A MODEL FOR PREDICTING MALARIA OUTBREAK USING MACHINE LEARNING TECHNIQUE

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ABSTRACT: Malaria is a mosquito-borne infectious disease caused by protists (a form of microorganism) of the Plasmodium genus in humans and other animals. Malaria is a leading worldwide cause of morbidity and mortality. According to WHO the estimated value of malaria cases in 2019 was 229 million worldwide, with children under the age of 5 years having 67% (274,000) and being the most vulnerable group affected by malaria. Nigeria Demographics and health survey (NDHS) has a repository for data that can be used to predict malaria disease outbreak using machine learning techniques, from the literature reviewed no research has been carried out using machine learning technique to model the prediction of malaria outbreak using malaria incidence data from southwest Nigeria. This Research work used 5 supervised machine learning techniques to model the outbreak of malaria using meteorological and malaria incidence data of collected from 2010 - 2020, the machine learning techniques that was used are, Naive Bayes, Support Vector, Linear Regression, Logistic Regression, and K-Nearest Neighbor. The research was carried out using Scikit-learn Library that was imported into Anaconda IDE, the programming language used was Python programming language. The result of the research shows that Naive Bayes has the best accuracy for both testing and training with average accuracy of 79.1% and therefore is the best prediction model that can be used for predicting malaria incidence outbreak using the data set used in this research. Support Vector machine (SVM) is the second best prediction model that can be used for predicting malaria incidence outbreak for both testing and training data with average accuracy of 75.45%, followed by K-Nearest Neighbor with average accuracy of 70.8%, followed by Logistic Regression prediction model which has an average accuracy of 68%, based on this research work it is not advisable to use Linear Regression prediction model for predicting malaria incidence outbreak because it has an average accuracy of 26.05%.
KEYWORDS: Artificial Intelligence, Machine Learning, pre-processing, Prediction, Malaria, Support Vector machine, Naive Bayes, Logistic Regression

1. INTRODUCTION

Artificial intelligence (AI) is a field of computer science concerned with building smart machines capable of performing tasks that require human intelligence, one of the fields of artificial intelligence is machine learning, robotics, knowledge representation etc [7].
Machine learning is a field of artificial intelligence that trains algorithms to learn from previous experience and improve it to solve problems; machine learning has been a very important tool in solving problems that are related to Image Recognition, Speech Recognition, Medical diagnosis, and prediction of diseases. The prediction of disease outbreaks warns that a certain amount of disease may exceed the expected amount in the future at a particular time [5]. Prediction of infectious diseases attempts to predict the features of both seasonal epidemics and possible pandemics. Accurate and timely detection of infectious diseases by informing key preparedness and mitigation activities may help public health responses [3]. Malaria is a mosquito-borne infectious disease caused by protists (a form of microorganism) of the Plasmodium genus in humans and other animals. It starts with a bite from an infected female mosquito that introduces the protists into the circulatory system via its saliva, and eventually to the liver where they develop and reproduce. According to the WHO report of 2018, malaria is causing public health concern in developing countries, with estimated resultant deaths close to a million annually.
According to a publication by Severe Malaria Observatory on 28th of October 2020 Nigeria had the highest number of global malaria cases (25% of global malaria cases) in 2018 and accounted for the highest number of deaths, according to the 2019 World Malaria Report (24% of global malaria deaths). Malaria is transmitted throughout Nigeria; 76% of the population lives in areas of high transmission, while 24% of the population lives in areas of low transmission. In the south, the transmission season can last throughout the whole year and is about 3 months or less in the northern part of the country (Severe Malaria Observatory (SMO),

Malaria Outbreak Prediction Model Using Machine Learning

Ermi M. L. Ndoen

Malaria Outbreak Prediction Model Using Machine Learning:

