Get More with SINTA Insight

Go to Insight



Garuda <u>Google Scholar</u>

APPLICATION OF CAUSAL FORECASTING METHOD TO FORECAST SHALLOT PRODUCTION IN NORTH SUMATRA PROVINCE

PATTIMURA UNIVERSITY BAREKENG: Jurnal Ilmu Matematika dan Terapan Vol 18 No 2 (2024): BAREKENG: Journal of Mathematics and Its Application 0667-0680

□ <u>2024</u> □ <u>DOI: 10.30598/barekengvol18iss2pp0667-0680</u> <u>O Accred : Sinta 2</u>

APPLICATION OF NONPARAMETRIC REGRESSION SPLINE TRUNCATED FOR MODELING THE HEIGHT OF YEOP CHAGI KICKS OF TAEKWONDO ATHLETES IN SAMARINDA CITY PATTIMURA UNIVERSITY BAREKENG: Jurnal Ilmu Matematika dan Terapan Vol 18 No 2 (2024): BAREKENG: Journal of Mathematics and Its Application 0657-0666 2024 PDOI: 10.30598/barekengvol18iss2pp0657-0666

EVALUATION AND USER INTERFACE DESIGN IMPROVEMENT RECOMMENDATIONS OF THE IMMIGRATION SERVICE APPLICATION USING DESIGN THINKING PATTIMURA UNIVERSITY BAREKENG: Jurnal Ilmu Matematika dan Terapan Vol 18 No 1



Journal By Google Scholar

	All	Since 2019
Citation	3277	3145
h-index	23	23
i10-index	66	65

(2024): BAREKENG: Journal of Mathematics and Its Application 0001-0018

□ <u>2024</u> □ <u>DOI: 10.30598/barekengvol18iss1pp0001-0018</u> <u>O Accred : Sinta 2</u>

A COMPARISON OF FUZZY TIME SERIES CHENG AND CHEN-HSU IN FORECASTING TOTAL AIRPLANE PASSENGERS OF SOEKARNO-HATTA AIRPORT

PATTIMURA UNIVERSITY BAREKENG: Jurnal Ilmu Matematika dan Terapan Vol 18 No 1

(2024): BAREKENG: Journal of Mathematics and Its Application 0019-0028

□ 2024 □ DOI: 10.30598/barekengvol18iss1pp0019-0028 ○ Accred : Sinta 2

WEIBULL-POISSON DISTRIBUTION AND THEIR APPLICATION TO SYSTEMATIC PARALLEL RISK

 PATTIMURA UNIVERSITY
 Image: Barekeng: Jurnal Ilmu Matematika dan Terapan Vol 18 No 1

 (2024): BAREKENG: Journal of Mathematics and Its Application 0029-0042

 Image: Doi: 10.30598/barekengvol18iss1pp0053-0064
 O Accred : Sinta 2

DYNAMIC SYSTEM OF TUBERCULOSIS MODEL USING OPTIMAL CONTROL IN SEMARANG CITY INDONESIA

 PATTIMURA UNIVERSITY

 BAREKENG: Jurnal Ilmu Matematika dan Terapan Vol 18 No 1

 (2024): BAREKENG: Journal of Mathematics and Its Application 0043-0052

 2024

 DOI: 10.30598/barekengvol18iss1pp0029-0042

COMPARISON OF LOCAL POLYNOMIAL REGRESSION AND ARIMA IN PREDICTING THE NUMBER OF FOREIGN TOURIST VISITS TO INDONESIA

 PATTIMURA UNIVERSITY
 Image: Barekeng: Jurnal Ilmu Matematika dan Terapan Vol 18 No 1

 (2024): BAREKENG: Journal of Mathematics and Its Application 0053-0064

 2024
 Doi: 10.30598/barekengvol18iss1pp0043-0052
 Accred : Sinta 2

ALGEBRAIC STRUCTURES ON A SET OF DISCRETE DYNAMICAL SYSTEM AND A SET OF PROFILE

PATTIMUR/	<u>UNIVERSITY</u>	BAREKENG: Jurnal Ilmu Matemati	<u>ka dan Terapan Vol 18 No 1</u>
<u>(2024): BAF</u>	<u>REKENG: Journal (</u>	of Mathematics and Its Application	0065-0074
■ <u>2024</u>	<mark>■ DOI: 10.30598</mark>	<u>/barekengvol18iss1pp0065-0074</u>	O Accred : Sinta 2

SIGNIFICANT FACTORS INFLUENCING HYPERBILIRUBINEMIA AT SANTO YUSUF MOTHERAND CHILD HOSPITAL, NORTH JAKARTA USING BINARY LOGISTIC REGRESSIONPATTIMURA UNIVERSITYBAREKENG: Jurnal Ilmu Matematika dan Terapan Vol 18 No 1(2024): BAREKENG: Journal of Mathematics and Its Application 0075-00842024DOI: 10.30598/barekengvol18iss1pp0075-0084Accred : Sinta 2

 COMPARISON OF APARCH-TYPE MODELS: DOES THE CONTINUOUS AND JUMP

 COMPONENTS OF REALIZED VOLATILITY IMPROVE THE FITTING?

 PATTIMURA UNIVERSITY

 ⓐ BAREKENG: Jurnal Ilmu Matematika dan Terapan Vol 18 No 1
 (2024): BAREKENG: Journal of Mathematics and Its Application 0085-0094
 ⓑ 2024
 ⓓ DOI: 10.30598/barekengvol18iss1pp0085-0094
 ⓒ Accred : Sinta 2

View more ...

