





ADDING VALUE TO ENGINEERING An Autonomous Institute Affiliated to Savitribai Phule Pune University Approved by AICTE, New Delhi and Recognised by Govt. of Maharashtra Accredited by NAAC with "A+" Grade | NBA - 5 UG Programmes DEPARTMENT OF COMPUTER ENGINEERING

TECHNICAL MAGAZINE 2024-2025









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Vision

• To be known for imparting quality education in computer engineering to serve the changing needs of global industry.

Mission

- To create an environment that fosters technical and professional growth to make graduates globally competent.
- To develop industry ready professionals, researchers, and entrepreneurs to solve real world problems and societal issues.

Program Education Objectives(PEOs)

- **PEO1:**Work productively as successful computer professionals / entrepreneurs / researchers in global industry.
- **PEO2:**Adapt latest technological skills to face challenges of the modern computing industry.
- **PEO3:**Work in finance, healthcare, security and banking sectors as a team member or a leader with ethical values.

Program Specific Outcomes(PSOs)

PSO1 Problem Solving and Programming Skills: Problem Solving and Programming Skills: Graduates will be able to apply knowledge of procedural or object oriented programming to solve computing problems

PSO2 Professional Skills: Graduates will be able to design and develop software systems using front end and back end technologies by following standard software engineering principles.

PSO3 Professional Skills: Graduates will be able to analyse the algorithms and implement optimized solutions in the domain of machine learning, natural language processing, security and cloud computing.







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Program Outcomes (POs)

Graduates will be able to

- 1. Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems. **[Engineering knowledge]**
- 2. Identify, formulate, research literature, and analyse complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences. **[Problem analysis]**
- 3. Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations. **[Design/development of solutions]**
- 4. Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions. [Conduct investigations of complex problems]
- 5. Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations. [Modern tool usage]
- 6. Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice. [The engineer and society]
- 7. Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development. [Environment and sustainability]
- 8. Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice. **[Ethics]**
- 9. Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings. **[Individual and team work]**
- Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions. [Communication]



- 11. Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments. **[Project management and finance]**
- 12. Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change. **[Life-long learning]**







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Editorial Team



Faculty Coordinator: P.S.Jadhav

I'm glad to invite you to the technical magazine for our department. I view technical magazine as an amazing chance to focus on the projects subjects that the students seek after to additional their schooling. Through the projects they complete, students have the open door and stage to exhibit their ability, which is valuable to anyone or every other person in improving their technical knowledge. I accept that this magazine achieves its objective.



Student Coordinator: Salma Mulla





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Objective behind Technical Magazine

The opportunity to present the technical magazine for the years 2024–2025 is an honor for the Department of Computer Engineering. From our students, we had assembled project titles, internship data and placement. Our objective in sharing this data is to inspire students and teach them about the ongoing requirements in the IT business.

The department's goal is to increase technical proficiency among the students. Since the second year, the department has been working on this. Outside of the classroom, the department organizes numerous expert talks, seminars, field trips, and learning materials for students. There are planned activities to make students aware of the present demand for the IT industry. The results of those efforts are shown in their placement and admission to further education.

Coordinator Mrs. P.S.Jadhav HOD

Dr. S.N.Zaware







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I. PLACEMENT OF ACADEMIC YEAR 2024-25

Sr.No	Name Of Student	Name Of Company
•	Shreya Naik	Schneider Electric
2	Neha Ajit Rajput	Airtel
3	Salma Mulla	Airtel
4	Srushti Sudhakar Shirsat	Airtel
5	Sarthak Kute	Datafortune
6	Samarth Dol	Datafortune
7	Aditya Raut	Entrata India
8	Saadgi Pandey	Entrata India
9	Anushka Rakshe	IBM
10	Abhishek Paturkar	Honeywell
11	Snehal Lande	Cognida.ai
12	Yash Wairagade	Cybernetics Software Private Limited
13	Kapil Kulkarni	Enabl3
14	Aman Rajesh Gupta	Rhythmflows Solution Pvt Ltd.
15	Guruprasad A. Dhawade	Rudder Analytics
16	Pawan Pukale	Datafortune
17	Tanaya Mahendra Handore	Datafortune
18	Ishita Belhekar	LTIMindtree
19	Janhavi Tripathi	LTIMindtree
20	Sanskruti Mahendra Kanchan	LTIMindtree
21	Smitha Suresh Nayak	LTIMindtree
22	Snigdha De	LTIMindtree





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23	Sushrut Ursal	LTIMindtree
24	Vaibhav Sharad Tekawade	LTIMindtree
25	Yadnesh Yogesh Firake	LTIMindtree
25	Yash Sanjay Marane	LTIMindtree
20	Yashodhan Ajay Kumar Gupta	LTIMindtree
27	Tanmay Dattatray Patil	Vodafone Intelligent Solutions
28	Sejal Mehata	Tudip Technology
29	Mohit Chandrakant Kulkarni	Cognizant
30	Akankaha Sanawana	Infosto
31	Rikanksna Sonawane	linosys
32	Puloma Parul	Infosys
33	Sanjana Dhane	Infosys
34	Piyanshu Mohite	Mindstix
35	Mayank Salakke	Onix Datametica Solutions Pvt. Ltd.
36	Shivam Patil	Onix Datametica Solutions Pvt. Ltd.
37	Gauri Ashok Kulkarni	Johnson Controls
38	Sakshi Shirish Zanzane	Johnson Controls
20	Devankshi Rade	Infosys
10	Aditya Kale	Vodafone Intelligent Solutions
40	Aditya Vijay Suryawanshi	Vodafone Intelligent Solutions
41	Atharva Ajay Admane	Vodafone Intelligent Solutions
42	Harshal Prabhakar Korade	Vodafone Intelligent Solutions
43	Khalid Iliyas Babasaheb Sayyad	Vodafone Intelligent Solutions
44	Movur Vikos Datil	Vodefone Intelligent Solutions
45		
46	Neel Sachin Munot	Vodatone Intelligent Solutions



