Name: J. Sai Chandu

Guide: DX-U. Balasubsamani

Reg. No: 192211216

course\_ Code: SP3CHA21

Dept: CSE

Code: SSE -26-11-216-2

## Title -> 2

2 Enhanced Accusacy posediction in inflation 'state using Extreme Gradient Boosting algorithm in comp -anison with Gradient boosting algorithm

Introduction:

Definition: The prediction of inflation nate using Pora 1: Extreme gradient boosting algorithm in compan ison with bradient boosting algorithm. (Jinill Freed) Importance: Inflation hate psediction is countal For economic stability, helping policy maters and planning long-term investments to mitigate intlation nates (lutz killian, zozi)

> Economic policy decisions (Brent Mayon, 2020)

> Interest Pate determination (pomenico 6, 2021)

-Budget Porecasting (Joras striautas, 2022)

-> supply chain optimization colivor colivor colivor, 2020).

Para 2: 1. Total No. of articles published in this typean ovor past 5 years. Groogle scholar-1220 IEEE explose - 34 > "The fole of expectations in inflation dynamics" (olivier, wind horodnichto, 2020). >"Inflation Porecasting in emerging martets?" Coshua chan, Gary Koop, 2021). Data-Pich Envinorment > "Forecasting Inflation in a Data-Pich Environment

(James H., Mout W. Waston, 2023). > "Global inflation syndromization" CM. Ayhan tose, Christophen otrot, 2020). Charles and Bear Carrent 3. Best among them. "The Role OF expertations in inPlation dynamics Colivier coiboion, ywrig Gosodnichko, 2020). graters gartensport bything

Paora 3:

1. Handling of numeric data and sensitivity to in-relavant features.

2. Existing experience in this nesearch.

- I learnt about x67Boost algorithm and 67B algorithm from coursera and Great learning.

- APlor I had discussion with my guide and

came to a conclusion for providing better, accu -nacy in inflation rate prediction.

3. Aim of study:

> prediction of inflation rate

-> Improving the accuracy

Materials and methodology: Improved accuracy in inflation rate Prediction using x61Boost and 600

dient boosting algorithm.

Pona 1: Study setting: SIMATS, SSE, 322

no. of groups of 2

i) Ginoup 1: Extreme Gradient Boosting algorithm

ii) Group 2: Gradient Boosting algorithm Sample size: 240 101

Dataset: Economic Indicators & InPlation (ragglicom)

```
Pana a:
```

> resting strap:

-> Grouple collab

Though (But)

The intel 12th gen processon

DOGR PARN

→ 8 GAB PAM

> windows Os Middle

> resting sample preparation of Group 1:

Extreme gradient boosting algorithm

->preprocessing Dataset

-> applying x on Boost adjorithm

-> calculate acuracy.

Pora 3: Sample preparation of Group 2:

Greatient boosting algorithm

> preprocessing Dataset

-> Applying Gradient Boosting algorithm

-> calculate accessary.

\*Testing Setup: -> Google couldb -> is intel 12th gen > 8GB PAN > windows os

\* Testing Procedures

> pre-processing of dataset

> 7 rain 80% of dato

2 Test 20% of data

Para 52 Dara collection

Economic indicators & Inflation (raggle com)

Para 6:

combitations the only production is Statistical Software: SPSS

Independent variable: Game names data values dependent voriable : acuracy. Analysis Dones Yes

Results and Discussion:

Para 1: In this study we observed that xtrBoost has better prediction than Gradient boosting Algn.

-> x6 Boost haves high acurracy

-> prediction of inflation rate. Para 2: The graph nepoesents the composison of

Prediction of inflation make using x6 Boost and

Gradient boosting algorithm.

Possa 3: Dato collection Sik: www. kaggle.com.

Pana 4: statistical software: SPSS

Indepent variable. Indicators of Economy

Dependent variable: Accuracy. Inflation nate.

Analysis Done: Yes

-> Comparison of x6Boost and Gradient boosting

algorithm.

Cimitations: The only limitation is small size future scope: Accuracy improved using xbrboost - statement united the algorithm. condusion: Paldorou Japans

- The overall model prediction of video inflation -rate based on past information of data I the accuracy of xbBoost is higher as we compased to Gradient boosting algorithm -> The proposed algorithm has 90.287. of access - ey over Gradient boosting algorithm ras Partition of many and the many 77.76.6

be note the special delay the property

mondeport weeks sine

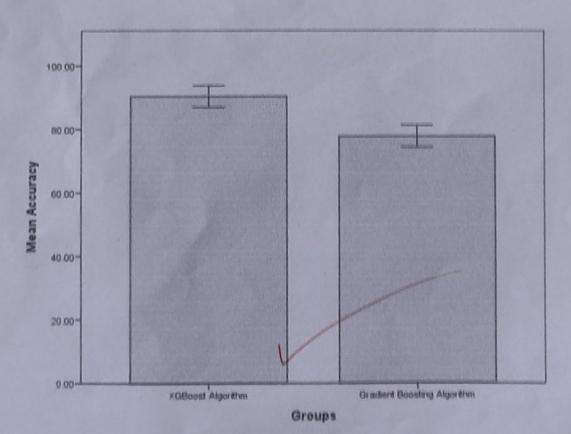
Lave associative designation ones!

## Group Statistics

	Groups	N	Mean	Std Deviation	Std. Etroi Mean
Accuracy	XOBoost Algorithm	10	90.2880	1,71360	54189
	Gradient Boosting Algorithm	10	77.7970	1.73406	54936

## Independent Samples Les

		Levene's Test f Varian	Mast for Equality of Maaris							
			Big		eff	Sig (2-tailed)	Mean Difference	Stil Eller Difference	95% Confidence Offere Lewel 1	
Accuracy	Equal variances assumed	000	989	18.241	19	000	12.52100	77093	10.90133	14 14697
	Equal variances not assumed			16 241	17.997	.000	12 52100	77093	10.90131	14 14989



Error Bars: +/- 2 SD