Get More with SINTA Insight

Go to Insight

Citation Per Year By Google Scholar

Journal By Google Scholar

	All	Since 2019
Citation	3277	3145
h-index	23	23
i10-index	66	65



First Published Since 2007

Published by Mathematics Department University of Pattimura



p(x, y)

(A. Y.

×an

p∧T≡p

a""

Re

11/m

0 = X1 - X2

HOME ARCHIVES CURRENT EDITORIAL TEAM PUBLICATION ETHICS ABOUT	HOME ARCHIVES CURRENT EDITORIAL TEAM PUBLICATION ETHICS ABOUT REGISTER LOGIN CONTACT			Register Login
HOME ARCHIVES CURRENT EDITORIAL TEAM PUBLICATION ETHICS ABOUT	HOME ARCHIVES CURRENT EDITORIAL TEAM PUBLICATION ETHICS ABOUT REGISTER LOGIN CONTACT			
REGISTER LOGIN CONTACT	REGISTER LOGIN CONTACT	HOME AR	CHIVES CURRENT EDITORIAL TEAM I	PUBLICATION ETHICS ABOUT
		none na	REGISTER LOGIN COL	NTACT

HOME / Editorial Team

EDITOR IN CHIEF



Yopi Andry Lesnussa Universitas Pattimura, Indonesia [Scopus ID] [Google Scholar ID] [SINTA ID] ORCID ID: https://orcid.org/0000-0002-8729-3437

ASSOCIATE EDITOR



Budi Nurani Ruchjana Universitas Padjajaran, Indonesia [Scopus ID] [Google Scholar ID] [SINTA ID] ORCID ID: https://orcid.org/0000-0001-7580-604X



Pierre Portal The Australian National University, Australia [Scopus ID] [Google Scholar ID] ORCID ID: <u>https://orcid.org/0000-0001-6730-5480</u>



Guisheng Zhai Shibaura Institute of Technology, Japan [Scopus ID] [Google Scholar ID] ORCID ID: <u>https://orcid.org/0000-0001-5073-9485</u>



Muhammad Yahya Matdoan Universitas Pattimura, Indonesia [Scopus ID] [Google Scholar ID] [SINTA ID] ORCID ID: <u>https://orcid.org/0000-0001-6185-9300</u>



Shakir Ali Aligarh Muslim University, India [Scopus ID] [Google Scholar ID] ORCID ID: <u>https://orcid.org/0000-0001-5162-7522</u>



Universitas Pattimura, Indonesia [Scopus ID] [Google Scholar ID] [SINTA ID] ORCID ID: https://orcid.org/0000-0001-8456-4919

INTERNATIONAL EDITORIAL BOARD



ITS Surabaya, Indonesia [Scopus ID] [Google Scholar ID] [SINTA ID] ORCID ID: https://orcid.org/0000-0003-4297-1721



Atje Setiawan Abdullah Universitas Padjadjaran, Indonesia [Scopus ID] [Google Scholar ID] [SINTA ID] ORCID ID: <u>https://orcid.org/0000-0002-3877-3522</u>



Subchan ITS Surabaya, Indonesia [Scopus ID] [Google Scholar ID] [SINTA ID] ORCID ID: <u>https://orcid.org/0000-0003-3481-2800</u>



Sobri Abusini Universitas Brawijaya, Indonesia [Scopus ID] [Google Scholar ID] [SINTA ID] ORCID ID: <u>https://orcid.org/0000-0002-7989-0063</u>



Kurnia Novita Sari Institut Teknologi Bandung, Indonesia [Scopus ID] [Google Scholar ID] [SINTA ID] ORCID ID: <u>https://orcid.org/0000-0003-4821-8378</u>



Fathalla Rihan United Arab Emirates University, Uni Emirat Arab [Scopus ID] [Google Scholar ID] ORCID ID: https://orcid.org/0000-0003-3855-5944



Muhammed Syam United Arab Emirates University, Uni Emirat Arab [Scopus ID] [Google Scholar ID] ORCID ID: https://orcid.org/0000-0002-3922-8892



Qasem Al Mdallal United Arab Emirates University, Uni Emirat Arab [Scopus ID] [Google Scholar ID] ORCID ID: https://orcid.org/0000-0002-2853-9337



Hussain M. Al-Qassem Qatar University, Doha-Qatar [Scopus ID] [Google Scholar ID] ORCID ID: <u>https://orcid.org/0000-0003-0188-682X</u>



Sumardi Universitas Gadjah Mada, Indonesia [<u>Scopus ID]</u> [<u>Google Scholar ID</u>] [<u>SINTA ID</u>] ORCID ID: <u>https://orcid.org/0000-0002-7925-9351</u>



Anton Purnama Sultan Qaboos University, Oman [<u>Scopus ID</u>] [<u>Google Scholar ID</u>] ORCID ID: <u>https://orcid.org/0000-0001-9128-9273</u>



Mohammed Jaradat Qatar University, Doha-Qatar [<u>Scopus ID</u>] [<u>Google Scholar ID</u>] ORCID ID: <u>https://orcid.org/0000-0002-4238-4861</u>]



Bib Paruhum Silalahi Institut Pertanian Bogor, Indonesia [Scopus ID] [Google Scholar ID] [SINTA ID] ORCID ID: <u>https://orcid.org/0000-0002-9018-8291</u>



Ikha Magdalena Institut Teknologi Bandung, Indonesia [Scopus ID] [Google Scholar ID] [SINTA ID] ORCID ID: <u>https://orcid.org/0000-0001-7036-7877</u>



