model deployment, offering real-time predictions and compliance suggestions. The goal is to automate the compliance process, ensuring prompt actions against emerging threats, improving security measures, and reducing the risks associated with critical infrastructure vulnerabilities.	
89.	TCMAPY1717	**Integrating AI Models for Voltage and Current Monitoring in Autonomous Mobile Robots to Prevent Power System Blackouts** The objective of this project is to develop an AI-based predictive monitoring system for Autonomous Mobile Robots (AMRs) to detect voltage and current anomalies. By leveraging machine learning models, including Random Forest, XGBoost, Decision Tree, Gradient Boosting, and K-Nearest Neighbors, the system analyzes input data such as reactive power, voltage, intensity, and sub-metering values to predict potential electrical abnormalities. The solution integrates a Flask-based web interface for real-time predictions, model evaluation, and anomaly detection using Z-score thresholds. The ultimate goal is to prevent electrical failures, ensuring operational efficiency and improving fault detection in AMRs through proactive monitoring.	ML
90.	TCMAPY1720	**Federated Learning for 6G Networks Navigating Privacy Benefits and Challenges** The objective of this study is to investigate the integration of federated learning within 6G networks to enhance privacy and data security without compromising performance. Specifically, the research aims to analyze privacy-preserving mechanisms, evaluate trade-offs between model accuracy and resource constraints, and identify challenges related to	ML

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		heterogeneity, scalability, and communication overhead. Furthermore, the study seeks to design optimized aggregation protocols and incentive schemes that promote collaborative learning among distributed edge devices. By providing a framework and guidelines, this work aspires to facilitate deployment of robust, privacy-aware federated learning solutions tailored to the ultra-low latency and high-capacity requirements of 6G networks.	
91.	TCMAPY1723	**FRAILTY CLASSIFICATION** This project presents a real-time, web-based frailty classification system utilizing IMU sensor data from Kaggle to categorize individuals as non-frail, pre-frail, or frail based on gait features. Leveraging Multiple models , SMOTE for class balancing the system ensures robust performance under noise and imbalance, and is deployed via Flask for seamless, interpretable assessment in clinical and home environments.	ML
92.	TCMAPY1727	**Complex Valued Multi Domain Features and Its Application in Motor Imagery Classification** The primary goal of this project is to develop a sophisticated EEG classification model that utilizes complex-valued features (phase and amplitude) to distinguish between four motor imagery tasks. By leveraging both traditional machine learning models, such as Deep Neural Networks (DNN), Convolutional Neural Networks (CNN), and XGBoost, alongside novel approaches like Stacking Classifiers, Decision Trees, and Voting Classifiers, this project aims to improve the accuracy and reliability of motor imagery classification.	ML
93.	TCMAPY1732	**RoBERTa-BiLSTM A Context-Aware Hybrid Model for Sentiment Analysis** This project introduces a context-aware sentiment analysis system using three deep learning models—BiLSTM, RoBERTa-BiLSTM, and DistilBERT+GRU—trained on IMDb and Twitter datasets. The models classify user input as positive or negative by capturing contextual semantics. To enhance transparency, LIME (Local Interpretable Model-agnostic Explanations) provides visual insights into predictions. A responsive web interface enables users to log in, input text, and receive real-time sentiment predictions with explanations. By combining advanced NLP with explainable AI and an intuitive UI, the system improves	ML

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		user trust and is well-suited for review analysis, social media monitoring, and public sentiment tracking.	
94.	TCMAPY1735	**An Efficient Malware Detection Approach Based on Machine Learning Feature Influence Techniques for Resource-Constrained Devices** The goal is to develop a lightweight malware detection system optimized for resource-constrained environments by implementing and comparing various machine learning algorithms, while using feature selection techniques to enhance accuracy and reduce complexity. Additionally, a simple frontend will be designed for local interaction, and the system's performance will be validated using key metrics like accuracy, precision, recall, and execution time to ensure suitability for low-power devices.	ML
95.	**TCMAPY1683**	**Hybrid Method Combining Variational Mode Decomposition and Deep Neural Networks for Predicting PM2.5 Concentration in China** This project uses a hybrid method combining Variational Mode Decomposition (VMD) and deep learning models like LSTM and GRU to predict PM2.5 levels in China. It processes air quality and weather data to improve forecasting accuracy and understand pollution patterns.	ML
96.	**TCMAPY1685**	**A Novel Active Learning Technique for Fetal Health Classification Based on XGBoost Classifier** This project uses machine learning with ensemble models like XGBoost and Random Forest to classify fetal health from CTG data. It aims to improve prediction accuracy while manual labeling effort, supporting better prenatal care decisions.	ML
97.	**TCMAPY1677**	**Optimized Breast Cancer Classification Using PCA LASSO Feature Selection and Ensemble Learning Strategies With Optuna Optimization** This project proposes an optimized breast cancer classification system combining PCA and LASSO for feature selection, with classifiers like Random Forest, SVM, XGBoost, ANN, and Decision Tree. Models are fine tuned using GridSearchCV, RandomizedSearchCV, and Optuna. The best performing model is deployed via a Flask based web interface for real time diagnosis by	ML

