DEPARTMENT OF

DETAILS OF THE INTERSHIP FOR THE P.G STUDENTS OF ACADEMIC YEAR 20 - 20

S. No.	Student Reg. No.	Student Name	Name of the Mentor	Address of the Organisation/Industry/Institute	Date From	Date To	Remarks
1	231340865117 21001	Alex milton . M	Dr. Jayaraj . T	Marcello Tech, Trichy	01.06.24	15.6.24	V. Good
2.	231340865117 22002	Bavyapriya . D	Dr. Angeline sarguna gifta	Marcello Tech, Trichy.	01.06.24	15.06.24	V. Good
3.	231340865117 22003	Benitta . S	Dr. Irene Hepzibah	Marcello Tech, Trichy	01.06.24	15.06.24	V. Good
4.	231340865117 22004	Leesma . D	Dr. Christinal gunaseeli	Marcello Tech, Trichy.	01.06.24	15.06.24	V. Good
5.	231340865117 22005	Sangavi . S	Dr. Jayasingh Manohar	Marcello Tech, Trichy	01.06.24	15.06.24	V. Good
6	231340865117 22006	Sheela jenifer . A	Dr. Merlin priyanga	Marcello Tech, Trichy	01.06.24	15.06.24	V. Good
7	231340865117 22009	Vithusha . V	Dr. Fanyhelena	Marcello Tech, Trichy	01.06.24	15.06.24	V. Good

05/07/24

Dr.D.STEPHEN DINAGAR Ph.D.
HEAD & Associate Professor
PG & Research Department of Mathematics,
T.B.M.L. College, Porayar 609 307

Dr. T. JAYARAJ, M.Sc., M.Phil. Ph.D

ASSISTANT PROFESSOR OF MATHEMATICS,

DEPARTMENT OF MATHEMATICS,

T.B.M.L College, PORAYAR-609307

Date: 26.06.2024

CERTIFICATE

This is to certify that the "Internship report" submitted by **M. Alex milton** **(Reg. No. 23134086511721001)** is work done by her at MARCELLO TECH, No.3, GEM Plaza, Ground Floor, SRC College Road, Trichy-620 002, during the academic year 2023 – 2024, in partial fulfillment of the requirements for the award of the degree of **MASTER OF SCIENCE IN MATHEMATICS.**
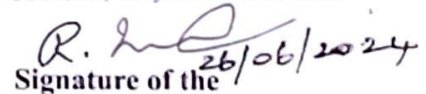
M. Alexmilk

Signature of the Candidate

Signature of the Mentor

26/06/2024

Dr.T. JEYARAJ, M.Sc.,M.Phil.,Ph.D.,
Associate Professor
PG & Resear.... of Mathematics
T.B....College,
Porayar-609 307, Mayiladuthurai Dist.
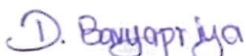
05/07/24

Signature of the

Head of the Department

Dr.D.STEPHEN DINAGAR,Ph.D..
HEAD & Associate Professor.
PG & Research Department of Mathematics
T.B.M.L. College. Porayar 609 307

26/06/2024

Signature of the

Department Internship Coordinator

Dr.R.IRENE HEPZIBAH, M.Sc.,M.Phil.,Ph.d.,
Assistant Professor & Research Advisor,
PG & Research Department of Mathematics,
T.B.M.L.College, Porayar-609 307,
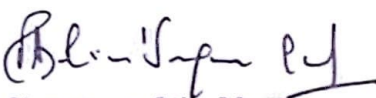Mayiladuthurai District, Tamilnadu, India.

3

Dr. R. ANGELINE SARGUNA GIFTA, M.Sc., M.Phil. Ph.D
ASSISTANT PROFESSOR OF MATHEMATICS,
DEPARTMENT OF MATHEMATICS,
T.B.M.L College, PORAYAR-609307

Date: 26.06.2024

CERTIFICATE

This is to certify that the "Internship report" submitted by **D. BAVYAPRIYA** (Reg. No. 23134086511722002) is work done by her at MARCELLO TECH, No.3, GEM Plaza, Ground Floor, SRC College Road, Trichy-620 002, during the academic year 2023 – 2024, in partial fulfillment of the requirements for the award of the degree of **MASTER OF SCIENCE IN MATHEMATICS.**
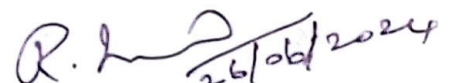
D. Bavyapriya
Signature of the Candidate

Signature of the Mentor
(Dr. R. ANGELINE SARGUNA GIFTA)

Signature of the
Head of the Department

Dr.D.STEPHEN DINAGAR, Ph.D.
HEAD & Associate Professor,
PG & Research Department of Mathematics,
T.B.M.L. College, Porayar 609 307

Signature of the

Department Internship Coordinator
Dr.R.IRENE HEPZIBAH, M.Sc.,M.Phil.,Ph.d.,
Assistant Professor & Research Advisor,
PG & Research Department of Mathematics,
T.B.M.L.College, Porayar-609 307,
Mayiladuthurai District, Tamilnadu, India.

3

Dr. R. IRENE HEPZIBAH, M.Sc., M.Phil. Ph.D

ASSISTANT PROFESSOR OF MATHEMATICS,

DEPARTMENT OF MATHEMATICS,

T.B.M.L College, PORAYAR-609307

Date: 26.06.2024

CERTIFICATE

This is to certify that the "Internship report" submitted by **S. BENITTA (Reg. No. 23134086511722003)** is work done by her at MARCELLO TECH, No.3, GEM Plaza, Ground Floor, SRC College Road, Trichy-620 002, during the academic year 2023 – 2024, in partial fulfillment of the requirements for the award of the degree of **MASTER OF SCIENCE IN MATHEMATICS.**

S. Both.

Signature of the Candidate
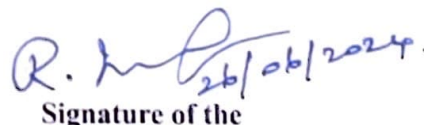
R. ᴴ 26/06/2024

Signature of the Mentor

Dr.R.IRENE HEPZIBAH, M.Sc.,M.Phil.,Ph.d.,
Assistant Professor & Research Advisor,
PG & Research Department of Mathematics,
T.B.M.L.College, Porayar-609 307,
Mayiladuthurai District, Tamilnadu, India.