Theresia Lourens Universitas Pattimura, Indonesia [Scopus ID] [Google Scholar ID] [SINTA ID]



Hengameh R. Dehkodi Universidade Federal do ABC, Brazil [Scopus ID] [Google Scholar ID]



Ahmed Alsalman Sultan Qaboos University, Oman [Scopus ID] [Google Scholar ID] ORCID ID: <u>https://orcid.org/0000-0002-1085-390X</u>



Ioannis Kourakis Khalifa University of Science & Technology, Uni Emirat Arab [Scopus ID] [Google Scholar ID] ORCID ID: https://orcid.org/0000-0002-4027-0166



Nikhil Khanna Sultan Qaboos University, Oman [Scopus ID] [Google Scholar ID] ORCID ID: <u>https://orcid.org/0000-0001-8973-469X</u>



Yuwadee Klomwises King Mongkut's Institute of Technology Ladkrabang, Thailand [Scopus ID] [Google Scholar ID] ORCID ID: <u>https://orcid.org/0000-0002-7396-667X</u>



Antonio Comi Universita degli Studi di Roma "Tor Vergata", Roma [Scopus ID] [Google Scholar ID] ORCID ID: <u>https://orcid.org/0000-0001-6784-1638</u>



Nafaa Chbili United Arab Emirates University, Uni Emirat Arab [Scopus ID] [Google Scholar ID] ORCID ID: <u>https://orcid.org/0000-0002-8408-340X</u>



Tanwey Gerson Ratumanan Univeritas Pattimura, Indonesia [Scopus ID] [<u>Google Scholar ID</u>] [<u>SINTA ID</u>]



Thiland U Hewage University of Colombo, Sri Lanka [Scopus ID] [Google Scholar ID]



Fajar Adi Kusumo Universitas Gadjah Mada, Indonesia [<u>Scopus ID]</u> [<u>Google Scholar ID</u>] [<u>SINTA ID</u>] ORCID ID: <u>https://orcid.org/0000-0002-1643-4466</u>



Ahmad Fadillah bin Embong Universiti Teknologi Malaysia [Scopus ID] [Google Scholar ID] ORCID ID: <u>https://orcid.org/0000-0001-8554-395X</u>



Kakoma Luneta University of Johannesburg, South Africa [Scopus ID] [Google Scholar ID] ORCID ID: <u>https://orcid.org/0000-0001-9061-0416</u>



Muhammed Yiha Dawed Hawassa University, South Africa [Scopus ID] [Google Scholar ID] ORCID ID: <u>https://orcid.org/0000-0003-0721-8654</u>



Anuradha Mahasinghe University of Colombo, Sri Lanka [Scopus ID] [Google Scholar ID] ORCID ID: <u>https://orcid.org/0000-0003-2828-6090</u>



Souhail Chebbi King Saud University, Saudi Arabia [Scopus ID] [Google Scholar ID] [<u>ResearchGate</u>] ORCID ID: <u>https://orcid.org/0000-0003-0110-5536</u>



Universitas Brawijaya, Indonesia [Scopus ID] [Google Scholar ID] [SINTA ID] ORCID ID: https://orcid.org/0000-0002-6886-0141



Viktor Vladimirovich Kazachenok Belarusian State University, Belarus [Scopus ID] [Google Scholar ID] ORCID ID: https://orcid.org/0000-0002-4300-3143



Izhar Ahmad King Fahd University of Petroleum & Minerals, Saudi Arabia [Scopus ID] [Google Scholar ID]



Yezbalem Molla Hawassa University, Ethiopia [<u>Scopus ID</u>] [Google Scholar ID] [ResearchGate] ORCID ID: <u>https://orcid.org/0000-0002-8762-0047</u>

Wandi Ding

Middle Tennessee State University, USA

[Scopus ID] [Google Scholar ID]

ORCID ID: https://orcid.org/0000-0002-6886-0141



Nikolay Semenovich Kovalenko Belarusian State University, Belarus [Scopus ID] [Google Scholar ID]



Hassan Doosti Macquarie University, Australia [Scopus ID] [<u>Google Scholar ID</u>] ORCID ID: <u>https://orcid.org/0000-0002-0290-8122</u>



Nethal Jajo The University of Sydney, Australia [Scopus ID] [<u>Google Scholar ID</u>] [<u>RG ID</u>] ORCID ID: <u>http://orcid.org/0000-0002-8514-3128</u>



Marco Scavino University of the Republic (UdelaR), Uruguay [Scopus ID] [<u>Google Scholar ID</u>] ORCID ID: <u>https://orcid.org/0000-0001-5114-853X</u>



Angela Paola Izaguirre Bonilla Universidad National Autonoma De Honduras, Honduras [Scopus ID] [Google Scholar ID]



Haibo Li

The University of Melbourne, Australia

[Scopus ID] [Google Scholar ID]

Trung Tuyen Truong University of Oslo, Norwegia [Scopus ID] [Google Scholar ID]



Adrian Olimpiu Petrusel Babes-Bolyai University Clui-Napoca, Romania [Scopus ID] [<u>Google Scholar ID</u>]



Vishvesh Kumar Ghent University, Belgia [Scopus ID] [<u>Google Scholar ID</u>]

ASSISTANT EDITORS



Norisca Lewaherilla Universitas Pattimura, Indonesia [<u>Scopus ID</u>] [<u>Google Scholar ID</u>] [<u>SINTA ID</u>] ORCID ID: <u>https://orcid.org/0009-0003-4866-1131</u>]