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47	Pratiksha Nagesh Kale	Vodafone Intelligent Solutions
48	Rutuja Dattatray Neharkar	Vodafone Intelligent Solutions
49	Sakshi Santosh Ghadge	Vodafone Intelligent Solutions
50	Sanika Sakharam Belote	Vodafone Intelligent Solutions
51	Sanika Shashikant Khaladkar	Vodafone Intelligent Solutions
52	Sejal Anil Pawar	Vodafone Intelligent Solutions
53	Sonali Manesh Tate	Vodafone Intelligent Solutions
54	Vedantraje Nimbalkar	Vodafone Intelligent Solutions
55	Yogesh Ramchandra Magar	Vodafone Intelligent Solutions
56	Anuj Dikshit	Johnson Controls
57	Janhavi Yogesh Chavan	Johnson Controls
58	Aditya Arun Kharat	Johnson Controls
59	Atharv Anil Diwan	Johnson Controls
60	Vedant Sharad Patil	Johnson Controls
61	Bhagesh Bansode	Johnson Controls
62	Sankalp Madan Bhirud	Johnson Controls
63	Harshal Patil	Johnson Controls
64	Siddhant Nitin Borhade	Tech MAHINDRA
65	Rohan Rajaram Jadhav	Tech MAHINDRA
66	Aditya Kiran Dhomse	Tech MAHINDRA
67	Om Vasant Kathare	Tech MAHINDRA
68	Harshal Sandip Mali	Tech MAHINDRA



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II. PROJECT LIST OF ACADEMIC YEAR 2024-25

Group	Project Group Member Full	Title of Project	Name of Guide
No/	Name		
Group			
1	Soham Sakunde	HomeSafe - System using	
	Aditya Shelake	Anomaly Detection in	Dr A Chavan
	Swapnil Sable	Machine	
	Vaishnav Sakore	Learning	
2	Anushka Rakshe		
	Samarth Ambure	Intelligent Traffic Light	Du Chatan Altan
	Omkar Naiknavare	VOL O	Dr. Chetan Aher
	Harshal Mali		
3	Atharva Admane	AI-Driven Building	
	Sankalp Bhirud	Detection: Leveraging	C D Dimmellion
	Rishika Kavade	Deep Learning for Smart	S. P. Pimpaikar
	Megh Kashilkar	Infrastructure	
4	Yash Kalange		Dr. Veena Bhende
	Kamna Bhadoriya	AIS/W application planner	
	Subodh Ghonge		DI. Veena Dienae
	Aryan Kadam		
5	Aman Gupta		
	Aditya Kale	Identification Using	Dr. K. S. Wagh
	Iliyas Sayyad	AL/ML	
	Guruprasad Dhawade		
6	Sanika Sakharam Belote	Deep Learning Approach	
	Aishwarya Arun Bhosale	for Identification of Safe	Dr. C. N. Zamara
	Janhavi Yogesh Chavan	Navigation Routes on The	DI. S. N. Zaware
	Vedant Sanjay Chopane	Moon	
7	Deep Dave	Earth make Magnitute	
	Manish Jadhav	Earthquake Magnitute	Dr S N Zawara
	Aditya Dhomse	Learning	Dr. S. N. Zaware
	Sanskar Gade	Louining	
8	Kaushal Deshpande	Electer and Londalides	
	Sanjana Dhane	Prediction Model using ML	M P Nerkar
	Rohan Jadhav		WI. F. INCIKAI
	Sanskruti Kanchan		

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9	Salma Mulla	Multimodel Frame work		
	Rutuja Neharkar	for Accurate	Dr. S. N. Zaware	
	Ayesha Sayyad	Histopathological Cancer		
	Aarya Patil	detection		
10	Aadesh Thade			
	Sushrut Ursal	Resume Analysis using NLP and ATS Algorithm	M D Norkor	
	Saurabh Yadav		IVI. F. INCIKAI	
	Sonali Tate			
11	Anuj Dikshit	Real Time Fraudulent Call	Dr. K. S. Wagh	
	Atharv Diwan	Detection Using NLP		
	Samarth Dol	with Behavioral Analysis		
	Yadnesh Firake	and Keyword Detection		
12	Yashodhan Gupta	Integrated Analytics and		
	Sejal Pawar	Prediction of Heart		
	Onkar Awate	Disease, Diabetes, and	Dr. Chetan Aher	
		Parkinson's Using Logistic		
	Sanika Bhalerao	Models		
13	Snigdha De	Immuverse: Smart Vaccination Reminder and	M. A. Zope	
	Aditya Suryawanshi			
	Mihir Sonawane			
	Shivraj More	I racking system		
14	Sarthak Kute	Image Analysis	Dr. Veena Bhende	
	Tanmay Patil	Application for Tree Enumeration for Forest		
	Sakshi Zanzane			
	Vinayak Sonawane	Land Diversion.		
15	Anamika Sharma			
	Srushti Borkar	Cloudburst Prediction	P. S. Gaikwad	
	Tanaya Handore	System using AI		
	Pratiksha Kale			
16	Vikrant Palaskar	Him of Lance Course (A :		
	Shivam Patil	Supported Job Application	Prof N S Patil	
	Darshan Londhe	Supported 300 Application System	1 101. IN. 5 . 1 atli	
	Atul Shere	by sterin		
17	Puloma Parul			
	Akanksha Sonawane	Generating visuals from	G I Navale	
	Vaibhav Tekawade	words using Deep Learning	O. J. Mavale	
	Kulbhushan Ranaware			
18	BHAGESH BANSODE	- Real time coding Platform	M P Nerkar	
	AVINASH CHITARE		IVI. I . IVOIKai	

AISSMS INSTITUTE OF INFORMATION TECHNOLOGY (IOIT) ADDING VALUE TO ENGINEERING An Autonomous Institute Affiliated to Savitribai Phyle Pune University