D. 26/06/2024

Signature of the

Head of the Department
Dr.D.STEPHEN DINAGAR,Ph.D.,
HEAD & Associate Professor,
PG & Research Department of Mathematics,
T.B.M.L College. Porayar 609 307

R. ᴴ 26/06/2024.

Signature of the

Department Internship Coordinator

Dr.R.IRENE HEPZIBAH, M.Sc.,M.Phil.,Ph.d.,
Assistant Professor & Research Advisor,
PG & Research Department of Mathematics,
T.B.M.L.College, Porayar-609 307,
Mayiladuthurai District, Tamilnadu, India.

4

Dr. S. CHRISTINAL GUNASEELI, M.Sc., M.Phil. Ph.D

ASSISTANT PROFESSOR OF MATHEMATICS,

DEPARTMENT OF MATHEMATICS,

T.B.M.L College, PORAYAR-609307

Date: 26.06.2024

CERTIFICATE

This is to certify that the "Internship report" submitted by **D. LEESMA** **(Reg. No. 23134086511722004)** is work done by her at MARCELLO TECH, No.3, GEM Plaza, Ground Floor, SRC College Road, Trichy-620 002, during the academic year 2023 – 2024, in partial fulfillment of the requirements for the award of the degree of **MASTER OF SCIENCE IN MATHEMATICS.**
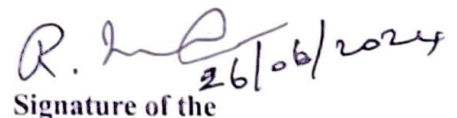
D. Leesma
Signature of the Candidate

S. Christinal Gunaseeli /26/6/24
Signature of the Mentor

D. Stephen /05/07/24
Signature of the

Head of the Department

Dr.D.STEPHEN DINAGAR,Ph.D..
HEAD & Associate Professor.
PG & Research Department of Mathematics.
T.B.M.L. College. Porayar   609 307

R. Irene 26/06/2024
Signature of the

Department Internship Coordinator

Dr.R.IRENE HEPZIBAH, M.Sc.,M.Phil.,Ph.d.,
Assistant Professor & Research Advisor,
PG & Research Department of Mathematics,
T.B.M.L.College, Porayar-609 307,
Mayiladuthurai District, Tamilnadu, India.

3

Dr. P. JAYASINGH MANOHAR, M.Sc., M.Phil. Ph.D

ASSISTANT PROFESSOR OF MATHEMATICS,

DEPARTMENT OF MATHEMATICS,

T.B.M.L College, PORAYAR-609307

Date: 26.06.2024

CERTIFICATE

This is to certify that the "Internship report" submitted by **S. SANGAVI**   (Reg. No. **23134086511722005**) is work done by her at MARCELLO TECH, No.3, GEM Plaza, Ground Floor, SRC College Road, Trichy-620 002, during the academic year 2023 – 2024, in partial fulfillment of the requirements for the award of the degree of **MASTER OF SCIENCE IN MATHEMATICS.**

Signature of the Candidate

Signature of the Mentor

Signature of the

Head of the Department

Dr.D.STEPHEN DINAGAR,Ph.D.,
HEAD & Associate Professor,
PG & Research Department of Mathematics
T.B.M.L College, Porayar 609 307

Signature of the

Department Internship Coordinator

Dr.R.IRENE HEPZIBAH, M.Sc.,M.Phil.,Ph.d.,
Assistant Professor & Research Advisor,
PG & Research Department of Mathematics,
T.B.M.L.College, Porayar-609 307,
Mayiladuthurai District, Tamilnadu, India.

Dr. M. MERLIN PRIYANGA, M.Sc., M.Phil. Ph.D
ASSISTANT PROFESSOR OF MATHEMATICS,
DEPARTMENT OF MATHEMATICS,
T.B.M.L College, PORAYAR-609307

Date: 26.06.2024

CERTIFICATE

This is to certify that the "Internship report" submitted by **A. SHEELA JENIFER**
(Reg. No. 23134086511722006) is work done by her at MARCELLO TECH, No.3, GEM Plaza,
Ground Floor, SRC College Road, Trichy-620 002, during the academic year 2023 – 2024, in
partial fulfillment of the requirements for the award of the degree of **MASTER OF SCIENCE**
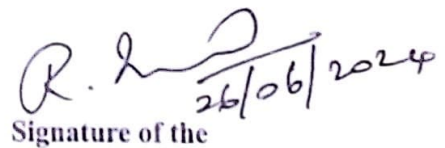**IN MATHEMATICS.**

Signature of the Candidate

Signature of the Mentor 19/6/2024

Signature of the

Head of the Department

Dr.D.STEPHEN DINAGAR,Ph.D.,
HEAD & Associate Professor,
PG & Research Department of Mathematics.
T.B.M.L. College, Porayar 609 307

Signature of the

Department Internship Coordinator
Dr.R.IRENE HEPZIBAH, M.Sc.,M.Phil.,Ph.d.,
Assistant Professor & Research Advisor,
PG & Research Department of Mathematics,
T.B.M.L.College, Porayar-609 307,
Mayiladuthurai District, Tamilnadu, India.