> Dyana Patty Universitas Pattimura, Indonesia

[Scopus ID] [Google Scholar ID] [SINTA ID]

ORCID ID: https://orcid.org/0009-0002-9329-3297



Jefri Esna Thomas Radjabaycolle Universitas Pattimura, Indonesia [Scopus ID] [Google Scholar ID] [SINTA ID] ORCID ID: <u>https://orcid.org/0009-0009-9412-0014</u>



Venn Yan Ishak Ilwaru Universitas Pattimura, Indonesia [<u>Scopus ID</u>] [<u>Google Scholar ID</u>] [<u>SINTA ID</u>] ORCID ID: <u>https://orcid.org/0009-0005-1762-3196</u>



Novita Serly Laamena Universitas Pattimura, Indonesia [Scopus ID] [<u>Google Scholar ID</u>] [<u>SINTA ID</u>] ORCID ID: <u>https://orcid.org/0009-0008-5267-5268</u>



Yudistira Universitas Pattimura, Indonesia [Scopus ID] [<u>Google Scholar ID</u>] [<u>SINTA ID</u>] ORCID ID: <u>https://orcid.org/0009-0004-4558-9995</u>



Citra Fathia Palembang

Universitas Pattimura, Indonesia

[Scopus ID] [Google Scholar ID] [SINTA ID]

Novita Dahoklory Universitas Pattimura, Indonesia [Scopus ID] [<u>Google Scholar ID</u>] [<u>SINTA ID</u>] ORCID ID: <u>https://orcid.org/0009-0008-7311-1250</u>



Universitas Pattimura, Indonesia [Scopus ID] [Google Scholar ID] [SINTA ID]



Submission



Article Template



Additional Menu

Citedness by Scopus
Higher Impact Papers
Editorial Team
Aim and Scope
Publication Ethics
Author Guidelines
Open Access Policy
Peer Review Process
Abstracting and Indexing
Plagiarism Check
Article Processing Charge
Publisher Collaboration
Publishing and Editorial Process
Publication Schedule
Journal License
Copyright Notice
Journal History
Statistics
Contact Us

Accredited By:

Ministry of Education Culture, Research, and Technology, Republic of Indonesia, based on the Decree No.: 158/E/KPT/2021, about Accreditation Rank of Scientific Journal 2021, announce that BAREKENG : Journal of Mathematics and Its Applications has been accredited in SINTA 2 (see detail)



Editorial Team



Publisher Collaboration



BAREKENG : Journal of Mathematics and Its Applications, published by Pattimura University, in Collaboration with Indonesian Mathematical Society (IndoMS). (see detail)

Journal Statistics



					Register	Login
HOME	ARCHIVES	CURRENT	EDITORIAL TEAM	PUBLICATION ETHICS	ABOUT	
		REGI	STER LOGIN	CONTACT		
				Search		

HOME / ARCHIVES / Vol 16 No 1 (2022): BAREKENG: Jurnal Ilmu Matematika dan Terapan



BAREKENG : Jurnal Ilmu Matematika dan Terapan, Volume 16 Issue 1 (March 2022) has been available online since March 1st, 2022. Start in this issue, all the articles has officialy publish in English and has begun to transform from National Journal to International Journal. Moreover, this volume publish four times a year in March, June, September, and December. All articles in this issue (40 research articles) covers 127 authors from Indonesia and Malaysia.



DOI: https://doi.org/10.30598/barekengvol16iss1year2022

PUBLISHED: 2022-03-01

Full Issue

front page

Articles

PRESERVICE MATHEMATICS TEACHERS' REASONING IN SOLVING CRITICAL THINKING PROBLEM

Herizal Herizal, Marhami Marhami, Mutia Fonna, Rohantizani Rohantizani

001-006

pdf download

Abstract views 901 | Pdf Download downloads 826 | DOI <u>https://doi.org/10.30598/barekengvol16iss1pp001-006</u>

COMBINATION OF KNN AND PARTICLE SWARM OPTIMIZATION (PSO) ON AIR QUALITY PREDICTION

Sugandi Yahdin, Anita Desiani, Shania Putri Andhini, Dian Cahyawati, Rifkie Primartha, Muhammad Arhami, OO7-014 Ditia Fitri Arinda