Research Anthology on Machine Learning Techniques, Methods, and Applications Management Association, Information Resources,2022-05-13 Machine learning continues to have myriad applications across industries and fields To ensure this technology is utilized appropriately and to its full potential organizations must better understand exactly how and where it can be adapted Further study on the applications of machine learning is required to discover its best practices challenges and strategies The Research Anthology on Machine Learning Techniques Methods and Applications provides a thorough consideration of the innovative and emerging research within the area of machine learning The book discusses how the technology has been used in the past as well as potential ways it can be used in the future to ensure industries continue to develop and grow Covering a range of topics such as artificial intelligence deep learning cybersecurity and robotics this major reference work is ideal for computer scientists managers researchers scholars practitioners academicians instructors and students *Fuzzy Systems and Data Mining IV* Antonio J. Tallón-Ballesteros,Kaicheng Li,2018-11-15 Big Data Analytics is on the rise in the last years of the current decade Data are overwhelming the computation capacity of high performance servers Cloud grid edge and fog computing are a few examples of the current hype Computational Intelligence offers two faces to deal with the development of models on the one hand the crisp approach which considers for every variable an exact value and on the other hand the fuzzy focus which copes with values between two boundaries This book presents 114 papers from the 4th International Conference on Fuzzy Systems and Data Mining FSDM 2018 held in Bangkok Thailand from 16 to 19 November 2018 All papers were carefully reviewed by program committee members who took into consideration the breadth and depth of the research topics that fall within the scope of FSDM The acceptance rate was 32 85% Offering a state of the art overview of fuzzy systems and data mining the publication will be of interest to all those whose work involves data science **Big Data Analytics for Smart Healthcare applications** Celestine Iwendi,Thippa Reddy Gadekallu ,Ali Kashif Bashir,2025-12-10 Due to the rapid increase of digitalization numerous technologies like the Internet of Medical Things IoMT Wearable devices a huge amount of healthcare data is being generated in multiple formats than ever before Big data analytics ascertain the proof that has a huge mandate for knowledge discovery solving problems computing efficiency It mainly emphasizes the peculiar tests regarding the information data processing analytical modeling and managing the officialdoms to turn big data into big insight The main theme of this special issue is to gather the contemporary exploration of the cutting edge developments issues and challenges in big data analytics for smart healthcare systems Proposed submissions should be original unpublished and novel in depth research that makes significant methodological or application contributions Review papers case studies and theoretical works are also accepted Machine learning with big data for smart health care Soft computing techniques with Big Data for healthcare applications Big data for Internet of Medical Things IoMT Security and privacy issues in IoMT enabled systems Blockchain with Big data for IoMT Blockchain with Edge

computing for healthcare applications Interoperability Development Testing of IoMT Industrial Internet of Things IIoT based big data for smart healthcare Big data and Cobots for Healthcare applications Future challenges and applications of Big data in Smart Healthcare systems Smart Trends in Computing and Communications Yu-Dong Zhang,Tomonobu Senjyu,Chakchai So-In,Amit Joshi,2022-07-05 This book gathers high quality papers presented at the Sixth International Conference on Smart Trends in Computing and Communications SmartCom 2022 organized by Global Knowledge Research Foundation GR Foundation in partnership with IFIP InterYIT during January 11 12 2022 It covers the state of the art and emerging topics in information computer communications and effective strategies for their use in engineering and managerial applications It also explores and discusses the latest technological advances in and future directions for information and knowledge computing and its applications Artificial Intelligence Application in Networks and Systems Radek Silhavy,Petr Silhavy,2023-07-08 The application of artificial intelligence in networks and systems is a rapidly evolving field that has the potential to transform a wide range of industries The refereed proceedings in this book is from the Artificial Intelligence Application in Networks and Systems session of the Computer Science Online Conference 2023 CSOC 2023 which was held online in April 2023 The section brings together experts from different fields to present their research and discuss the latest trends and challenges One of the key themes in this section is the development of intelligent systems that can learn adapt and optimize their performance in real time Researchers are exploring how AI algorithms can be used to create autonomous networks and systems that can make decisions without human intervention Furthermore this section highlights the use of AI in improving network performance and efficiency Researchers are exploring how AI algorithms can be used to optimize network routing reduce congestion and improve the quality of service These efforts can help organizations save costs and improve user experience Artificial Intelligence and IoT Kalaiselvi Geetha Manoharan,Jawaharlal Arun Nehru,Sivaraman Balasubramanian,2021-02-12 This book projects a futuristic scenario that is more existent than they have been at any time earlier To be conscious of the bursting prospective of IoT it has to be amalgamated with AI technologies Predictive and advanced analysis can be made based on the data collected discovered and analyzed To achieve all these compatibility complexity legal and ethical issues arise due to automation of connected components and gadgets of widespread companies across the globe While these are a few examples of issues the authors intention in editing this book is to offer concepts of integrating AI with IoT in a precise and clear manner to the research community In editing this book the authors attempt is to provide novel advances and applications to address the challenge of continually discovering patterns for IoT by covering various aspects of implementing AI techniques to make IoT solutions smarter The only way to remain pace with this data generated by the IoT and acquire the concealed acquaintance it encloses is to employ AI as the eventual catalyst for IoT IoT together with AI is more than an inclination or existence it will develop into a paradigm It helps those researchers who have an interest in this field to keep insight into different concepts and their