Dr. E. FANY HELENA, B.Ed., M.Sc., M.Phil. Ph.D
ASSISTANT PROFESSOR OF MATHEMATICS,
DEPARTMENT OF MATHEMATICS,
T.B.M.L College, PORAYAR-609307

Date: 26.06.2024

CERTIFICATE

This is to certify that the "Internship report" submitted by **V. VITHUSHA** **(Reg. No. 23134086511722009)** is work done by her at MARCELLO TECH, No.3, GEM Plaza, Ground Floor, SRC College Road, Trichy-620 002, during the academic year 2023 – 2024, in partial fulfillment of the requirements for the award of the degree of **MASTER OF SCIENCE IN MATHEMATICS.**

Signature of the Candidate

26-06-2024

Signature of the Mentor

26/06/2024

05/08/24

Signature of the

Head of the Department

Dr.D.STEPHEN DINAGAR,Ph.D
HEAD & Associate Professor,
PG & Research Department of Mathematics.
T.B.M.L. College, Porayar 609 307

Signature of the

Department Internship Coordinator

Dr.R.IRENE HEPZIBAH, M.Sc.,M.Phil.,Ph.d.,
Assistant Professor & Research Advisor,
PG & Research Department of Mathematics,
T.B.M.L.College, Porayar-609 307,
Mayiladuthurai District, Tamilnadu, India.

INTERNSHIP REPORT

A report submitted to the

ANNAMALAI UNIVERSITY

In partial fulfillment of the requirement for the degree of

MASTER OF SCIENCE IN MATHEMATICS

Submitted by

S. BENITTA

(Reg.No.23134086511722003)

Under the Guidance of

Dr. R. IRENE HEPZIBAH, M.Sc., M.Phil., Ph.D.,

Assistant Professor

PG & RESEARCH DEPARTMENT OF MATHEMATICS

TRANQUEBAR BISHOP MANIKAM LUTHERAN COLLEGE

PORAYAR– 609 307

JUNE 2024

S. BENITTA
 REG NO: 23134086511722003
 MASTER OF SCIENCE IN MATHEMATICS,
 T.B.M.L COLLEGE, (AFFILIATED TO ANNAMALAI UNIVERSITY, CHIDAMBARAM)
 PORAYAR - 609307

DECLARATION

I hereby declare that the work presented in this Report entitled,

"MACHINE LEARNING ARTIFICIAL INTELLIGENCE USING
PYTHON"

has been originally carried out by me under the guidance and supervision of

Dr.R. IRENE HEPZIBAH,, M.Sc., M.Phil., Ph.D., Assistant professor, PG and Research Department of Mathematics, T.B.ML College, Porayar - 609307.This work has been submitted either in whole or in part for any other Degree or Diploma at any University or Research Institute.

Place: Porayar

Date: 26-06-2024   **(S.BENITTA)**

Dr. R. IRENE HEPZIBAH, M.Sc., M.Phil. Ph.D

ASSISTANT PROFESSOR OF MATHEMATICS,

DEPARTMENT OF MATHEMATICS,

T.B.M.L College, PORAYAR-609307

Date: 26.06.2024

CERTIFICATE

This is to certify that the "Internship report" submitted by **S. BENITTA (Reg. No. 23134086511722003)** is work done by her at MARCELLO TECH, No.3, GEM Plaza, Ground Floor, SRC College Road, Trichy-620 002, during the academic year 2023 – 2024, in partial fulfillment of the requirements for the award of the degree of **MASTER OF SCIENCE IN MATHEMATICS.**

S. Bett.

Signature of the Candidate
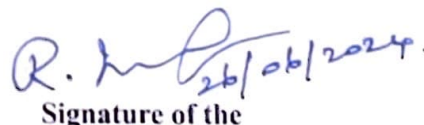
R. ⟶ 26/06/2024

Signature of the Mentor

Dr.R.IRENE HEPZIBAH, M.Sc.,M.Phil.,Ph.d.,
Assistant Professor & Research Advisor,
PG & Research Department of Mathematics,
T.B.M.L.College, Porayar-609 307,
Mayiladuthurai District, Tamilnadu, India.

D. Sel 26/06/2024

Signature of the

Head of the Department
Dr.D.STEPHEN DINAGAR,Ph.D.,
HEAD & Associate Professor.
PG & Research Department of Mathematics.
T.B.M.L College. Porayar 609 307

R. ⟶ 26/06/2024.

Signature of the

Department Internship Coordinator

Dr.R.IRENE HEPZIBAH, M.Sc.,M.Phil.,Ph.d.,
Assistant Professor & Research Advisor,
PG & Research Department of Mathematics,
T.B.M.L.College, Porayar-609 307,
Mayiladuthurai District, Tamilnadu, India.

4

MARCELLO TECH

ISO 9001:2015 CERTIFIED COMPANY

MSME — MICRO, SMALL & MEDIUM ENTERPRISES

CERTIFICATE

OF COMPLETION

Certificate No: **MTINML2606170**

This is to certify that Mr./Ms./Mrs. **BENITTA S**

from **TRANQUEBAR BISHOP MANIKAM LUTHERN COLLEGE-PORAIYAR,** department of

M.SC MATHEMATICS has successfully completed Internship Programme in **MACHINE**

LEARNING USING PYTHON.

Duration Date: 01.06.2024 to 15.06.2024

26.06.2024
Date Issued

S. Avoda7
Manager

ACKNOWLEDGEMENT

CONTENTS

CHAPTER– I

INTRODUCTION

INTRODUCTION TO MACHINE LEARNING BASICS

Definition

Machine learning is a subset of artificial intelligence that focuses on the development of algorithms that allow computers to learn from data and make predictions or decisions without being explicity programmes.

Type of Machine Learning

* Supervised Learning

* Unsupervised Learning

* Reinforcement Learning

Supervised Learning

In supervised learning, the algorithm learns from labeled data,where each example is paired with an input and a corresponding output.