🖻 pdf download

 Abstract views 1050 |
 Pdf Download downloads 1001 |
 DOI

 https://doi.org/10.30598/barekengvol16iss1pp007-014

THE APPLICATION OF MARKOV CHAIN MODEL TO CALCULATE PREMIUM AND RESERVE OF ENDOWMENT INSURANCE Dwi Haryanto

pdf download

 Abstract views 928 | Pdf Download downloads 1550 | DOI

 https://doi.org/10.30598/barekengvol16iss1pp015-022

015-022

RAINBOW CONNECTION NUMBER AND TOTAL RAINBOW CONNECTION NUMBER OF AMALGAMATION RESULTS DIAMOND GRAPH(【Br】 _4) AND FAN GRAPH(F_3) Sumarno Ismail, Isran K. Hasan, Tesya Sigar, Salmun K. Nasib	
P pdf download	
Abstract views 894 Bdf Download downloads 760 DOI https://doi.org/10.30598/barekengvol16iss1pp023-030	
EXPERIENCE STUDY: EFFECT OF UNDERWRITING METHODS ON MORTALITY RATE FOR	LIFE
INSURANCE PRODUCT AT PT. ABC (2015-2020 PERIOD) Alvira Adya Imani, Yulial Hikmah	031-040
pdf download	
Abstract views 728 Pdf Download downloads 884 DOI https://doi.org/10.30598/barekengvol16iss1pp031-040	
CHARACTERISTIC ANTIADJACENCY MATRIX OF GRAPH JOIN Wahri Irawan, Kiki Ariyanti Sugeng	041-046
pdf download	
Abstract views 817 a Pdf Download downloads 676 DOI https://doi.org/10.30598/barekengvol16iss1pp041-046	
DYNAMIC ANALYSIS OF THE COVID-19 MODEL WITH ISOLATION FACTORS Atika Ratna Dewi, Ridho Ananda, Utti Marina Rifanti	047-056
pdf download	
Abstract views 743 B Pdf Download downloads 635 DOI https://doi.org/10.30598/barekengvol16iss1pp047-056	
INTERPRETABLE PREDICTIVE MODEL OF NETWORK INTRUSION USING SEVERAL MACH LEARNING ALGORITHMS	IINE
Muhammad Ahsan, Arif Khoirul Anam, Erdi Julian, Andi Indra Jaya	057-064
D pdf download	
MAbstract views 749 Wei Pdf Download downloads 475 DOI https://doi.org/10.30598/barekengvol16iss1pp057-064	
SIMPLE ALGORITHM TO CONSTRUCT CIRCULAR CONFIDENCE REGIONS IN CORRESPON	NDENCE
ANALYSIS USING R Karunia Eka Lestari, Marsah Rahmawati Utami, Mokhammad Ridwan Yudhanegara	065-074
🖻 pdf download	
Abstract views 715 B Pdf Download downloads 472 DOI https://doi.org/10.30598/barekengvol16iss1pp065-074	
ORDINAL LOGISTIC REGRESSION MODEL AND CLASSIFICATION TREE ON ORDINAL RESPONSE DATA Jajang Jajang Nunung Nurbayati. Suci Jena Mufida	
D pdf download	
MAbstract views 857 B Pdf Download downloads 1087 DOI https://doi.org/10.30598/barekengvol16iss1pp075-082	
IDENTIFICATION OF FACTORS IN SELECTING HIGH SCHOOL USING FACTOR ANALYSIS Ni Luh Putu Suciptawati, Ketut Jayanegara	
pdf download	
Abstract views 729 Bdf Download downloads 465 DOI https://doi.org/10.30598/barekengvol16iss1pp083-090	
TOTAL EDGE AND VERTEX IRREGULAR STRENGTH OF TWITTER NETWORK Edy Saputra Rusdi, Nur Hilal A. Syahrir	091-098

🕒 pdf download

Abstract views 668 Berline Pdf Download downloads 544 DOI https://doi.org/10.30598/barekengvol16iss1pp091-098	
PRINCIPAL COMPONENT ANALYSIS-VECTOR AUTOREGRESSIVE INTEGRATED (PCA-VARI MODEL USING DATA MINING APPROACH TO CLIMATE DATA IN THE WEST JAVA REGION Devi Munandar, Budi Nurani Ruchjana, Atje Setiawan Abdullah) V 099-112
A pdf download	
Abstract views 851 Abstract	
VISIT PROFILES AND TOURISM DESTINATION THRESHOLDS USING POLYNOMIAL AND MALTHUSIAN Mario Nikolaus Dalengkade, Meidy Kaseside, Comelia Dolfina Maatoke, Fiktor Imanuel Boleu, Oktosea	
Buka, Samsul Bahri Loklomin, Jubhar Christian Mangimbulude	113-120
pdf download	
Abstract views 784 Pdf Download downloads 545 DOI https://doi.org/10.30598/barekengvol16iss1pp113-120	
PRIVACY-PRESERVING REAL TIME TRACING SYSTEM FOR COVID-19 PATIENT USING GPS TECHNOLOGY Nuril Lutvi Azizah. Uce Indahvanti	
☑ pdf download	
Abstract views 714 Begen Pdf Download downloads 443 DOI https://doi.org/10.30598/barekengvol16iss1pp121-128	
CLASSIFICATION SUPPORT VECTOR MACHINE IN BREAST CANCER PATIENTS Siti Hadijah Hasanah	129-136
A pdf download	
Abstract views 652 B Pdf Download downloads 624 DOI https://doi.org/10.30598/barekengvol16iss1pp129-136	
FORECASTING RAINFALL IN PANGKALPINANG CITY USING SEASONAL AUTOREGRESSIV INTEGRATED MOVING AVERAGE WITH EXOGENOUS (SARIMAX) Ririn Amelia, Elyas Kustiawan, Ineu Sulistiana, Desy Yuliana Dalimunthe	E 137-146
☑ pdf download	
Abstract views 1055 B Pdf Download downloads 733 DOI https://doi.org/10.30598/barekengvol16iss1pp137-146	
MAX-PLUS ALGEBRA MODEL ON INAPORTNET SYSTEM SHIPS SERVICE SCHEME Nurwan Nurwan, Muhammad Rezky F. Payu	147-156
户 pdf download	
Abstract views 656 B Pdf Download downloads 657 DOI https://doi.org/10.30598/barekengvol16iss1pp147-156	
UNEMPLOYMENT RATE ESTIMATION IN BALI PROVINCE: A SMALL AREA ESTIMATION APPROACH	
Komang Gue Sukarsa, G. K. Ganoniaoi, I Putu Eka Nila Kencana	157-162
A per download	
https://doi.org/10.30598/barekengvol16iss1pp157-162	
COMPARATIVE STUDY: THE DIFFERENCES STUDENTS' LEARNING BASED ON GENDER Irmawaty Natsir, Anis Munfarikhatin, Dian Mayasari, Dessy R. Suryani, Sadrack Luden Pagiling	163-170
P pdf download	
Abstract views 727 A Pdf Download downloads 592 DOI https://doi.org/10.30598/barekengvol16iss1pp163-170	