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	SURAJ DIVEKAR			
	AFTAB ATTAR			
19	Smitha Nayak	Image Caption Generation		
	Tejal Tarde		C D Darwar	
	Janhavi Tripathi	with Voice	S. K. Fawal	
	Sanika Khaladkar			
20	Ayush Oswal			
	Neeraj Potdar	Customizshla AI Chathat		
	Vedantraje Nimbalkar	Customizable AI Chatbot	A. U. Salu	
	Akshay Khangre			
21	Shreyash Gujar			
	Mahesh Babar	Prediction of weather	M. A. Zope	
	Deepak Holkar	using machine learning		
	Rajveer Dalvi			
22	Aditya Raut	Sentiment Analysis of the	P. Jadhav	
	Devankshi Rade	News Articles and Social Meia in Key Domain for Public Preception Insights		
	Yash Wairagade			
	Snehal Lande			
23	Abhay Sawarkar	Supply chain Management using Blockchain		
	Harshal Patil		N. S. Patil	
	Mayank Salakke			
	Devanshu Shyamsundar			
24	Hiten Ghadge		A. S. Varal	
	Sanket Chopde	Loan application		
	Aditya Singh	processing using RPA		
	Siddhant Borhade			
25	Vedant Patil			
	Sakshi Ghadge	Skincare Recommendation	M. A. Zope	
	Ishita Belhekar	System		
	Tejas Dhanawate	by sterin		
26	Riya Golikere			
	Divya Bhat	Inventory mnagement	Dr. K. S. Waah	
	Shreya Naik	using Blockchain	Dr. K. S. Wagh	
	Gauri Shinde			
27	Aditya Kharat			
	Chirag Mohitkar	Passive CAPICHA: AI-	D.S. Coilgued	
	Nupur Nashirkar	Driven Bot Detection For	r. s. Galkwau	
	Tilakkumar Pardeshi			
28	Saadgi Pandey	Ensuring Women Safety	Dr. Chetan Aher	



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	Sakshi Patil	using Abnormal Activity	
	Samradnyee Pawar	and Threat Detection using	
	Neha Rajput	Deep Learning	
29	Mohit Kulkarni		
	Neel Sachin Munot	AL as a Samuias Distform	Dr. K. C. Wash
	Yogesh Ramchandra Magar	Al as a Service Platform	Dr. K. S. Wagn
	Piyanshu Mohite		
30	Srushti Shirsat	Health monitoring and	
	Harshal Korade	disease prediction using	Dr S N Zoworo
	Sejal Mehta	structured and unstructured	DI. S. N. Zawaie
	Gauri Kulkarni	data	
31	Prasad Sunil Jadhav	Enhanced Detection and	
	Pratik Sharad Agarkar	Management of	
	Prasad Sanjay Jadhav	PCOS through Deep	S. Toney
		Learning	
32	Pawan Dattatrava Pukale	Ticketify - Event Ticket	
	Om Vasant Kathare	Management with	
	Athary Sunil Deshmukh	Blockchain	A. G. Said
	Shreyash Bhausaheb Pathare	Implementation	
33	Kapil Mukund Kulkarni	Market Intelligence System	
	Hariom Vilas Malode	for Agricultural	
	Yash Sanjay Marane	Commodity Price	Dr. Chetan Aher
	Abhishek Unmesh Paturkar	Forecasting using Deep Learning	
34	Archit Barve		
	Satvik Nalavade	Video Analytics using	מ ח ח
	Mayur Patil	Deep Learning Techniques	S. P. Pimpalkar
35	Sandeep Raina		
	Sangale Siddhant	Violence Detection using	Dr. A. Chavan
	Shete Sumedh	Deep Learning	DI. A. Chavan
36	Mohammad Umar Shaikh	Signify- A Sign Language	
	Zeenen Gandhi	Recognition System using	Mr. P. S.
		Deep Learning for	Sadaphule
		deat/mute.	



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III. INTERNSHIP DETAILS OF YEAR 2024-25

TY BTECH SEM I of 2024-25			
Roll No	Name of the student	Company Name	
1	Rutuja Dattatray Chaskar	Vishwaguru Infotech Pvt. Ltd.	
2	Ashwin Maurya	Singular Dynamics	
3	Varad More	Bajaj Allianz Life Insurance	
	TY BTECH SEN	M II of 2024-25	
4	Rutuja Chaskar	Vishwaguru Infotech Pvt. Ltd.	
5	Sujal Ganesh Suryawanshi	Musumee House of Brands Private limited	
6	Kulkarni Soham Satish	Smaclify pvt ltd	
7	Lokhande Virag Vijay	Edunet Next Gen	
8	M Venkata Soodarshan	Edunet Next Gen	
9	Manvar Nandini Vipul	Edunet Next Gen	
10	Mali Om Arun	Edunet Next Gen	
11	Masal Siddhesh Prashant	Edunet Next Gen	
12	Maurya Ashwin Rameshchandra	INTELLICURIA	
13	Mhatugade Sahil Ananda	Edunet Next Gen	
14	More Varad Manoj	Bajaj Allianz Life Insurance	
15	Nagawade Vaibhav Shivaji	Edunet Next Gen	
16	Nage Sarthak Annasaheb	Edunet Next Gen	
17	Narwade Megha Gautam	Edunet Next Gen	





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18	Nibandhe Ketan Ganesh	Edunet
19	Patil Akanksha Vikram	Edunet Next Gen
20	Patil Diksha Sarjerao	Edunet Next Gen
21	Patil Padmaraj	Edunet Next Gen
22	Patil Shashank Rajesh	Edunet
23	Patil Swarupsinh Bajirao	Edunet
24	Patil Tanmay Tanaji	Edunet
25	Pratham Vijay Phadtare	Edunet
26	Anjali Pokale	Edunet
27	Pharande Shloka Vishwaraj	Edunet
28	Polaswar Krishna Tirupati	R&DE Engineers
29	Safai Shiyangi Makarand	Edunet Foundation-In collobroation with EY GDS and AICTE In
	Sului Shi vangi Makarana	
30	Sawant Neel Manik	Infotact Solutions
31		1)Vishwaguru Infotech Pvt.Ltd
	Shendage Komal Santosh	2)Edunet
32	Shete Harshal Macchindra	1)Doc-Q 2) Edunet Next-Gen
33	Shilimkar Sahil Ravindra	1)Edunet Next-Gen 2) Sparks to Ideas
34	Shinde Aryan Prabhakar	Edunet
35		1) Vishwaguru Infotech pvt. Ltd. 2)
	Siddhi Sunil Kadam	Edunet Nextgen
36	Sonawane Isha Balasaheb	Edunet Next Gen
37	Tamboli Altaf Firoz	Edunet Next Gen
38	Taware Udayan Sangramsinh	1. NRSC ISRO 2.Edunet Next Gen