Unsupervised Learning

It involves training algorithms on unlabeled data and allowing them to learn patterns or structures without explicit guidance.

Reinforcement Learning

It focuses on training agents to make sequential decisions by interacting with an environment and receiving feedback in the form of rewards of penalties.

Introduction to Python Basis

* It was invented by Guido Van Rossum in the year 1991.
*Python is a high level programming language.

Data Types

Numeric, Sequence, Text, Dict, Set, Boolean, Binary.

Variables

A variable is a just a name that represents a value and you can use it to store and manipulate data throughout your program.

Python Data Structures

* List

* Tuble

* Set

* Dictionary

* Range

* Bytes and Byte Array

LOOPS

There are two types of loops.

*For loop

*While loop

FOR LOOP

Iterate over a sequenc

WHILE LOOP

If you want to execute a group of statements iteratively until some condition is false.

CHAPTER II

DATA MANIPULATION WITH PANDAS

Pandas is an open -source data analysis and manipulation library for Python.It provides powerful data structures and functions needed to manipulate structured data seamlessly.It is widely used in data science,data analysis and machine learning tasks due to its ability to handle large datasets efficiently.

PANDAS

```python
import pandas as pd
data=[2,4,6,7,9,8]
print(data)
print(type(data))
```

Output

```
[2, 4, 6, 7, 9, 8]
<class 'list'>
```

```python
import pandas as pd
data=[2,4,6,7,9,8]
Series= pd.Series(data)
print(Series)
```

Output

```
0   2
1   4
2   6
3   7
4   9
5   8
dtype: int64
```

```python
import pandas as pd
data=[2,4,6,7,9,8]
Series= pd.Series(data,index=['a','b','c','d','e','f'])
print(Series)
```

Output

```
    2
b   4
c   6
d   7
e   9
f   8
dtype: int64
```

```python
df=pd.DataFrame(data)
print(type(df))
```

Output

<class 'pandas.core.frame.DataFrame'

```
b    4
c    6
d    7
e    9
f    8
dtype: int64
```

```
df=pd.DataFrame(data)
print(type(df))
```
>

CHAPTER–III

GRAPHS PLOTTING USING PYTHON

SCATTER PLOT

Definition

A scatter plot is a type of plot that displays values for two variables as points on a two -dimention coordinator system. Each point represent the value of one variable corresponding to the value of the other variable.

Scatter plot:

tips=sns.load_dataset("tips")

	total_bill	tip	sex	smoker	day	time	size
0	16.99	1.01	Female	No	Sun	Dinner	2
1	10.34	1.66	Male	No	Sun	Dinner	3
2	21.01	3.50	Male	No	Sun	Dinner	3
3	23.68	3.31	Male	No	Sun	Dinner	2
4	24.59	3.61	Female	No	Sun	Dinner	4
...	...	...	...	...	...	...	...
239	29.03	5.92	Male	No	Sat	Dinner	3
240	27.18	2.00	Female	Yes	Sat	Dinner	2
241	22.67	2.00	Male	Yes	Sat	Dinner	2
242	17.82	1.75	Male	No	Sat	Dinner	2
243	18.78	3.00	Female	No	Thur	Dinner	2

244 rows × 7 columns

sns.scatterplot(x=df['bill_depth_mm'],y=df['bill_length_mm'],hue=df['species'])