importance for applications in real life This has been done to make the edited book more flexible and to stimulate further interest in topics All these motivated the authors toward integrating AI in achieving smarter IoT The authors believe that their effort can make this collection interesting and highly attract the student pursuing pre research research and even master in multidisciplinary domain **Proceedings of ICRIC 2019** Pradeep Kumar Singh,Arpan Kumar Kar,Yashwant Singh,Maheshkumar H. Kolekar,Sudeep Tanwar,2019-11-21 This book presents high quality original contributions both theoretical and experimental on software engineering cloud computing computer networks internet technologies artificial intelligence information security and database and distributed computing It gathers papers presented at ICRIC 2019 the 2nd International Conference on Recent Innovations in Computing which was held in Jammu India in March 2019 This conference series represents a targeted response to the growing need for research that reports on and assesses the practical implications of IoT and network technologies AI and machine learning cloud based e Learning and big data security and privacy image processing and computer vision and next generation computing technologies **Leveraging Artificial Intelligence in Global Epidemics** Le Gruenwald,Sarika Jain,Sven Groppe,2021-07-28 Leveraging Artificial Intelligence in Global Epidemics provides readers with a detailed technical description of the role Artificial Intelligence plays in various stages of a disease outbreak using COVID 19 as a case study In the fight against epidemics medical staff are on the front line but behind the lines the battle is fought by researchers and data scientists Artificial Intelligence has been helping researchers with computer modeling and simulation for predictions about disease progression the overall economic situation tax incomes and population development In the same manner AI can prepare researchers for any emergency situation by backing the medical science Artificial Intelligence plays a key and cutting edge role in the preparedness for and dealing with the outbreak of global epidemics It can help researchers analyze global data about known viruses to predict the patterns of the next pandemic and the impacts it will have Not only prediction AI plays an increasingly important role in assessing readiness early detection identification of patients generating recommendations situation awareness and more It is up to the right input and the innovative ways by humans to leverage what AI can do As COVID 19 has grabbed the world and its economy today an analysis of the COVID 19 outbreak and the global responses and analytics will pay a long way in preparing humanity for such future situations Provides readers with understanding of how Artificial Intelligence can be applied to the prediction forecasting detection and testing of global epidemics using COVID 19 and other recent epidemics such as Ebola Corona viruses Zika influenza Dengue Chikungaya and malaria as case studies Includes background material regarding readiness for coping with epidemics including Machine Learning models for prediction of epidemic outbreaks based on existing data Includes technical coverage of key topics such as generating recommendations to combat outbreaks genome sequencing AI assisted testing AI assisted contact tracing situation awareness and combating disinformation and the role of Artificial Intelligence and Machine Learning in drug discovery vaccine development and drug re purposing *Malaria Risk*