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		uploading test inputs. This system enables accurate, fast, and accessible breast cancer detection, supporting clinical decision making through intelligent pattern recognition and user friendly automation.	
98.	**TCMAPY1678**	**Enhancing bone fracture classification in x ray using deep learning models** This project improves bone fracture classification in X ray images by combining deep learning models (VGG19, MobileNet, EfficientNet) with machine learning classifiers like SVM and Random Forest. It also features a simple web interface for testing, highlighting the benefits of hybrid approaches in medical image analysis.	ML
99.	**TCMAPY1687**	**A Machine Learning Based Real Time Remaining Useful Life Estimation nd Fair Pricing Strategy For Electric Vehicle Battery Swapping Stations** The objective of this project is to develop a machine learning based framework that accurately predicts the Remaining Useful Life (RUL) of electric vehicle (EV) batteries using multiple regression models, including XGBoost, Random Forest, KNN, Stacking, and Voting Regressor. The system aims to improve battery lifecycle management through real time estimation, enabling predictive maintenance and optimizing fair pricing at battery swapping stations.	ML
100.	**TCMAJA1307**	**SECURE MEDICAL IMAGE SHARING** The objective of this project is to build a secure and user-friendly Medical Image System that supports role-based access for admins, doctors, and patients. It focuses on enabling secure image upload, viewing, and sharing while ensuring patient privacy and data integrity. By incorporating techniques such as watermarking and encryption, the system aims to prevent unauthorized access and tampering, thus maintaining the confidentiality and diagnostic value of medical images across healthcare workflows	Java
101.	TCMAFS1292	**Performance Evaluation of AES, RSA, and ECC Algorithms for Secure Application Optimization** The objective of this project is to develop a secure file-sharing system that leverages advanced cryptographic techniques such as AES, RSA, and ECC for encrypting and decrypting files. The platform aims to enable users	**Python +React**

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		to securely upload, store, and share sensitive files, ensuring privacy and data integrity.	
102.	TCMAFS1294	**Secure and Scalable Reputation Updating for Vehicular Networks via Cloud-Based Aggregation and Homomorphic Encryption** The rapid advancement of vehicular networks necessitates robust mechanisms for reputation management to enhance trust and security among vehicles. This paper proposes a secure and scalable reputation updating scheme for cloud-assisted vehicular networks, leveraging cloud-based aggregation and homomorphic encryption.	**Python +React**
103.	TCMAPY1691	**CareerHub Web Application** The CareerHub Web Application , a user-friendly and responsive job portal that simplifies job searching, automates applications, and connects job seekers with employers efficiently across all devices.	**Python-App**
104.	TCMAPY1692	**Orderista-AI based food ordring system** Orderista is an AI-powered Django-based food ordering and canteen management system with portals for Admin, Canteen, and Users. It offers AI-based recommendations, sales forecasting, and chatbot support. The system streamlines ordering, improves efficiency, reduces manual tasks, enhances user experience, and aids decision-making through intelligent analytics.	**Python-App**
105.	TCMAPY1730	**A Verifiable and Efficient Symmetric Searchable Encryption Scheme for Dynamic Dataset with Forward and Backward Privacy** The objective of this project is to design and implement a secure, efficient, and dynamic symmetric searchable encryption (SSE) scheme that enables keyword-based search over encrypted data stored in the cloud. The system will utilize AES encryption for securing sensitive data and SHA-256 hashing for indexing searchable keywords. the system will provide role-based access control for users such as managers, finance personnel, and employees, ensuring that sensitive information is protected during both storage and retrieval without relying on trapdoor or MAC-based mechanisms.	**Python-App**

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Website: www.takeoffprojects.com
Phone: +91 9030333433, +91 877668144

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1-5-558, 1st Floor, 2nd Streat, Balaji Colony,
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Website: www.takeoffprojects.com
Email: info@takeoffprojects.com
Phone: +91 9030333433, +91 877668144