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39	Tayde Mrunal Umeshkumar	Elite Software
40	Velapure Sarthak Pradhumna	Ergon Technology
41	Vinit Vilas Desai	1. NRSC ISRO 2.Edunet
42	Waghmare Gayatri Gangeshkumar	Edunet Next Gen
43	Yande Sakshee Satish	Edunet Next Gen
44	Gayatri Zagade	Edunet Next Gen
	BE SEM I of 2024	4-25
45	Manish Anil Jadhav	CDAC-INDIA
46	Rishika Kavade	Inventive Business Solutions Pvt Ltd
47	Sanskar Gade	Retaliater's
48	Aditya Suryawanshi	Janikk International
49	Sushrut Ursal	MUSUMEE House of Brands Pvt. Ltd.
50	Harshal Korade	SOULFRESH Agritech Farmers Producer Company Limited
51	Samarh Ambure	Shree Auto Parts
52	Srushti Shirsat	Technack Technologies Pvt.Ltd
	BE SEM II of 2	024-25
53	Aditya Singh	Zidio Development
54	Pratik Agarkar	Saclefull Technologies
55	Aftab Attar	VAISHNAV TECHNOLOGIES
56	Onkar Kishor Awate	ilearningscareer
57	Saurabh Yadav	R.Y. Development
58	Aryan Kadam	Real Secure Pest Control Pvt. Ltd.





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59	Aadesh Thade	SEED INFOTECH PVT LTD
60	Kaushal Deshpande	Z plus Cyber Secure Technologies
61	Tejas Dhanwate	Scalefull Technologies LLP
62	Subodh Ghonge	Sumago Infotech Pvt. Ltd.
63	Shreyash Gujar	Rad-pro
64	Manish Jadhav	Inspacco
65	Prasad Jadhav	Gamaka
66	Omkar Naiknavare	i learnings
67	Mihir Sonawane	SearchIn
68	Atul Shere	floatinity Systems LLP
69	Vinayak Sonawane	Codelevate



IV. GLIMPSES OF SPONSORED PROJECTS 2024-25

Title: Loan Application Processing Using RPA (Robotic Process Automation)

Introduction

In the modern financial landscape, efficiency and accuracy in loan processing are paramount. The traditional approach to loan processing is often characterized by manual and repetitive tasks that can be time-consuming, error-prone, and inefficient. Tasks such as data entry, document verification, validation, and decision-making are typically handled manually, leading to delays and inconsistencies in loan approvals. This not only affects customer satisfaction but also impacts the overall productivity of financial institutions.

To address these challenges, our project, "Loan Processing Application Automation using RPA," seeks to revolutionize the loan processing workflow through the implementation of Robotic Process Automation (RPA). RPA provides a robust platform for automating repetitive and rule- based processes, thereby enhancing operational efficiency and accuracy.

The core focus of this project is to automate the end-to-end loan processing workflow, from the initial application intake to the final approval or rejection. By integrating RPA, we aim to streamline various stages of the loan process, including:

- Data Entry: Automating the extraction and entry of data from loan applications into the system. This reduces manual input errors and speeds up the data processing time.
- Document Verification: Using RPA to validate and cross-check documents submitted by applicants. This ensures that all required documents are accurate and complete before moving to the next stage.
- Validation: Automating the verification of applicant information against predefined criteria This ensures that the applicant meets all necessary requirements and criteria for loan approval.
- Decision-Making: Implementing decision rules within the RPA system to facilitate faster andmoreaccurateloanapprovalsorrejections.Byapplyingpredefinedbusinessrules,the system can make initial eligibility decisions without human intervention.



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System Architecture:



Methodology

The detailed methodology provides a clear roadmap for developing, implementing, and managing the loan processing automation system using RPA, ensuring a well-structured and effective approach to achieving the project's goals.

- **Data Acquisition:** The first step involves setting up the RPA system to automatically retrieve loan applications from various email accounts. This is accomplished by configuring email bots to:
 - Access the inbox
 - Download attachments such as PDFs or Excel files
 - Store these documents in a secure, organized directory or cloud storage
- **Document Verification and Validation:** Once documents are acquired, the RPA system utilizes Optical Character Recognition (OCR) to extract text from scanned files and images. The extracted data is then validated against predefined criteria to ensure accuracy and completeness. This process involves:
- 1. Checking for data consistency
- 2. Validating fields such as applicant in formation and loan details
- 3. Correcting any discrepancies

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- Credit Scoring API Integration: To assess the creditworthiness of loan applicants, the system integrates with external credit scoring APIs. The RPA workflows are configured to:
- 1. Send applicant information securely to these APIs
- 2. Retrieve credit scores or evaluations
- Automated Loan Approval System: In this phase, the system applies business rules to automate loan processing decisions. The RPA orchestrates the workflow to:
 - 1. Assess applications based on validated data and credit scores
 - 2. Evaluate eligibility criteria, loan amounts, and other factors to determine approval or rejection.
- **Escalation for Manual Review:** For applications that fall outside of standard criteria or require additional scrutiny, the system incorporates an escalation mechanism. This module:
 - 1. Flags these applications for manual review by bank staff
 - 2. Generates alerts
 - 3. Forwards flagged applications to a dedicated team
 - 4. Provides necessary context for human review

• **Compliance and Reporting:** To adhere to regulatory and organizational standards, the system includes robust compliance and reporting features. The RPA:

- 1. Generates detailed reports on loan processing activities, including approval rates, processing times, and exception cases
- 2. Implements compliance checks to ensure all procedures follow legal requirements

• System Testing and Deployment: The final phase involves comprehensive testing of the entire automation system. This includes:

- 1. Functional testing to verify that all workflows perform as expected
- 2. Performance testing to ensure the system handles varying loads efficiently
- 3. User acceptance testing to confirm that it meets end-user needs

Once testing is complete and any issues are resolved, the system is deployed to the production **environment. Deployment involves:**



- 1. Configuring the system for live operation
- 2. Monitoring initial performance
- 3. Providing support for any post-deployment issues

Expected Outcomes

- **Enhanced Efficiency:** The automation system will significantly speed up the loan application processing time by reducing manual intervention and automating repetitive tasks. This will lead to faster decision-making and reduced processing delays.
- **Increased Accuracy:** Automation will minimize human errors in data entry and processing, leading to more accurate and consistent loan evaluations. The use of OCR and automated validation will ensure that data is correctly extracted and verified.
- **Streamlined Workflow:** The integration of various components—email retrieval, document processing, credit scoring, and decision-making—will create a seamless workflow. This will improve the overall efficiency and coherence of the loan processing system.
- **Improved Decision-Making:** By incorporating credit scoring APIs and applying standardized business rules, the system will provide more reliable and objective loan approvals. This will help in making informed decisions based on accurate data.