3-PARAMETER GAMMA REGRESSION MODEL FOR ANALYZING HUMAN DEVELOPMENT II	NDEX
Hasbi Yasin, Syarifah Inayati, Setiawan Setiawan	
Pdf download	
Abstract views 918 B Pdf Download downloads 942 DOI https://doi.org/10.30598/barekengvol16iss1pp171-180	
ANALYSIS OF THE IMPACT OF COVID IN THE SECOND YEAR ON INCOME OF WORKERS I WEST JAVA WITH MULTINOMIAL LOGISTIC REGRESSION	Ν
Image: Market Abstract views 784 Image: Pdf Download downloads 561 DOI https://doi.org/10.30598/barekengvol16iss1pp181-188	
LATENT DIRICHLET ALLOCATION (LDA) METHOD ANALYSIS ABOUT COVID-19 VACCINE (TWITTER SOCIAL MEDIA	ЛС
Happy Alyzhya Haay, Adi Setiawan	189-198
Pdf download	
Abstract views 781 B Pdf Download downloads 597 DOI https://doi.org/10.30598/barekengvol16iss1pp189-196	
TOURISM ON INSTAGRAM: A SOCIAL NETWORK ANALYSIS Sylvert Prian Tahalea, Elvis Salouw, Astrid Wahyu Adventri Wibowo	199-206
Pdf download	
Abstract views 1551 B Pdf Download downloads 766 DOI https://doi.org/10.30598/barekengvol16iss1pp197-204	
MISSILE POSITION ESTIMATION USING UNSCENTED KALMAN FILTER Teguh Herlambang, Subchan Subchan	207-216
P pdf download	
Abstract views 712 B Pdf Download downloads 438 DOI https://doi.org/10.30598/barekengvol16iss1pp205-214	
STABILITY ANALYSIS OF TUNGRO DISEASE SPREAD MODEL IN RICE PLANT USING MATI	RIX
METHOD Ati Maryati, Nursanti Anggriani, Ema Carnia	217-228
户 pdf download	
Abstract views 976 B Pdf Download downloads 763 DOI https://doi.org/10.30598/barekengvol16iss1pp215-226	
THE SOLUTION OF MATHEMATICAL MODEL OF OTOBUS TICKET SALES WITH REFERRAL MARKETING STRATEGY Dewa Putu Wiadnyana Putra, Marcellinus Andy Ruditho	-
D pdf download	223-234
MAbstract views 591 Begin Pdf Download downloads 507 DOI https://doi.org/10.30598/barekengvol16iss1pp227-232	
MEDICAL IMAGE ENCRYPTION USING DNA ENCODING AND MODIFIED CIRCULAR SHIFT Kiswara Agung Santoso, Ahmad Kamsyakawuni, Muhammad Seggaf	235-242
户 pdf download	
Abstract views 521 B Pdf Download downloads 476 DOI https://doi.org/10.30598/barekengvol16iss1pp233-240	
COMPARISONS BETWEEN ROBUST REGRESSION APPROACHES IN THE PRESENCE OF	



COMPARING GAUSSIAN AND EPANECHNIKOV KERNEL OF NONPARAMETRIC REGRESSION IN FORECASTING ISSI (INDONESIA SHARIA STOCK INDEX) Yuniar Farida, Ida Purwanti, Nurissaidah Ulinnuha

pdf download





doi https://doi.org/10.30598/barekengvol16iss1pp229-234

THE SOLUTION OF MATHEMATICAL MODEL OF OTOBUS TICKET SALES WITH REFERRAL MARKETING STRATEGY

Dewa Putu Wiadnyana Putra^{1*}, Marcellinus Andy Rudhito²

^{1,2} Department of Mathematics Education, Faculty of Teacher Training and Education, Sanata Dharma University Jl. Affandi, Mrican, Caturtunggal, Depok, Sleman, Yogyakarta, 55281, Indonesia

Corresponding author e-mail: ¹* dewa@usd.ac.id

Abstract. One of the ways to involve customers in marketing strategies is known as the referral strategy. This strategy has been applied in various fields for marketing, one of which is in the field of transportation. This study aims to determine the solution to the mathematical model of bus ticket sales using a referral strategy. The data in this study is bus passenger data throughout 2020 which was obtained from one of the Otobus companies in Jakarta. Mathematical model that is compiled using the analogy of the model of the spread of disease. The results of this study are a mathematical model of bus ticket sales using a referral strategy consisting of 4 compartments. The model solution is determined by iterating over the system of differential equations that has been formed. Based on the solution obtained, the simulation results show that the referral strategy in bus ticket sales is able to increase bus passengers up to 39.92%.

Keywords: mathematical model, referral strategy, system of difference equation, marketing.

Article info:

Submitted: 11th January 2022

Accepted: 2nd March 2022

How to cite this article:

D. P. W. Putra and M. A. Rudhito, "THE SOLUTION OF MATHEMATICAL MODEL OF OTOBUS TICKET SALES WITH REFERRAL MARKETING STRATEGY", *BAREKENG: J. II. Mat. & Ter.*, vol. 16, iss. 1, pp. 229-234, Mar. 2022.



