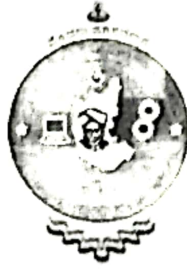# VISVESVARAYA TECHNOLOGICAL UNIVERSITY
"Jnana Sangama", Belagavi-560014, Karnataka

PROJECT REPORT ON

## "CUSTOMER CHURN PREDICTION USING MACHINE LEARNIG"

*SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE PROJECT*

## BACHELOR OF ENGINEERING
IN
## INFORMATION SCIENCE & ENGINEERING

Submitted By
**SHIVAKUMAR B C   (1SV19IS016)**
**SHREEDHARA GANACHARI   (1SV19IS017)**
**VENKATESH M KAMBLE   (1SV19IS026)**

Under the guidance of

**Dr. Charan K V** M.Tech,PhD

Associate Professor, Dept. of
AI&DS,SIET, Tumakuru.

**SHRIDEVI**
E D U C A T I O N

Department of Information Science and Engineering

## SHRIDEVI INSTITUTE OF ENGINEERING AND TECHNOLOGY
(Affiliated To Visvesvaraya Technological University)
Sira Road, Tumakuru – 572106, Karnataka.
2022-2023

## DEPARTMENT OF INFORMATION SCIENCE AND ENGINEERING

## CERTIFICATE

This is to certify that, Project report of entitled "CUSTOMER CHURN PREDICTION USING MACHINE LEARNING" has been successfully carried out by,SHIVAKUMARBC[1SV19IS016],SHREEDHARAGANACHARI[1SV19IS017], VENKATESH M KAMBLE[1SV19IS026], in partial fulfillment for the project report of **Bachelor of Engineering in Information Science & Engineering** of the **Visvesvaraya Technological University, Belagavi** during the academic year **2022-23.** It is certified that all the corrections/suggestions indicated for internal assessments have been incorporated in the report. The Project report has been approved as it certifies the academic requirements in respect of Project work prescribed for the Bachelor of Engineering Degree.

**Signature of Guide**
**Dr.Charan K V** M.Tech,PhD
Associate Professor,
Dept. of AI&DS,
SIET, Tumakuru.

**Signature of H.O.D**
**Dr.Suhas G K** BE.,M.Tech.,Phd
Associate Professor & HOD
Dept. of ISE,
SIET, Tumakuru.

**Signature of Principal**

**Dr.Narendra Viswanath** M.E., Ph.D., MIE, MISTE, MIWS, FIV.,
Principal,
SIET, Tumakuru

PRINCIPAL
SHRIDEVI INSTITUTE OF
ENGINEERING AND TECHNOLOGY
TUMKUR - 572106

**Name of the Examiners**

1. Dr. Manoj kumar DF

**Signature with date**

24/5/23

2. Merlin B

24/5/23

# DEPARTMENT OF INFORMATION SCIENCE AND ENGINEERING

## DECLARATION

We, **SHIVAKUMAR B C [1SV19IS016]**, **SHREEDHARA GANACHARI [1SV19IS017]**, **VENKATESH M KAMBLE[1SV19IS026]**, student of VIII semester B.E in Information Science& Engineering, at Shridevi Institute of Engineering & Technology, Tumakuru, hereby declare that, the Project work entitled **"CUSTOMER CHURN PREDICTION USING MACHINE LEARNING"**, embodies the report of our Project work carried out under the guidance of **Dr.Charan K V, Associate Professor, Department of AI&DS, SIET, Tumakuru** as partial fulfillment of requirements for the Project report in **Bachelor of Engineering in Information Science & Engineering of Visvesvaraya Technological University, Belagavi**, during the academic year **2022-23**. The Project has been approved as it satisfies the academic requirements in respect to the Project work.

Place: Tumakuru

Date: 24-05-2023

Student Name & Signature

SHIVAKUMAR B C [1SV19IS016]...................

SHREEDHAR G [1SV19IS017].....................

VENKATESH M K [1SV19IS026]...................