Group Members:

- Aditya Singh
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Guide Name: Ms.A.S. Varal

Project Sponsored By: ProAzure

Project Sponsored By:ProAzure Software solutions Pvt Ltd



Title: Automated Vaccination Reminder and Tracking System in Rural Areas using AI, ML and Blockchain

Introduction

In rural India, immunization plays a critical role in preventing childhood diseases and ensuring the health and well-being of the next generation. However, significant challenges persist in terms of accessibility, awareness, and the tracking of vaccination schedules, leading to missed opportunities for immunization and, consequently, vulnerable children at risk of preventable diseases.

The **Smart Vaccination Reminder and Tracking System** aims to address these challenges by providing an integrated solution that ensures timely vaccination for children in rural areas. This system leverages technology to streamline the process of vaccination scheduling, tracking, and reminders, significantly improving the vaccination coverage rate. By incorporating innovative features such as automated regional-language reminders, birth certificate validation, and blockchain for secure, immutable data storage, this system offers a robust platform for healthcare workers, parents, and administrators to collaborate effectively.

Incorporating **blockchain** technology ensures that vaccination records are tamper-proof and easily accessible, providing transparency and security in data management. The system also utilizes **geocoding** to track the geographical locations of children and healthcare centers, ensuring that immunization drives are organized efficiently, and no area is neglected. Additionally, the platform facilitates the tracking of **anganwadi** workers' activities and interactions with families, enabling real-time monitoring of vaccination progress and allowing timely interventions where needed.

With the added advantage of **machine learning** and **smart prediction capabilities**, the system will assist healthcare workers in managing vaccination stocks, identifying unvaccinated children, and ensuring that resources are allocated efficiently to areas in need. Ultimately, this project seeks to contribute to a healthier rural India by ensuring that no child is left behind in the immunization process.



System Architecture:



Vaccination Reminder and Tracking System operates seamlessly by integrating multiple technologies that collaborate to streamline vaccination management in rural areas. Here's how the system works in detail:

1. User Registration and Data Entry:

- Healthcare workers (e.g., Anganwadi workers) register children into the system by entering key details such as the child's name, date of birth, and vaccination schedule.
- The system creates a unique ID for each child, which is used to track vaccination progress throughout their immunization journey.

2. Vaccination Scheduling and Tracking:

• The backend system, powered by **Node.js**, stores the vaccination schedule for each child in the database. Healthcare workers can access and update vaccination records,

including vaccine type, dose, and administration date.

The system sends timely reminders to parents via SMS and voice calls (powered by Twilio) to notify them about upcoming vaccination dates. These reminders are localized in regional languages using AWS Polly, making them accessible even to



parents with low literacy levels.

3. Real-Time Tracking and Monitoring:

- Healthcare workers can track which children have received their vaccinations and which are still due. The system allows them to monitor the status of children in real-time and make necessary interventions.
- **Geocoding** is used to map the location of children and healthcare centers. This enables healthcare workers to visualize vaccination coverage and prioritize immunization drives in underserved regions. They can also plan targeted intervention based on geographic data.

based on geographic data

4. Automated Reminders:

- Automated reminders for parents and healthcare workers are scheduled and sent by the system based on the vaccination calendar. These reminders are sent via **SMS** and **voice calls**, ensuring that no parent forgets the immunization appointment.
- **AWS Polly** is utilized to generate regional-language voice reminders, ensuring that parents from diverse linguistic backgrounds can easily understand and act on the reminders.

5. Blockchain-Based Data Security:

- All vaccination data, including records of vaccinations administered, is stored securely on **Hyperledger blockchain**. Each record is immutable, meaning that once entered, the data cannot be altered or tampered with. This ensures data integrity and fosters trust among stakeholders.
- Blockchain provides a transparent audit trail of all vaccination activities, making the system highly secure and verifiable.

6. Machine Learning Predictions:

• The **Prophet model**, a machine learning model, analyzes historical vaccination data and provides predictions about future vaccine demand and stock levels. By



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analyzing trends in vaccination rates and regional demand, the system predicts potential shortages or overstock situations, enabling healthcare workers to plan ahead and

ensure timely vaccine distribution.

7. Inventory Management:

• The system also monitors vaccine stock levels at healthcare centers, alerting healthcare workers when stock is running low. This ensures that there are no disruptions in vaccination campaigns due to inventory shortages. The integration with the **Prophet model** helps in forecasting stock requirements, ensuring a continuous and sufficient supply of vaccines.

8. Healthcare Worker and Parent Interaction:

- The system facilitates two-way communication between healthcare workers and parents. Healthcare workers can update the vaccination status of children, while parents can access their child's vaccination history and upcoming schedule.
- **Twilio** API enables seamless communication between the system and parents, ensuring timely delivery of reminders via both SMS and voice calls.

9. Geo location and Mapping:

- The **geocoding** feature tracks the locations of children and healthcare centers, providing healthcare workers with a detailed map of vaccination coverage across regions.
- This allows healthcare workers to pinpoint areas with low vaccination rates, plan targeted immunization drives, and ensure that no region is neglected.

10. Administrative Oversight:

- Administrators can monitor the system's overall performance, review vaccination data, and manage the vaccination schedules. They can also oversee the work of healthcare workers, ensuring that vaccination campaigns are being executed as planned and that any issues are addressed promptly.
- The system allows real-time reporting and analysis, helping administrators make informed decisions based on the data collected from various regions.



Conclusion

The **Smart Vaccination Reminder and Tracking System** offers a transformative approach to improving immunization coverage in rural India. By combining cutting-edge technologies like **blockchain**, **machine learning**, **geocoding**, and automated communication services, the system ensures secure, transparent, and efficient management of vaccination records. The integration of **AWS Polly** and **Twilio** enables timely reminders in regional languages, making the system accessible to all parents, even in areas with low literacy rates.