This work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License. *Copyright* © 2022 Dewa Putu Wiadnyana Putra, Marcellinus Andy Rudhito

1. INTRODUCTION

The development of information technology has had an impact in all fields, ranging from education, transportation, communication, marketing and others. The field of transportation, especially public transportation, has undergone many changes. These changes are not only in the fleet facilities but also in the ticket sales management system. Initially, transportation ticket sales were carried out directly at stations, terminals, and airports. Along with the times, ticket sales can then be done by agents who partner with transportation companies. Nowadays even people who want to buy tickets can directly order online without having to go to ticket selling agents. Technology has an impact on the management and distribution of tickets to be more effective which will be more profitable for the company [1].

As one of the business fields, transportation companies need to think about strategies to carry out promotions. One of the promotional strategies that can be done is to involve customers. Rusmawan [2] states that customers have the potential to participate in promoting a product if they are satisfied with the product they buy. In the online marketing system, it can also be seen that consumers are always given space by the company to leave comments on the products and services of the company. This marketing communication model is known as the Word of Mouth [3]. Companies can provide encouragement so that their customers are more interested in promoting the company's products. One of the stimuli that can be given is by providing incentives to customers if they succeed in bringing in new customers to buy the company's products. This system is referred to as the referral system. In the referral system, companies and customers can work together to earn profits. The results of the CMO survey in 2021 stated that the promotion strategy of a company mostly involved its customers, which was 28% [4].

The use of the referral system in helping the promotion of ticket sales at transportation companies has at least two opposite impacts. On the one hand, this system can increase the potential reach of customers because customers have a motive to get incentives from the referral system. On the other hand, companies really need to think carefully about the incentives given to customers so that the company still gets optimal profits [5], [6]. So far, not many entrepreneurs, especially Otobus entrepreneurs, have a good system in providing an overview of the referral system, including the impact on company finances. Based on interviews with the owners of the Sumber Alam Otobus (PO) Company, so far the company only tends to estimate based on confidence in making decisions. The basics of decision making in marketing management are still not based on representative mathematical calculations.

The ticket marketing system using the referral method will have an impact on information about a company. This information will be able to spread quickly in line with customer motivation to get incentives. Such behavior can also be observed in the process of spreading an infectious disease. A disease can become a pandemic if the rate of transmission is high in a population. The models of disease spread that are often used are the compartment model [7]–[9]. This is also similar to the referral model, where information can go viral if the customer is successful in bringing new customers to the company. This can give the assumption that the ticket sales system with this referral method has similarities with the spread of infectious disease models.

Based on the above issues, POs need to have a guideline in calculating and predicting marketing policies taken through this referral system. Therefore, the researcher proposes research activities to model and simulate ticket sales with a referral system. A model based on customer dynamics towards ticket sales with a referral system.

2. RESEARCH METHODS

This research is an applied research with the object of an Otobus company. This research consists of 4 stages, namely as follows.

a. Data collection

The data used in this study is the passenger data of the Sumber Alam PO Bus throughout 2020. Bus passenger data is seen from the total ticket sales per day for all destinations.

b. Model Construction

Mathematical model for ticket marketing strategy with referral method using the model that has been built by Putra [10].

c. Determine the numerical solution

The model solution was determined numerically using the help of Microsoft excel.

d. Model simulation

Model simulation is done by determining the value of model parameters based on ticket sales data. The results of this simulation are expected to be used for consideration of ticket sales strategies.

3. RESULTS AND DISCUSSION

The marketing strategy with the referral method aims to get more customers by taking advantage of loyal customers from the company. This strategy works by viral information so that other people who know will have the opportunity to become customers. These characteristics are similar to models of the spread of a disease. The mathematical model construction for this referral strategy has been built by [11]–[14] using the classical compartment model approach, namely SIR. The model has been built this referral strategy model with 4 compartments, namely *Target Market* (T), *Exposed* (E), *Active Sharing* (A), and *Dormant* (D). The flow chart of this model can be seen in the following figure.



Figure 1. Flowchart of the Model

Based on Figure 1 above, the movement of the target market population to the exposed group is determined by the level of interaction of individuals in group T with referred customers β . Then each individual has time to think about whether to become a customer or not. The rate of incubation of the information so that the individual decides to become a referred customer is determined by σ . The individual who decides not to become a customer is determined by λ . A person may stop being a customer due to several factors. This situation is given by the parameter γ . In this model, it also provides conditions where someone who no longer wants to take part in being a customer can become a referred customer. This can be caused by incomplete information received previously or seeing friends who have successfully received rewards from this strategy. The rate of this occurrence is given by the parameter α .

Based on the flow chart above, the system of differential equations is obtained as the following mathematical model.

$$\begin{cases} \frac{dT}{dt} = -\beta TA \\ \frac{dE}{dt} = \beta TA - (\sigma + \lambda)E \end{cases}$$
(1)
$$\begin{cases} \frac{dA}{dt} = \sigma E - \gamma A + \alpha D \\ \frac{dD}{dt} = \gamma A + \lambda E - \alpha D \end{cases}$$

The solution of equation (1) is determined numerically using the help of Microsoft Excel. The system of differential equations (1) is first transformed into a system of differential equations [15]. The system of differential equations of the differential equation in system (1) is obtained as follows.

232

$$\begin{cases} \Delta T = (-\beta TA) \Delta t \\ \Delta E = (\beta TA - \sigma E - \lambda E) \Delta t \\ \Delta A = (\sigma E - \gamma A + \alpha D) \Delta t \\ \Delta D = (\gamma A + \lambda E - \alpha D) \Delta t \end{cases}$$
(2)

The following are the parameter values used in the simulation model.