SHRIDEVI INSTITUTE OF
ENGINEERING AND TECHNOLOGY
TUMKUR - 572106

# ACKNOWLEDGEMENT

This Project will be incomplete without thanking the personalities responsible for this venture, which otherwise would not have become a reality.

We express our profound gratitude to **Dr. Narendra Viswanath**, Principal, S.I.E.T, for his moral support towards completing our Project work.

We would like to thank Head of Department **Dr. Suhas G K**, Department of ISE, SIET For providing all the support and facility.

We would like to thank my guide **Dr.Charan K V, Associate Professor**, Department of Artificial Intelligence & Data science, SIET for his help, sharing his technical expertise and timely advice.
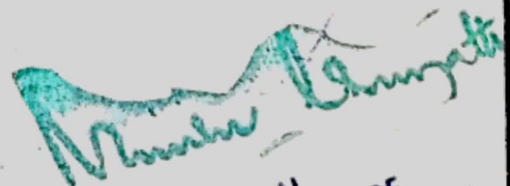
We would like to express our sincere gratitude to all teaching and non-teaching faculty of the department of ISE for guiding us of this project by giving valuable suggestion and encouragement.

By,

SHIVAKUMAR B C [1SV19IS016]

SHREEDHAR G [1SV19IS017]

VENKATESH M K [1SV19IS026]

PRINCIPAL
SHRIDEVI INSTITUTE OF
ENGINEERING AND TECHNOLOGY
TUMKUR - 572106

Date: 23/05/2023

## TO WHOM SO EVER IT MAY CONCERN

This is to certify that **Mr. SHIVAKUMAR B C** bearing USN **1SV19IS016** Student of **Shridevi Institute of Engineering and Technology** has successfully completed his Project Work titled "Customer Churn Prediction Using Machine Learning".

We wish every success in his career.

For ShriTEK Innovations

For Shri

Authorized Signature

PRINCIPAL
SHRIDEVI INSTITUTE OF
ENGINEERING AND TECHNOLOGY
TUMKUR - 572106

# ShriTEK Innovations

Skill & Career Development Centre, Room No. 3, Ground Floor,
SIET Campus, Sira Road, Tumakuru - 572 106. Karnataka.

☎ : 0816-2211642
🌐 : www.shritek.com
✉ : shritekinnovations@gmail.com

Date: 23/05/2023

## TO WHOM SO EVER IT MAY CONCERN

This is to certify that **Mr. SHREEDHARA GANACHARI** bearing USN **1SV19IS017** Student of **Shridevi Institute of Engineering and Technology** has successfully completed his Project Work titled "Customer Churn Prediction Using Machine Learning".
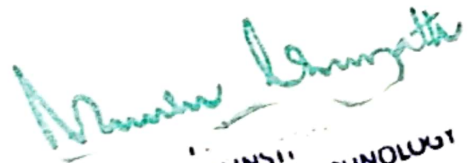
We wish every success in his career.

For ShriTEK Innovations

For

Authorized Signature

SHRIDEVI INSTI..
ENGINEERING AND TECHNOLOGY
TUMKUR - 572108.

# ABSTRACT

Customer churn, the phenomenon of customers ceasing their relationship with a business, poses significant challenges for companies across various industries. Identifying and predicting customer churn is crucial for organizations aiming to reduce customer attrition rates and improve customer retention strategies. This paper presents an in-depth analysis of customer churn prediction, leveraging advanced machine learning techniques. The study begins by reviewing existing literature on customer churn, exploring its causes, and highlighting its impact on businesses. Next, a comprehensive dataset comprising historical customer information and churn indicators is utilized. Feature engineering techniques are employed to extract relevant insights from the dataset, including customer demographics, transactional data, and engagement metrics. Several state-of-the-art machine learning algorithms, such as logistic regression, random forest, support vector machines, and neural networks, are implemented and evaluated for their predictive performance. To ensure robustness, the models are validated using appropriate cross-validation techniques and evaluated based on metrics such as accuracy, precision, recall, and F1-score.

SHRIDEVI INST.
ENGINEERING AND TECHNOLOGY
TUMKUR - 572106.