OUTPUT
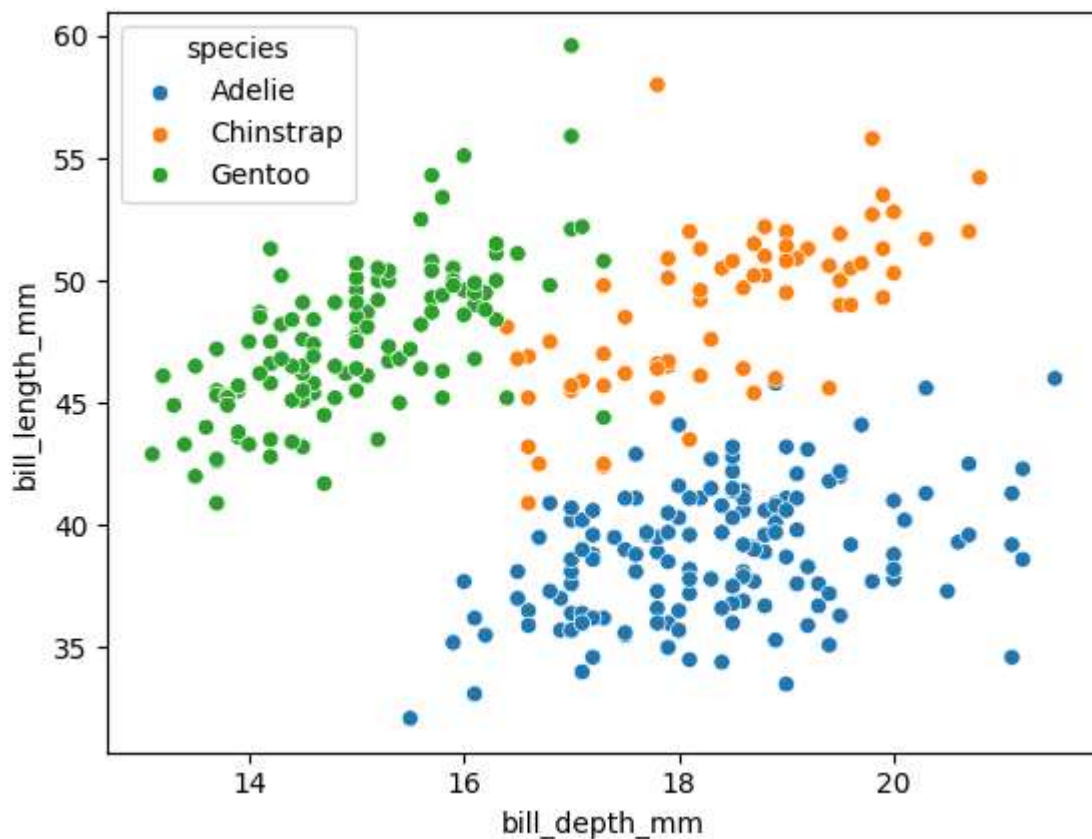
BOX PLOT

A box plot is a graphical summary of a dataset through five summary statistics: minimum,first quartile (Q1),median (Q2), third quartile (Q3), and maximum. It displays the distribution of a continuous variable across different categories or group.

```
tips=sns.load_dataset("tips")
sns.boxplot(y="total_bill",data=tips)
plt.title("Box Plot of Total Bill by Day")
plt.show()
```

OUTPUT

Box Plot of Total Bill by Day
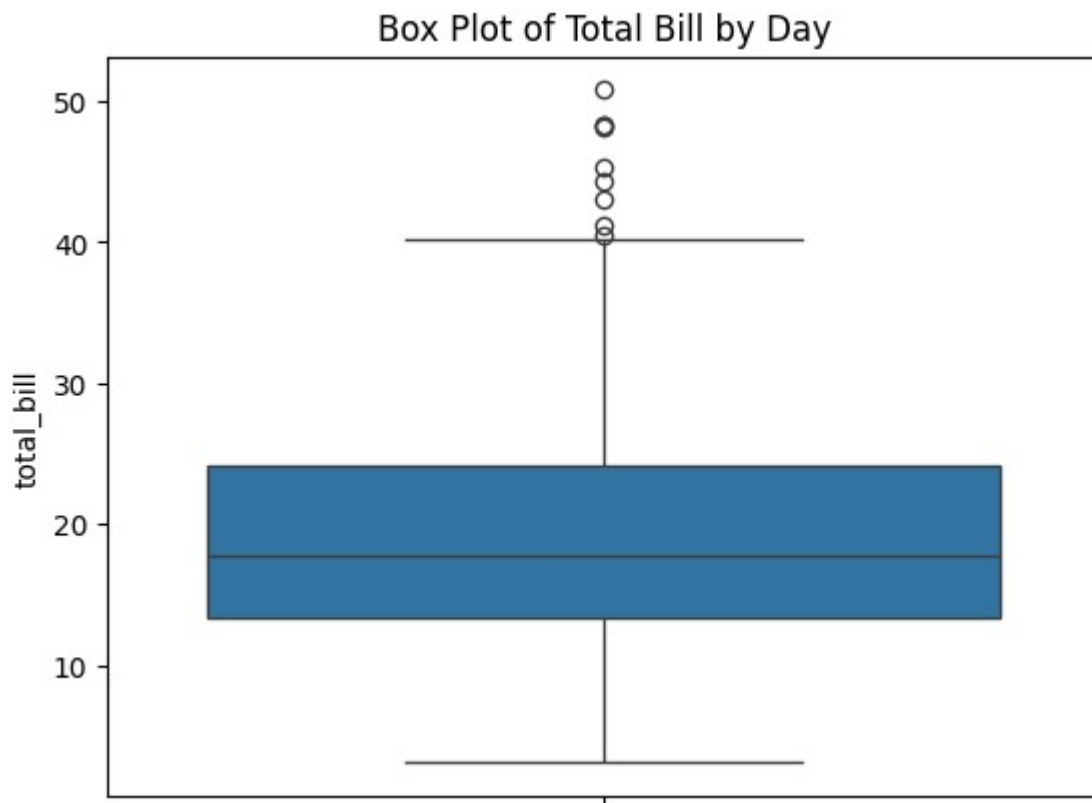
PAIR PLOT

A pair plot, also known as a scatterplot matrix,is a matrix of graphs that enables the visualization of the relationship between each pair of variables in a dataset.

sns.pairplot(tips,hue="sex")
plt.title("Pair Plot of Tips Dataset")
plt.show()