Prediction Kodamala Prathyusha,Rajesh Duvvuru,2024-08-26 Doctoral Thesis Dissertation from the year 2024 in the subject Environmental Sciences Sustainability grade PhD Andhra University Andhra University course Environemntal Science language English abstract The present study concentrated on the prediction of Malaria risk zones in the study area According to WHO 2022 report the disease claimed the lives of almost 274 000 kids under the age of five or 67% of all malaria deaths worldwide Major causes of death among children vary by age It reflects that Every two minutes a child dies from malaria Also it emphasizes third Sustainable Development Goal SDG 3 which Ensure healthy lives and promote well being for all at all ages the world is not on a trajectory to achieve the SDG 3 target of ending malaria by 2030 Beside many Malaria reduction programs initiated by the local government and WHO that reduced the impact of Malaria in many parts of the world But the UN and WHO objective the Malaria should be endemic by 2030 In addition The Institute of Health Metrics and Evaluation IHME world malaria statistics also shows that the malaria fatality is reduced from 8 92 032 to 6 26 909 during the years 2001 2020 The study area comprises of 12 Tribal population impacted mandals that covers 6 519 9 Sq Km and chosen study area is prone to malaria disease In order to reduce the Malaria hazard impact in the study area a right the hotspot prediction method is needed which is of high importance The present research proposed and developed a novel Spatial Analysis for Malaria Risk Reduction SAMRR The prediction accuracy of the SAMRR is very high compared with other Machine Learning ML algorithms This work focuses on six objects related to Malaria Health Hazard Risk Reduction with GIS and Machine Learning ML procedures Data collected from various national and international research and academic repositories such as APSAC APSDPS and DMFW dept related to demographic health and environmental aspects that are help to evaluate the malaria incidence in the study area *Modelling Potential Malaria Spread in Germany by Use of Climate Change Projections* Winfried Schröder,Gunther Schmidt,2013-12-14 This book investigates the spatial distribution of potential temperature driven malaria transmissions using the basic reproduction rate R0 to model the reproduction of the malaria pathogen Plasmodium vivax The authors mapped areas at risk of an outbreak of tertian malaria in the federal state of Lower Saxony pre study and for whole Germany main study by means of geostatistics for past 1947 2007 and future periods Projections based on predicted monthly mean air temperature data derived from the IPCC and regionally discriminated by two regional climate models REMO WettReg for the countrywide study Implications of Global Warming for Malaria Outbreak in the Southeastern United States Lawrence Francis Borges,2004 *Remote Sensing for Malaria* Felix Kogan,2020-07-20 This book presents research using high resolution operational satellite data for monitoring and assessing numerically how to reduce the area and intensity of malaria outbreaks Satellite data and imageries a powerful and effective tool for malaria monitoring and reduction of the number of affected people as it bypasses the limitations imposed by the dearth of near the ground weather data in many malaria prone areas With this in mind this volume provides readers with In depth information in monitoring signs of malaria from operational polar orbiting satellites Examples of country specific