The system's use of **Hyperledger** blockchain guarantees data integrity, ensuring that vaccination records are secure and tamper-proof. Meanwhile, the **Prophet model** provides valuable predictions on vaccine demand, optimizing resource allocation and preventing shortages. The geocoding feature enables effective tracking of vaccination coverage and ensures no region is left behind, allowing for better planning of immunization campaigns.

Applications

The **Smart Vaccination Reminder and Tracking System** has wide-ranging applications across public health initiatives, particularly in government sectors and health-tech development. It can be utilized by government health departments to enhance vaccination outreach in rural and underprivileged regions by automating reminders, enabling real-time tracking of unvaccinated children, and simplifying inventory management. The system also aids Primary Health Centers (PHCs) and Anganwadi workers by reducing their workload, providing detailed immunization histories, and enabling targeted interventions.

Beyond vaccination, the system's blockchain-based data security and flexible architecture make it suitable for broader healthcare applications such as maternal care monitoring, nutritional tracking, and chronic disease management in remote areas. It can also be easily adopted by NGOs, global health organizations, and private healthcare entities to support community-level healthcare efforts, particularly in regions with low literacy rates and limited infrastructure.

Group members:

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Guide Name: M.A.Zope Project Sponsored By: Vibute Hospital,Pune



Title: Event Ticket Management With Blockchain Implementation.

Introduction

In the contemporary landscape of event management, ticketing systems are critical for ensuring smooth operations and a positive experience for attendees. Traditional ticketing methods, while effective to a degree, are fraught with challenges that impact both organizers and consumers. Issues such as ticket fraud, counterfeit sales, and inefficient transfer processes have long plagued the industry, undermining trust and leading to substantial financial losses. This project explores the application of blockchain technology to revolutionize event ticket management. By leveraging the decentralized nature of blockchain, the proposed system addresses critical pain points in traditional ticketing. The integration of smart contracts further enhances this solution, automating processes and ensuring adherence to predefined rules without the need for intermediaries.



System Architecture diagram with explanation:



Methodology

• Data Collection

Data collection is a process of systematically gathering and measuring information from a variety of sources to get a complete and accurate picture of an area of interest. For the proposed system, we are BBC news dataset to train the machine learning model.

• Data Preparation

Data preparation is a process of getting data ready to use by cleaning and transforming raw data prior to processing and analysis. It is an important step prior to processing and often involves reformatting data, making corrections to data and the combining of data sets to enrich data.

Data Exploration

Data exploration is a process of understanding the data by visually representing it in the form of graphs, pie charts, histograms, etc.

• Data Mining

Data mining is a process used by companies to turn raw data into useful information. By using software to look for patterns in large batches of data, businesses can learn more about their customers to develop more effective marketing strategies, increase sales and decrease costs.

• Information Retrieval

Information retrieval (IR) is the process of obtaining information system resources that are relevant to an information need from a collection of those resources. Searches can be based on full-text or other content-based indexing. Information retrieval is the science of searching for information in a document, searching for documents themselves, and also searching for the metadata that describes data, and for databases of texts, images or sounds.

• Evaluation

Evaluation is a process that critically examines a program. It involves collecting and analyzing information about a program's activities, characteristics, and outcomes. Its purpose is to make judgments about a program, to improve its effectiveness, and/or to inform programming decisions.



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Expected Outcomes

• Enhanced Security

Reduced instances of ticket fraud and counterfeiting through immutable blockchain records and cryptographic verification.

• Increased Efficiency

Streamlined ticket issuance, transfer, and refund processes with automated smart contracts, reducing administrative overhead and processing times.

• Improved Transparency

Clear, auditable transaction history on the blockchain, providing transparency in ticket ownership and transfers.

• Seamless User Experience

User-friendly interfaces for event organizers, ticket buyers, and vendors, facilitating easy interaction and management.

Scalability

A robust system capable of handling varying volumes of transactions and user activities efficiently.

Group Members:

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V.GLIMSES OF HACKATHON PROJECTS 2024-25

Title: VitalRite: Revolutionizing Medical Management

Introduction

VitalRite is a comprehensive medicine tracker application designed to address the global challenge of medication non-adherence, which affects approximately 50% of patients and leads to suboptimal treatment outcomes, increased hospitalizations, and higher healthcare costs. By integrating advanced features such as alarm reminders, electronic reporting, e-prescriptions, personal medical history storage, and auto SOS alerts, VitalRite empowers users to manage their medication regimens effectively, improving health outcomes and quality of life. The app targets individuals with chronic conditions, elderly patients, caregivers, and health enthusiasts, while also partnering with healthcare providers and pharmacies to create a seamless ecosystem. Operating on a B2B2C model, VitalRite combines a freemium subscription plan with premium features, in-app purchases, and partnerships to ensure scalability and revenue generation.



Architecture Diagram

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Working

- 1. **User Onboarding**: Users sign up via the mobile app, inputting their medical history, allergies, and medication schedules. Caregivers can manage profiles for dependents.
- 2. Alarm Reminders: The app sends push notifications for medication doses, customizable based on user preferences and prescription schedules.
- 3. **Electronic Reporting**: Users log their medication intake, generating reports that can be shared with healthcare providers for monitoring adherence.
- 4. **E-Prescriptions**: Physicians upload prescriptions to the blockchain, which users access via the app. Pharmacies fulfill these prescriptions, eliminating paper-based processes.
- 5. **Personal Medical History and Allergies**: Secure storage of medical data allows quick access during consultations or emergencies, with allergy alerts to prevent adverse reactions.
- 6. Auto SOS Alerts: In case of missed doses or detected emergencies (e.g., via accident detection algorithms), the app sends alerts to predefined contacts or emergency services.
- 7. **Premium Features**: AI-driven insights provide personalized health recommendations, and features like early doctor appointment booking or pharmacy delivery are available via in-app purchases.