OUTPUT

Pair Plot of Tips Dataset

CHAPTER–IV

LOGISTIC REGRESSION METHOD

LOGISTIC REGRESSION

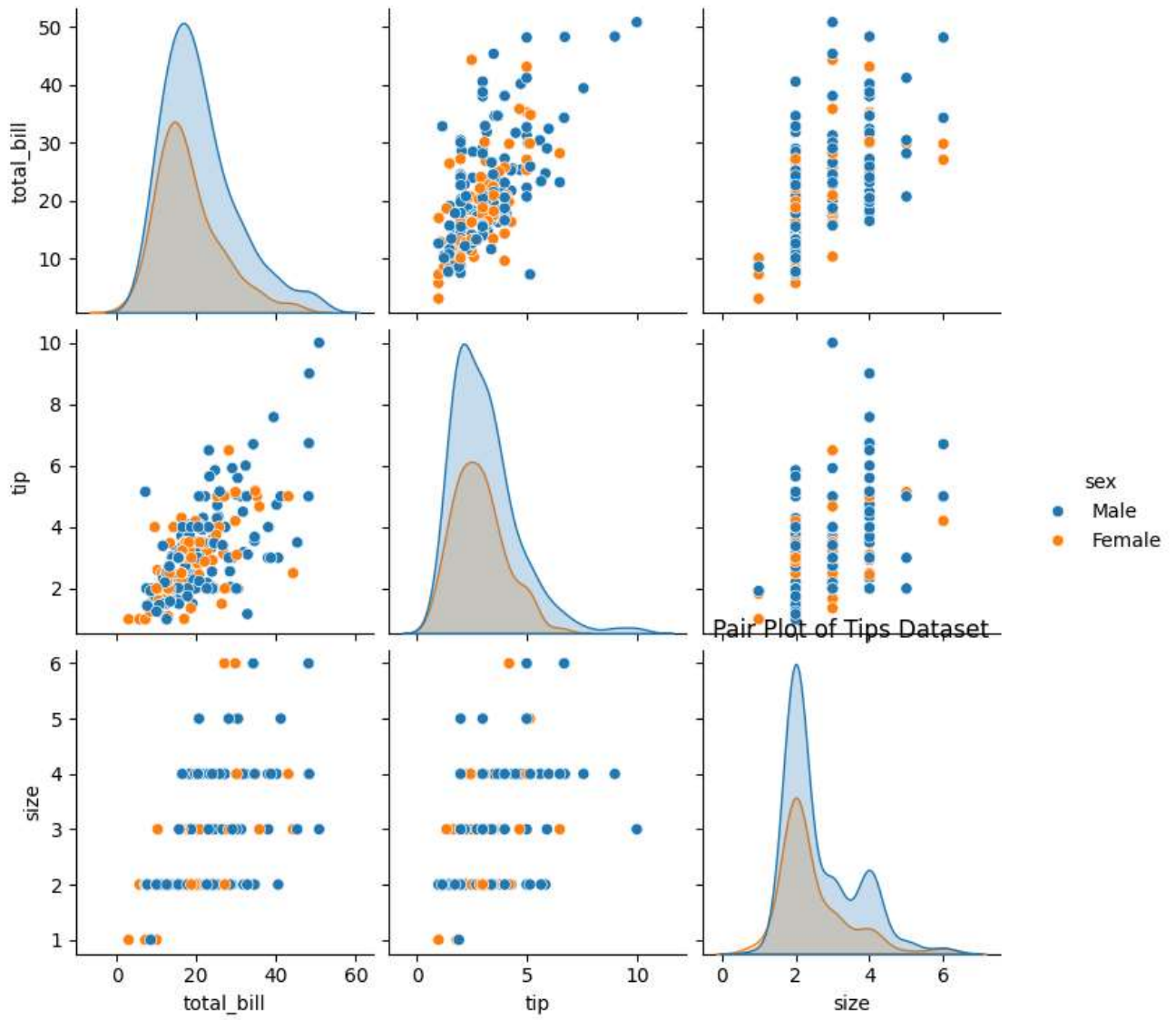Logistic Regression is a statistical method used for binary classification tasks. It predicts the probability that a given input belongs to a particular class. Unlike linear regression, which predicts continuous
values, logistic regression predicts discrete outcomes.

Key Concepts

. **1**. Logistic Function: The logistic function is used to map the output of a linear equation to a probability value between 0 and 1.The logistic function is defined as:

2. Binary Classification: Logistic regression is primarily used for binary classification,where the target variable has two possible outcomes.

3. Decision Boundary: The decision boundary is threshold that separates the classes,If the predicted probability is greater than 0.5, the model predicts one class; otherwise, it predicts the other class.

PROGRAM CODING

```
import seaborn as sns
import pandas as pd
from sklearn.model_selection import train_test_split
from sklearn.linear_model import LogisticRegression
from sklearn.metrics import accuracy_score, confusion_matrix,classification_report
from sklearn.preprocessing import LabelEncoder
import matplotlib.pyplot as plt
import numpy as np

data=sns.load_dateset('penguins')
data.info()
```

OUTPUT

	species	island	bill_length_mm	bill_depth_mm	flipper_length_mm	body_mass_g	sex	
0	Adelie	Torgersen	39.1	18.7	181.0	3750.0	Male	
1	Adelie	Torgersen	39.5	17.4	186.0	3800.0	Female	
2	Adelie	Torgersen	40.3	18.0	195.0	3250.0	Female	
3	Adelie	Torgersen	NaN	NaN	NaN	NaN	NaN	NaN
4	Adelie	Torgersen	36.7	19.3	193.0	3450.0	Female	

data.info()

OUTPUT

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 344 entries, 0 to 343
Data columns (total 7 columns):
 #   Column          Non-Null Count  Dtype
---  ------          --------------  -----
 0   species         344 non-null    object
 1   island          344 non-null    object
 2   bill_length_mm   342 non-null    float64
 3   bill_depth_mm    342 non-null    float64
 4   flipper_length_mm 342 non-null    float64
 5   body_mass_g      342 non-null    float64
 6   sex             333 non-null    object
dtypes: float64(4), object(3)
memory usage: 18.9+ KB
```

data['species'].value_counts()

OUTPUT

```
species
Adelie     152
Gentoo     124
Chinstrap   68
Name: count, dtype: int64
```

data['species_binary']=np.where(data['species']=='Adelie',1,0)
data['species'].value_counts()

OUTPUT

species
Adelie   152
Gentoo   124
Chinstrap   68
Name: count, dtype: int64

```python
x=data.drop(columns=['species','species_binary','sex','island'],axis=1)
y=data['species_binary']
```

OUTPUT

y
0   1
1   1
2   1
3   1
4   1
     ..
339 0
340 0
341 0
342 0
343 0
Name: species_binary, Length: 344, dtype: int64