models for predicting malaria area 1 and 4 km2 resolution and intensity Information on the how the effects of climate change on malaria outbreak area and intensity can be monitored A new Vegetation Health VH methodology to estimate vegetation moisture temperature and moisture temperature conditions as indicators of malaria vector activity Advice to users on the application of VH technology for early assessments of malaria area intensity and risk level Remote Sensing for Malaria is intended for an audience of public health practitioners environmentalists and students and researchers working in spatial epidemiology and disease prevention *Computational Models and Tools for Analysis, Prediction, and Control of Infectious Diseases* Tanvir Ferdousi,2021 Infectious disease modeling is used to examine pathogen transmission retrospectively and forecast outbreaks preemptively Model results help public health authorities to optimize disease control measures preventing catastrophic loss of lives in humans and animals Yet several fundamental challenges arise in infectious disease modeling A critical problem involves modeling new and evolving pathogens for realistic simulations and reliable predictions of outcomes Another concern is the lack of data related to infectious diseases Epidemic modelers often face data inadequacy with host networks and disease incidence This dissertation proposes remedies to challenges associated with infectious disease modeling outbreak prediction and host movement data In response to vector borne disease modeling challenges this dissertation first takes a mechanistic approach To realistically model the infection process a novel interconnected network model is designed for the mosquito vectored Zika virus which links homogeneous vector populations with heterogeneous human contact networks The model incorporates seasonal variations in mosquito abundance and characterizes hosts based on age group and gender The aim is to develop a detailed model for an accurate representation of pathogen dynamics while keeping it computationally tractable An event based simulation tool is developed based on the non Markovian Gillespie algorithm This work investigates effects of seasonal variations on outbreak size the role of sexual transmission in sustaining the pathogen and relative contributions of key model parameters using a sensitivity analysis A framework to improve machine learning performance for predicting dengue fever cases is developed in a data driven approach The goal is to fill in temporally limited human case data from spatially adjacent populations The method ranks and sorts time series data from peripheral locations around a target location as predictor variables commonly referred to as features Metrics are computed from windowed time shifted cross correlation of incidence data spatial distance and historical prevalence to rank feature variables A window detection method presented in this work analyzes incidence data to identify time intervals with significant outbreaks The framework achieves improved prediction performance and works well with recurrent neural network RNN architectures Performance gains are compared using different time window allocation methods for three distinct prediction models linear long short term memory LSTM and gated recurrent units GRU Availability of data also affects applicability of mechanistic models In the United States farm animal movements are not tracked by a central authority Lack of animal movement data is a significant obstacle in using network models to analyze infectious outbreaks in

meat producing industries As an immediate solution a novel method is presented to generate movement networks from limited data available in the public domain A custom configuration model is developed for network generation that uses aggregate data from farm animal movement related surveys and the U S agricultural census A hypothetical spread of the African swine fever virus ASFV is simulated in a generated network to analyze how network structure affects pathogen dispersal A node centrality based analysis is performed to identify important farm operation types and evaluate how targeted control measures affect outbreaks The experience of working with infectious disease models for the U S meat producing industry revealed fundamental problems linked to trust and business data sharing The U S beef cattle industry lacks adequate traceability as most farm owners consider such data confidential possibly harming their businesses if exposed Blockchains also known as distributed ledgers have gained popularity in industrial supply chains because of their unique features of data immutability and transparency A smart contract based supply chain framework is designed using a private blockchain network This system supports anonymity for users to protect their identities and lets everyone store data locally while ensuring the blockchain records any change in data with cryptographic proofs The framework presented contains functionalities to perform business transactions transfer animal data conduct anonymous surveys and trace animals This work has original contributions in network epidemic models data driven prediction tools network generation algorithms and data management frameworks It combines knowledge from social network analysis graph theory epidemiology machine learning statistics cryptography computer networks and computational science to improve infectious disease modeling analysis and control The knowledge gained here is generalizable to applications beyond specific cases presented in this dissertation Environmental Factors and an Eco-epidemiological Model of Malaria in Indonesia Ermi M. L. Ndoen,2010 Abstract Indonesia is one of the countries in Southeast Asia where malaria is a prominent public health concern with an estimated 15 million malaria cases annually and 42 000 deaths The study explores the environmental risk factors of malaria guided by an eco epidemiological model of malaria transmission A longitudinal and cross sectional approach has been employed for data gathering of the environmental variables spatial and temporal patterns of malaria transmission malaria vectors behaviour and human risk factors of malaria transmission in Indonesia Three different regions in Indonesia were used for the study The first area is West Timor which has the highest malaria incidence in Indonesia The second location is Sukabumi District of West Java which had a malaria outbreak in 2003 The final location is Kebumen District of Central Java which has one of the highest malaria pocket areas in Java All areas were divided into three different topographical settings coastal hilly and highland areas In each study areas the environmental data were analysed using t test ANOVA Pearson Correlation and General Linear Model Repeated Measures Further LISA Local Indicators of Spatial Association analysis using GIS was employed to explore local malaria spatial distribution and generate malaria maps for the malaria transmission areas based on the local spatial association Adult mosquito Anopheles spp surveys were used to explore malaria vectors behaviour