Parameter	Value	Reference
β	0.5	Assume
σ	500	Assume
λ	0.5	Assume
γ	0.08	Assume
α	0.1	Assume

Table 1	l. V	alues	of l	Parameters
I GOIC I		une co		and annever b

The initial values used for the simulation are $T_0 = 0.9$, $E_0 = 0$, $I_0 = 0.1$ and $D_0 = 0$. To determine the solution of the model, use the help of Microsoft excel to iterate over the numerical solution of equation (2). The time used is in weeks and a duration of 53 weeks. The following are the simulation results from the mathematical model that has been built.



Figure 2. Simulatation of Marhematical Model

Based on the results in Figure 2 above, the increase in referred customers can reach 50% of the total population and 40% of the population is no longer involved in the referral program. This situation begins to become latent at the 25th week. So that companies can think of a strategy to reactivate an increase in their prospective customers. Based on the simulation results of the model above, the following will give a comparison of bus passengers with the application of the referral strategy with the initial situation (without a marketing strategy).

The model solution in the simulation of Figure 2 above is then used to predict the behavior of bus passengers for a year. Based on bus passenger data throughout 2020, the following is the prediction of the comparison of bus passengers with normal situations (without the application of the referral strategy) with the situation of applying the referral strategy.



Figure 3. Comparisons Bus Customer with Referral Strategy

The referral strategy is able to increase the number of passengers by around 39.92% per year. The number of passengers per year can reach 129.567 people based on passenger data in 2020. This marketing strategy is able to spread information quite quickly because every referred customer has a motive to get a reward. Based on the results of this prediction, the company can determine the amount of reward given to each customer who successfully brings new customers to the bus company.

4. CONCLUSIONS

The mathematical model on the referral strategy for bus ticket sales uses a compartment model consisting of 4 subpopulations, namely Target Market (T), Exposed (E), Active Broadcaster (A), and Dormant (D). The solution of the mathematical model is determined by iterating over a system of different equations. Based on the mathematical model that has been compiled, the researcher predicts that this referral strategy has the potential to increase bus ticket sales up to 39.92%.

AKNOWLEDGEMENT

We would like to thank the Sanata Dharma University Research Institute (LPPM) for providing support and research funding (013/Penel./LPPM-USD/II/2021)

REFERENCES

- L. Zakizadeh and N. Atghia, "The Presence of New Technologies Affected on Ticket Sales Management in the World Sport Mega Events Methodology of the research," vol. 3, no. 2, pp. 50–60, 2020.
- [2] L. Rusmawan, Word of Mouth Communication : Penjualan Produk. Surabaya: Media Sahabat Cendikia, 2019.
- [3] S. Kundu and C. S. Rajan, "Word of Mouth: A Literature Review," Int. J. Econ. Manag. Scieces, 2017, doi: 10.4172/2162-6359.1000467.
- [4] S. Frank, "Marketing Budgets are Growing Again, Say CMOs, and Marketing's Standing as Well," *Credit Marketing Officer*, 2021. Cmo.org/.
- [5] F. Naz, "Word of Mouth and Softdrink," Int. J. Sci. Res. Publ., vol. 4, no. 1, pp. 1–4, 2014, [Online]. Available: www.ijsrp.org.
- [6] P. Schmitt, B. Skiera, and C. Van Den Bulte, "Referral programs and customer value," J. Mark., vol. 75, no. 1, pp. 46–59, 2011, doi: 10.1509/jmkg.75.1.46.
- [7] M. A. Rudhito and D. P. W. Putra, "Solution of the SIR Mathematical Model for the Spread of Covid-19 Using GeoGebra," *Proc. 7th Int. Conf. Res. Implementation, Educ. Math. Sci. (ICRIEMS 2020)*, vol. 528, no. Icriems 2020, pp. 303–308, 2021, doi: 10.2991/assehr.k.210305.043.
- [8] E. L. Piccolomini and F. Zama, "Monitoring Italian COVID-19 spread by a forced SEIRD model," *PLoS One*, vol. 15, no. 8 August, pp. 1–15, 2020, doi: 10.1371/journal.pone.0237417.

234 Putra, et. al.

- [9] F. Brauer, C. Castillo-Chavez, and Z. Feng, Correction to: Mathematical Models in Epidemiology. 2019.
- [10] D. P. W. Putra and M. A. Rudhito, "Mathematical model of referral marketing strategy," J. Phys. Conf. Ser., vol. 2106, no. 1, 2021, doi: 10.1088/1742-6596/2106/1/012010.
- [11] S. Ghosh, S. Bhattacharya, K. Gaurav, and Y. N. Singh, "Going Viral: The Epidemiological Strategy of Referral Marketing," 2018, [Online]. Available: http://arxiv.org/abs/1808.03780.
- [12] S. Ghosh, K. Gaurav, S. Bhattacharya, and Y. N. Singh, "Ensuring the spread of referral marketing campaigns: a quantitative treatment," *Sci. Rep.*, vol. 10, no. 1, pp. 1–15, 2020, doi: 10.1038/s41598-020-67895-6.
- [13] D. Lacitignola, "Handling hysteresis in a referral marketing campaign with self-information. Hints from epidemics," *Mathematics*, vol. 9, no. 6, 2021, doi: 10.3390/math9060680.
- [14] H. S. Rodrigues and M. J. Fonseca, "Viral marketing as epidemiological model," no. Vm, 2015, [Online]. Available: http://arxiv.org/abs/1507.06986.
- [15] Hall Jonas and Thomas Lingefjard, Mathematical Modelling Applications with GeoGebra. New Jersey: Wiley, 2017.