```python
x_train,x_test,y_tain,y_test=train_test_split(x,y,train_size=0.8,random_state=42)
x_train
```

OUTPUT

	bill_length_mm	bill_depth_mm	flipper_length_mm	body_mass_g
66	35.5	16.2	195.0	3350.0
229	46.8	15.4	215.0	5150.0

7	39.2	19.6	195.0	4675.0
140	40.2	17.1	193.0	3400.0
323	49.1	15.0	228.0	5500.0
...	...	...	...	...
188	47.6	18.3	195.0	3850.0
71	39.7	18.4	190.0	3900.0
106	38.6	17.2	199.0	3750.0
270	46.6	14.2	210.0	4850.0
102	37.7	16.0	183.0	3075

data['species_binary'].value_counts()

OUTPUT

species_binary

0   192

1   152
Name: count, dtype: int6

CONCLUSION

Some machine learning basics are provided in this research work. Some manipulation libraries of python are provided in this research work. Some graphs plotted using python libraries namely matplotlib,pandas,numpy .

Logistic regression model has been develop in machine learning via seaborn python library.

BIBLIOGRAPHY

1. Andrie de Vries, "R For Dummies", Publisher, 2nd edition, John Wiley & Sons., 2015.

2. G. A. Barnard, Introduction to Pearson (1900), In Break throughs in Statistics Vol.2 (Eds., S. Kotz and N.L. Johnson), pp. 1-10, New York, Springer – verlag, published in 1992.

3. Tilman M. Davies, "The Book of R - A First Course in Programming and Statistics", 1st edition was published by No Starch Press on July 16, 2016.

4. A.K.Md. Ehsanes Salah and V.K. Rohatgi, "An introduction to Probability and Statistics", 3rd edition, Published by Jhon Wiley & Sons, 2011

5. Eric Matthes, "Python Crash Course: A Hands-On, Project-Based Introduction to Programming" ,2nd edition, Publisher - No Starch Press,2019.

6. Erich Leo Lehmann, "Testing Statistical Hypothesis", 3rd edition, Published by Springers,1959.

7. S.C. Gupta and V.K. Kapoor, "Fundamentals of Mathematical Statistics", 12th edition, published by Sultan Chand & Sons, 2020.

8. Hadley Wickham and Garrett Grolemund, "R for Data Science", 1st edition that was published by O'Reilly Media

9. John Zelle, "Python Programming - An Introduction to Computer Science" Latest Edition -3rd edition, Published by Franklin, Beedle & Associates Inc., 2016

10. Magnello ME Karl Pearson and "The origin of modern statistics". Rutherford J, "An elastician becomes a statistical", Vol.1, 2005-2006.

11. Web Page: https://colab.research.google.com/

    Web Page: https://cocalc.com/features/jupyter-notebo

A KEYLESS APPROACH TO IMAGE ENCRYPTION

A main project Submitted to Annamalai University in partial

fulfillment of the requirements for the

Award of the degree of

BACHELOR OF COMPUTER APPLICATIONS

Submitted by

J.BHAGATH SINGH   REG.NO:40821213008

S.KALAIVANAN   REG.NO:40821213026

A.RAJAMOORTHY   REG.NO:40821213041

Guided by

Mr. K.CHINNAIYAH, M.C.A., M.Phil.,M.B.A.,
HOD of Computer Science

DEPARTMENT OF COMPUTER SCIENCE TRANQUEBAR

BISHOP MANIKAM COLLEGE (TBMLC)

PORAYAR

APRIL-2024

DEPARTMENT OF COMPUTER SCIENCE

T.B.M.L. COLLEGE, PORAYAR

CERTIFICATE

This is to certify that the project work entitled "A
KEYLESS APPROACH TO IMAGE ENCRYPTION"
is a bonafide work done by

J.BHAGATH SINGH   REG.NO:40821213008

S.KALAIVANAN   REG.NO:40821213026

A.RAJAMOORTHY   REG.NO:40821213041

in partial fulfillment of the requirement for the award of the Post

Graduate Degree of the Bachelor of Computer Science during the

academic year 2023-2024.

Signature of the Guide

Signature of the HOD

(Mr. K.CHINNAIYAH)

(Mr. K.CHINNAIYAH)

K. CHINNAIYAH, M.C.A. M.PHIL.M.B.A.
Head of the Department,
Dept of Computer Science,
T.B.M.L. College, Porayar-609307

K. CHINNAIYAH, M.C.A. M.PHIL.M.B.A
Head of the Department,
Dept of Computer Science,
T.B.M.L. College, Porayar-609307

SMART-LIB

*A main project Submitted to **Annamalai University** in partial fulfillment of the requirements for the Award of the degree of*

BACHELOR OF COMPUTER APPLICATIONS

Submitted by

S.JOEL WILFRED (40821213024)

S.MANODHARSHAN (40821213032)

V.SIVBALAN (40821213053)

Guided by

Mr. K.CHINNAIYAH, M.C.A., M.Phil.,M.B.A.,

HOD of Computer Science

DEPARTMENT OF COMPUTER SCIENCE

TRANQUEBAR BISHOP MANIKAM COLLEGE (TBMLC)

PORAYAR

APRIL-2024

DEPARTMENT OF COMPUTER SCIENCE
T.B.M.L. COLLEGE, PORAYAR

CERTIFICATE

This is to certify that the project work entitled **"SMART-LIB"** is a

bonafide work done by

S.JOEL WILFRED (40821213024)

S.MANODHARSHAN (40821213032)

V.SIVBALAN (40821213053)

n partial fulfilment of the requirement for the award of the Post Graduate Degree of the

BATCHELOR OF COMPUTER APPLICATIONS during the academic year 2023-2024.