Conclusion

VitalRite is a transformative solution that tackles the critical issue of medication non-adherence through a user-centric, technology-driven approach. By combining alarm reminders, electronic reporting, e-prescriptions, and secure medical history management, it empowers users to take control of their health. The app's B2B2C model, partnerships with healthcare providers, and scalable infrastructure position it to capitalize on the growing demand for digital health solutions. With its focus on convenience, security, and improved health outcomes, VitalRite has the potential to revolutionize medication management and enhance overall well-being.

Application

- **Patients with Chronic Conditions**: Simplifies complex medication regimens for conditions like diabetes, hypertension, and heart disease, improving adherence and disease management.
- **Elderly Individuals**: Assists with timely reminders and easy-to-use interfaces, reducing the risk of missed doses.
- **Caregivers**: Enables management of medication schedules for dependents, with reporting features to monitor adherence.
- Healthcare Providers: Enhances patient monitoring through shared electronic reports and e-prescriptions, improving treatment outcomes.
- **Pharmacies**: Streamlines prescription fulfillment and offers commission-based partnerships for home delivery services.



Title -Code AI Model Builder for Enterprises

Problem Statement

Artificial Intelligence (AI) and Machine Learning (ML) are revolutionizing industries by automating decision-making processes and delivering predictive insights. However, deploying AI systems requires significant technical knowledge, including programming, model selection, hyperparameter tuning, and model evaluation. For many enterprises, especially small to medium-sized businesses, hiring or training such expertise is resource-intensive. This results in underutilization of AI and slower digital transformation. The proposed solution aims to democratize AI development by enabling users with no programming background to build, train, evaluate, and deploy AI models through an intuitive graphical user interface.

Objective

To design and implement a comprehensive no-code AI platform that enables users to visually create machine learning workflows using drag-and-drop components, automate data processing, recommend suitable models based on problem types, and provide real-time evaluation metrics.

Project Workflow

Step 1: Upload Dataset : Upload a dataset in CSV, Excel, or JSON format.

Step 2: Preprocess

- Handle missing values using mean, median, mode, or drop strategy
- Encode categorical data using one-hot or ordinal encoding
- Handle outliers using the IQR method
- Perform feature engineering on date time columns

Step 3: Train

- Select a model using a drag-and-drop interface
- Automatically detect whether the task is regression or classification
- Perform train-test split and model training with optional hyperparameter tuning



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Step 4: Test

- Evaluate model accuracy using standard metrics
- Visualize results with a confusion matrix (for classification) or scatter plot (for regression)

Step 5: Export

- Save the trained model as a .joblib file
- Download the processed dataset and training metadata

Expected Outcomes

- Increased adoption of AI in enterprise systems
- Reduction in time and cost to build AI models
- Enhanced collaboration between business analysts and technical teams
- Rapid prototyping and deployment of predictive tools.

Conclusion

The No-Code AI Model Builder project empowers non-technical users by abstracting the complexity of AI development into a visual and interactive interface. Through its modular architecture, advanced preprocessing, and seamless integration of multiple ML models, it offers an enterprise-ready solution for deploying smart analytics. By automating every stage of the AI pipeline—from data cleaning to model export—the platform accelerates digital transformation and makes machine learning more accessible.



Project Title: LiftUp – A Cloud-Based AI Mental Wellness Companion

Introduction:

LiftUp is an AI-powered mental wellness companion designed to support users in navigating their emotional health through accessible, intelligent and compassionate digital experiences. In today's fast-paced and emotionally taxing world, mental well-being often takes a backseat due to stigma, lack of access, or language barriers. LiftUp addresses this gap by offering **a judgment-free, multilingual, and privacy-focused platform** that encourages users to open up, reflect, and heal.

Built using IBM Cloud technologies and Watson AI services, LiftUp provides real-time emotional support through a smart conversational interface, sentiment analysis tools, personalized personality insights, and anonymous peer-driven communities. It creates a safe, inclusive, and non-clinical environment to engage in mental self-care, empowering users to express their thoughts freely and receive instant, empathetic responses from an AI companion trained in emotional intelligence.

Objective:

To provide an intelligent, multilingual, and judgment-free platform that supports users' emotional needs through AI-driven conversations, emotional insight tools, and peer support in a safe, anonymous environment.



Architectural design:

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Working:

LiftUp follows a modular, cloud-based architecture that integrates the following core features:

1. Multilingual AI Chatbot

Built with IBM Watson Assistant and IBM Language Translator. Communicates empathetically in multiple languages (English, Hindi, Marathi, etc.). Offers an accessible experience for users from diverse linguistic backgrounds.

2. Sentiment Analysis & Comforting Conversations

Performs real-time analysis of user input using IBM Watson NLU. Identifies emotional tone (sadness, joy, fear, anger, etc.). Provides comforting, emotionally aware replies to support user well-being.

3. Personality Prediction

Uses IBM Watson Personality Insights to assess users' personalities over time based on their chat and journal entries.

Encourages self-awareness and introspection by highlighting traits like openness, conscientiousness, extraversion, agreeableness, and emotional range.

4. Anonymous Q&A Community Platform

A moderated space for users to share experiences, ask questions, and provide peer support. Anonymous interactions ensure a judgment-free and safe environment. Encourages mutual healing and empathy.

5. Journaling Tool

A secure and private digital journaling space. Allows users to record thoughts, track emotions, and reflect daily. Data is stored safely in IBM Cloudant with encryption.

6. Cloud Integration & Security

IBM Cloud Functions for seamless backend execution. API Gateway for secure data transfer between frontend and backend. Cloudant NoSQL DB ensures scalability and privacy-compliant data storage.

7. Frontend Interface (Web and Mobile)

Responsive design with intuitive UI for mental wellness navigation. Developed using modern frameworks and connected to backend services via secure APIs. User onboarding, journaling, chatbot chatbox, and Q&A are seamlessly integrated. Supports light/ dark modes and accessibility for users with visual impairments.

8. Emergency Support Integration

Includes an optional emergency assistance module that detects crisis-related keywords or extreme emotional distress.

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Automatically suggests helpline numbers, connects to mental health professionals, or alerts a trusted contact (if user opts in).

Ensures timely intervention and enhances user safety through responsible AI behavior.

Applications

1. Educational Institutions

LiftUp can be implemented in schools, colleges, and universities to support students' mental health, offering them a safe space to vent, reflect, and seek guidance—especially important during exams, peer pressure, or transitions.