in different areas and different topographical settings Finally an interview program was used to collect data in order to understand human risk factors in malaria transmission Human risk factors data were calculated using 2 and logistic regression The results show that 100% of West Timor s villages are in malaria endemic areas Villages on the district boundary zones had more malaria than non boundary villages The number of rainy days had a significant positive correlation to malaria incidence Humidity also had a significant positive correlation to malaria incidence Altitude and maximum temperature had a significant negative correlation with malaria cases In Sukabumi West Java altitude was not significantly correlated with malaria incidence The risk of being infected with malaria was similar for respondents in coastal and highland areas Rainfall temperature and wind speed were also not significantly correlated to malaria incidence in Sukabumi In Kebumen Central Java rainfall patterns did not have a significant correlation with malaria incidence Altitude however showed a significant correlation with malaria incidence where more cases occurred at an altitude between 60 m and 200 m above sea level Malaria incidence was higher in village than urban areas in all West Timor West Java and Central Java Number of very high risk malaria villages was higher in dry than wet seasons in all areas Eleven 11 Anopheles mosquito species were recorded during this study An aconitus An annularis An barbirostris An flavirostris An indefinitus An kochi An maculatus An subpictus An sundaicus An tesselatus and An vagus Each species occupied different topographical settings and areas The species behaved differently for host seeking and resting Anopheles species which were very active in host finding at night included An aconitus An barbirostris An subpictus and An vagus Anopheles species with high vectorial capacity were An subpictus and An barbirostris This study found that occupation and outdoor activities were correlated with malaria incidence Farmers and fishermen had a greater risk of being infected by malaria than those in other occupations Overall malaria incidence was higher in low socio economic groups However Malaria incidence was not affected by education status both low and highly educated groups had a similar malaria risk In all the research areas respondents who stayed outdoors at night and respondents who slept outside had a higher risk of being infected with malaria This higher risk may be related to the mosquitoes habit of seeking hosts more outdoors Getting access to health facilities is an important aspect of the treatment of diseases including malaria This study concludes that malaria is still a prominent public health problem in Indonesia in which the level of incidence and transmission vary based on geography and topographical settings Malaria transmission has local characteristics resulting from the combination of many variables The eco epidemiological approach is a useful method for gaining insights into malaria variables in order to improve the understanding of malaria transmission in Indonesia This study recommends that more attention be paid to malaria incidence at lower altitudes This study found mosquitoes were more active outdoors thus indoor residual spraying IRS is not recommended for malaria control in some areas However in West Timor Anopheles species predominantly feed and rest indoors Thus using insecticide treated nets ITN is likely to be effective in this area Improvement of living conditions and implementing of mosquito proof house programs would reduce malaria risk

This study also recommends that the extension of health facilities and health care delivery using local resources such as village midwives and malaria village cadres would provide an accessible malaria service for the villagers In addition to have better and more sustained results integrated malaria intervention is needed This includes adequate malaria treatment good malaria surveillance systems and adequate vector control programs These programs should be based on local conditions such as local weather human behaviour topographical and ecological settings and vector species and their specific ecologies Geographic information systems such as LISA Local Indicators of Spatial Association can be used to predict malaria risk areas and should be incorporated into the malaria surveillance system *Technological Innovations for Managing Tropical Diseases* Matthew Chidozie Ogwu,Sylvester Chibueze Izah,2025-02-19 Tropical diseases continue to impose a significant burden on global health particularly in low and middle income regions These diseases challenge healthcare systems exacerbate economic disparities and threaten global public health In this rapidly evolving landscape integrating advanced technologies offers unprecedented opportunities to transform the prevention diagnosis monitoring and treatment of tropical diseases This groundbreaking volume explores biosensor advancements wearable technologies artificial intelligence predictive modeling mobile health and biotechnological innovations Each chapter delves into how these cutting edge solutions address the unique challenges of tropical diseases from improving diagnostics and disease surveillance to enabling equitable access to care in resource limited settings The book also examines the ethical technical and economic barriers to implementation providing actionable strategies to overcome these challenges Key features include In depth analysis of innovative diagnostic tools including biosensors and IoT enabled wearables Insights into AI and machine learning applications for outbreak prediction and resource allocation Case studies of mobile health telemedicine and robotics in tropical disease management Exploration of biotechnological and therapeutic advances tailored to tropical diseases Critical analysis of ethical considerations data security and equitable technology access A forward looking perspective on emerging trends and their alignment with global health goals Aligned with the United Nations Sustainable Development Goals SDGs this book emphasizes the role of technology in achieving SDG 3 Good Health and Well being and SDG 9 Industry Innovation and Infrastructure It is an indispensable resource for public health professionals researchers policymakers bioengineers healthcare technologists and academics seeking to address the complexities of tropical diseases with innovative sustainable solutions This is a transformative guide to leveraging technology for a healthier more resilient world *Prediction of Epidemic Diseases Using Machine Learning Algorithms* Chalumuru Suresh,Satish Thatavarthi,A.K. Bhavana,2020