Signature of the Guide
(Mr. K.CHINNAIYAH)

Signature of the HOD
(Mr. K.CHINNAIYAH)

K. CHINNAIYAH, M.C.A.,M.PHIL.M.B.A.
Head of the Department.
Dept of Computer Science,
T.B.M.L. College, Porayar-609 307

K. CHINNAIYAH, M.C.A.,M.PHIL.M.B.A.
Head of the Department.
Dept of Computer Science,
T.B.M.L. College, Porayar-609 307

Design and Analyse the Framework for Preventing Cyberbullying in Social Networking Sites using Deep learning model

*A main project Submitted to **Annamalai University** in partial*

fulfillment of the requirements for the

Award of the degree of

BACHELOR OF COMPUTER APPLICATIONS
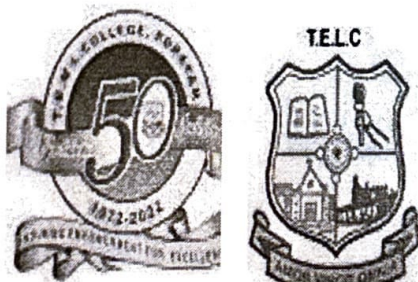
Submitted by

R.PRIYADHARSHINI (40821213040)

R.RANJANA (40821213042

K.SIVAPRIYA(40821213054)

Guided by

Mr. K.CHINNAIYAH, M.C.A., M.Phil.,M.B.A.,

HOD of Computer Science

DEPARTMENT OF COMPUTER SCIENCE

TRANQUEBAR BISHOP MANIKAM COLLEGE (TBMLC)

PORAYAR

APRIL-2024

DEPARTMENT OF COMPUTER SCIENCE

T.B.M.L. COLLEGE, PORAYAR

CERTIFICATE

This is to certify that the project work entitled "**Design and Analyse the Framework for Preventing Cyberbullying in Social Networking Sites using Deep learning model**" is a bonafide work done by

R.PRIYA DHARSHINI (40821213040)

**R.RANJANA (40821213042**

K.SIVAPRIYA(40821213054)

in partial fulfillment of the requirement for the award of the Post Graduate Degree of the **BATCHELOR OF COMPUTER APPLICATIONS** during the academic year 2023-2024.

Signature of the Guide

(Mr. K.CHINNAIYAH)

K. CHINNAIYAH, M.C.A.,M.PHIL.M.B.A
Head of the Department,
Dept of Computer Science,
T.B.M.L. College, Porayar-609307

Signature of the HOD

(Mr. K.CHINNAIYAH)

K. CHINNAIYAH, M.C.A.,M.PHIL.M.B.A
Head of the Department,
Dept of Computer Science,
T.B.M.L. College, Porayar-609307

4
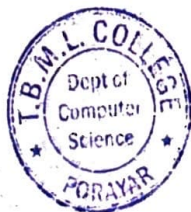
FACIAL AND EMOTION RECOGNITION

*A main project Submitted to **Annamalai University** in partial*

fulfillment of the requirements for the

Award of the degree of

BACHELOR OF COMPUTER SCIENCE (B.Sc(CS))

Submitted by

P.BALAMURUGAN   REG.NO:40821214005

C.SANJAI REG.NO:40821214018

K.SARAVANAN REG.NO:40821214019

P.SIVA   REG.NO:40821214020

Guided by

Mr. K.CHINNAIYAH, M.C.A., M.Phil.,M.B.A.,

HOD of Computer Science

DEPARTMENT OF COMPUTER SCIENCE

TRANQUEBAR BISHOP MANIKAM COLLEGE (TBMLC)

PORAYAR

APRIL-2024

DEPARTMENT OF COMPUTER SCIENCE
T.B.M.L. COLLEGE, PORAYAR

CERTIFICATE

This is to certify that the project work entitled "FACIAL AND EMOTION RECOGNITION " is a bonafide work done by

P.BALAMURUGAN   REG.NO:40821214005

C.SANJAI REG.NO:40821214018

K.SARAVANAN REG.NO:40821214019

P.SIVA   REG.NO:40821214020

in partial fulfillment of the requirement for the award of the Post Graduate Degree of the Bachelor of Computer Science during the academic year 2023-2024.

Signature of the Guide
(Mr. K.CHINNAIYAH)

K. CHINNAIYAH, M.C.A.,M.PHIL.M.B.A.
Head of the Department,
Dept of Computer Science,
T.B.M.L. College, Porayar-609307

Signature of the HOD
(Mr. K.CHINNAIYAH)

K. CHINNAIYAH, M.C.A.,M.PHIL.M.B.A
Head of the Department,
Dept of Computer Science,
T.B.M.L. College, Porayar-609307

WEB TRAFFIC ANALYZER

A main project Submitted to Annamalai University in partial

fulfillment of the requirements for the

Award of the degree of

BACHELOR OF COMPUTER APPLICATIONS

Submitted by

C.HARISHRAJ   REG.NO:40821213016

N. NITHISH   REG.NO:40821213038

K. SRINATH   REG.NO:40821213057

R. TAMILVENTHAN   REG.NO:408212130060

Guided by

Mr. K.CHINNAIYAH, M.C.A., M.Phil.,M.B.A.,
HOD of Computer Science

DEPARTMENT OF COMPUTER SCIENCE TRANQUEBAR

BISHOP MANIKAM COLLEGE (TBMLC)

PORAYAR

APRIL-2024

DEPARTMENT OF COMPUTER SCIENCE

T.B.M.L. COLLEGE, PORAYAR

CERTIFICATE

This is to certify that the project work entitled "WEB TRAFFIC

ANALYZER" is a bonafide work done by

          C.HARISHRAJ REG.NO:40821213016

          N. NITHISH REG.NO:40821213038

          K. SRINATH REG.NO:40821213057

          R. TAMILVENTHAN REG.NO:408212130060

in partial fulfillment of the requirement for the award of the Post

Graduate Degree of the Bachelor of Computer Science during the academic

year 2023-2024.

Signature of the Guide   *Signature of the HOD*

(Mr. K.CHINNAIYAH)   **(Mr. K.CHINNAIYAH)**

K. CHINNAIYAH, M.C.A.,M.PHIL,M.B.A.   K. CHINNAIYAH, M.C.A.,M.PHIL,M.B.A
Head of the Department,   Head of the Department,
Dept of Computer Science,   Dept of Computer Science,
T.B.M.L. College, Porayar-609307   T.B.M.L. College, Porayar-609307