2. Corporate Wellness Programs

Organizations can use LiftUp as part of their employee wellness initiatives to prevent burnout, reduce stress, and promote a healthier work-life balance through anonymous and judgment-free mental health support.

3. Community Support & NGOs

NGOs working in rural or underserved areas can use LiftUp's multilingual and anonymous platform to reach individuals who might otherwise avoid seeking help due to stigma or language barriers.

4. Personal Use for Mental Self-Care

Individuals can use LiftUp as a daily mental wellness companion for journaling, emotional check-ins, and self-discovery through personality analysis and AI-driven conversations.

5. Therapy Supplement Tool

Mental health professionals may use LiftUp as a supportive companion for clients between therapy sessions, helping users track emotional patterns, journal their experiences, and receive AI-generated comfort.

Conclusion

LiftUp offers a compassionate and tech-driven approach to mental wellness. By combining AI, natural language processing, emotional intelligence, and cloud computing, it empowers users to explore and manage their mental health in a safe, inclusive, and innovative way. Whether it's through a therapeutic conversation, an insightful personality analysis, or an anonymous peer discussion, LiftUp is designed to be a trusted companion in every user's mental wellness journey.



Title :Exploring Hybrid Model Stacking: DNN as a Meta Learner for Blending XGBoost and LightGBM in Steel Plate Fault Detection

Introduction :

Steel is an alloy primarily composed of iron (Fe) and carbon (C), with small amounts of elements like manganese, chromium, and nickel to enhance its properties. It is widely used in construction, transportation, machinery, and various industrial applications due to its high strength, durability, and resistance to wear and corrosion. As global demand is expected to reach 1.77 billion metric tons by 2025, ensuring both the quantity and quality of steel production is increasingly important. Traditional inspection methods are no longer sufficient to meet the growing need for precision in manufacturing. Advancements in technology have introduced modern approaches such as machine learning, deep learning, and computer vision for fault detection. This research focuses on combining XGBoost and LightGBM-two powerful gradient boosting algorithms—to leverage their strengths in improving fault detection accuracy and minimizing bias. Key techniques include feature engineering, hyperparameter optimization using Optuna, and SHAP values for model interpretability. Out-of-fold (OOF) predictions are used to enhance performance, and ensemble techniques like blending and stacking are applied. A deep neural network (DNN) serves as the meta-learning model to further boost prediction reliability. This comprehensive approach aims to ensure precise and efficient evaluation of steel quality, supporting modern production demands.

Architecture Diagram :





Working :

Steel plate fault detection is important for ensuring quality control in manufacturing. This project uses a combination of XGBoost and LightGBM models to improve defect classification accuracy by applying the UCI Steel Plate Faults dataset. The dataset contains 27 features and 7 binary target variables such as Pastry, Z_Scratch, and Bumps. It is a multi-label classification problem with no missing values.

The process is as follows:

- I. Data collection:
 - a. The UCI Steel Plate Fault Detection dataset is collected.

II. Data preprocessing:

- a. Dominant defect classes are identified.
- b. Data formats are adjusted for compatibility.

III. Model development:

- a. Base models are built using XGBoost and LightGBM.
- b. Feature engineering is performed, which includes X_Range, Y_Range, Area_Perimeter_Ratio, and luminosity analysis.
- c. Bayesian tuning is applied to optimize model hyperparameters.
- d. SHAP analysis is conducted to understand feature importance.

IV. Stacking and blending:

a. Predictions from XGBoost and LightGBM are combined using different stacking approaches.

V. Meta-learner:

a. A deep neural network (DNN) acts as the meta-learner to make final classification decisions.

VI. Final defect detection:

a. The model classifies steel plates as defective or non-defective.

VII. Model selection:

VIII. XGBoost is suitable for structured and medium-sized datasets as it offers regularization, missing data handling, and SHAP-based interpretability, though it is slower.



IX. LightGBM performs well on large datasets, supports GPU acceleration, and uses a leafwise growth strategy, making it faster and more efficient.

Receiver Operating Characteristic (ROC) Curve 1.0 0.8 Rate 0.6 Positive ž 0.4 Class 1 (AUC = 0.87) Class 2 (AUC = 0.96) Class 3 (AUC = 0.98) 0.2 Class 4 (AUC = 0.99) Class 5 (AUC = 0.85) Class 6 (AUC = 0.81) Class 7 (AUC = 0.71) 0.0 0.0 0.2 0.4 0.6 0.8 1.0 False Positive Rate

Model's Final Graph Result :

Fig : ROC-AUC Curve for validation dataset







Conclusion :

This study explores a hybrid stack technique for detecting defects in steel plates, improving accuracy through independent model training, optimization, and integration with a DNN metalearner. Bayesian search via Optuna and SHAP analysis helped correct classification errors. The approach, using gradient boosting models in a stacked architecture, ensures a detailed evaluation by combining individual and stacked modeling. Achieving a final ROC-AUC score of 0.89076 with low variance (0.005), it offers stability but demands careful resource management. Future research should enhance computational efficiency and validate the method on diverse datasets, including real-time applications.

Application :

1. Smart Quality Control in Steel Manufacturing

Application: Deploy the hybrid model on production lines to detect faults in steel plates in real time.

Impact: Automates defect classification, reduces inspection time, and increases defect detection accuracy, minimizing defective output.

2. Automated Visual Inspection Systems

Application: Integrate with computer vision systems using camera sensors and surface scanners to classify defects during the rolling or cutting process.

Impact: Enhances efficiency by combining sensor data and machine learning predictions, reducing human error in visual inspections.

3. Predictive Maintenance Scheduling

Application: Use model outputs to predict recurring fault patterns that may signal equipment wear or process inefficiencies.

Impact: Enables proactive maintenance, reducing downtime and improving machinery lifespan.

4. Quality Auditing and Reporting Systems

Application: Implement in digital quality control systems that log, classify, and report faults for traceability and compliance.

Impact: Improves transparency and meets industry standards (e.g., ISO 9001) with detailed, data-driven quality reports.

5. Supply Chain Optimization

Application: Integrate with ERP systems to automatically reroute or grade steel plates based on defect severity for different customer needs.