Development of Climate-based Model for Malaria Prediction in Southeastern Africa Augustine Daniel Kanemba,2004

Malaria Control in Humanitarian Emergencies World Health Organization,2013 This second edition represents a thorough updating and revision of the first edition The structure remains similar but includes an additional chapter on humanitarian coordination All chapters have been revised to reflect changes in best practices improvements in technologies

availability of new tools and changes in WHO recommendations The interagency handbook was developed to set out effective malaria control responses in humanitarian emergencies particularly during the acute phase when reliance on international humanitarian assistance is greatest It provides policy makers planners and field coordinators with practical advice on designing and implementing measures to reduce malaria morbidity and mortality in both man made and natural disasters Such measures must address the needs of all affected population groups and accommodate changing needs as an acute emergency evolves into either recovery or chronic emergency phase Ideal or gold standard approaches to malaria control are not always feasible in humanitarian emergencies Interventions must be adapted to the realities of each emergency Using this handbook should help humanitarian workers implement effective and concerted responses to malaria problems *Malaria Incidence in the Philippines* Empha Grace Perez,2019 The study was conducted to develop an appropriate model that could predict the weekly reported Malaria incidence in the Philippines using the Box Jenkins method The data were retrieved from the Department of Health DOH website in the Philippines It contains 70 data points of which 60 data points were used in model building and the remaining 10 data points were used for forecast evaluation The R Statistical Software was used to do all the necessary computations in the study Box Cox Transformation and Differencing was done to make the series stationary Based on the results of the analysis ARIMA 2 1 0 is the appropriate model for the weekly Malaria incidence in the Philippines

Modeling and Predicting the Outbreak Seema Bhaganagre,2020 The novel Coronavirus 2019 or commonly known as the Covid 19 has so far been the worst pandemic that could hit the human race Initially the World Health Organization WHO called it an epidemic and later declared it a pandemic after a large scale community transmission through the globe The Data gathered is from about 209 countries that were reported by the WHO for Covid 19 in India In this paper we are going to take a look at the demographic view of the cases reported throughout the country and later use different Machine Learning models to predict the future of this variable pandemic The methodology followed is to study and examine the datasets and then build a model with the help of three regressions like Support Vector Regression SVR Polynomial Regression PR and Deep Learning Regression model DLR The results of this experiment would forecast the future of this uncertain pandemic and give us a predicted value for the twenty and help us understand and visualize it with graphs plotted with the help of matplotlib in python Also the common information about the deaths affirmed and recovered cases throughout the world over the time length makes a difference in assessing the near future For added evaluation or future viewpoint case definition and data combination must be well kept diligently Hence fixing place the preventive measure can effectively manage the spread of Covid 19 and also the death rate is going to be reduced and eventually be controlled in India as well as the other countries

Uncover the mysteries within is enigmatic creation, Discover the Intrigue in **Malaria Outbreak Prediction Model Using Machine Learning** . This downloadable ebook, shrouded in suspense, is available in a PDF format (Download in PDF: *). Dive into a world of uncertainty and anticipation. Download now to unravel the secrets hidden within the pages.

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