Springer Link

Decision Support System on the Need for Veterinary Control of Passing Livestock and Farm Produce

Evolving Technologies for Computing, Communication and Smart World pp 517-526 | Cite as

Conference paper
First Online: 26 November 2020

- 1 Citations
- 199 Downloads

Part of the Lecture Notes in Electrical Engineering book series (LNEE, volume 694)

Abstract

The results of the development of a decision support system (DSS) that can be used by the customs. This system helps to inspectors at the border veterinary checkpoints (VCPR) to make decisions on the need for veterinary control of passing livestock and farm produce. The system makes the decisions by analyzing the known information about cargo with the use of logistic regression model. This module was developed using the Python programming language, mathematical libraries for data analysis, and framework Flask for creating Web applications. The paper also presents the results of a correlation analysis of factors with an identification of significant features, the results of testing the module, and the conclusions about its effectiveness.

Keywords

Decision support system (DSS)   Logistic regression   Customs control
This is a preview of subscription content, log in to check access.

Notes

Acknowledgements

References

1. Longo F (2010) Design and integration of the containers inspection activities in the container terminal operations. Int J Prod Econom 125(2):272–283
    CrossRef (https://doi.org/10.1016/j.ijpe.2010.01.026)
    Google Scholar (http://scholar.google.com/scholar_lookup?
    title=Design%20and%20integration%20of%20the%20containers%20inspectio
    n%20activities%20in%20the%20container%20terminal%20operations&author
    =F.%20Longo&journal=Int%20J%20Prod%20Econom&volume=125&issue=2
    &pages=272-283&publication_year=2010)

2. Murty KG, Liu J, Wan Y, Linn R (2005) A decision support system for operations in a container terminal. Decis Support Syst 39(3):309–332
    CrossRef (https://doi.org/10.1016/j.dss.2003.11.002)
    Google Scholar (http://scholar.google.com/scholar_lookup?
    title=A%20decision%20support%20system%20for%20operations%20in%20a
    %20container%20terminal&author=KG.%20Murty&author=J.%20Liu&author
    =Y.%20Wan&author=R.%20Linn&journal=Decis%20Support%20Syst&volume
    =39&issue=3&pages=309-332&publication_year=2005)

3. Golubenkov A D (2016) Razrabotka sistemy podderzhki prinyatiya reshenij dlya sistemy tamozhennogo kontrolya [Development of a decision support system for the customs control system]. In Yanishevskaya A G (eds.). Informacionnye tekhnologii v nauke i proizvodstve: materialy III Vseros.molodezh.nauch.-tekhn. konf (Omsk, 8-9 fevr. 2016 g.) [Information Technologies in Science and Production: Materials of the Third All-Russian Youth Scientific and Technical Conference]. M-vo obrazovaniya i nauki Ros. Federacii, M-vo obrazovniya Omskoj obl., OmGTU (ed.). Omsk: Publ. OmGTU, pp 9–13
    Google Scholar (https://scholar.google.com/scholar?
    q=Golubenkov%20A%20D%20%282016%29%20Razrabotka%20sistemy%20p
    odderzhki%20prinyatiya%20reshenij%20dlya%20sistemy%20tamozhennogo%
    20kontrolya%20%5BDevelopment%20of%20a%20decision%20support%20sys
    tem%20for%20the%20customs%20control%20system%5D.%20In%20Yanishe
    vskaya%20A%20G%20%28eds.%29.%20Informacionnye%20tekhnologii%20v
    %20nauke%20i%20proizvodstve%3A%20materialy%20III%20Vseros.molodez
    h.nauch.-tekhn.%20konf%20%28Omsk%2C%208-
    9%20fevr.%202016%20g.%29%20%5BInformation%20Technologies%20in%2
    0Science%20and%20Production%3A%20Materials%20of%20the%20Third%2
    0All-
    Russian%20Youth%20Scientific%20and%20Technical%20Conference%5D.%2
    0M-vo%20obrazovaniya%20i%20nauki%20Ros.%20Federacii%2C%20M-
    vo%20obrazovniya%20Omskoj%20obl.%2C%20OmGTU%20%28ed.%29.%20
    Omsk%3A%20Publ.%20OmGTU%2C%20pp%209%E2%80%9313)

4. Golubenkov A D, Shevchenko D V (2017) Sravnenie podhodov k realizacii sistemy podderzhki prinyatiya reshenij dlya sistemy tamozhennogo kontrolya [Comparison of Approaches to Implementing the Decision Support System for the Customs Control System]. In Yanishevskaya A G (eds). Informacionnye tekhnologii v naukec i proizvodstve: materialy IV Vseros. molodezh. nauch.-tekhn. konf. (Omsk, 8-9 fevr. 2017 g.) [Information Technologies in Science and Production: Materials of the Forth All-Russian Youth Scientific and Technical

Conference]. M-vo obrazovaniya i nauki Ros.Federacii, M-vo obrazovniya
Omskoj obl., OmGTU (ed.). Omsk: Publ. OmGTU, pp 7–11
Google Scholar (https://scholar.google.com/scholar?
q=Golubenkov%20A%20D%2C%20Shevchenko%20D%20V%20%282017%29
%20Sravnenie%20podhodov%20k%20realizacii%20sistemy%20podderzhki%2
0prinyatiya%20reshenij%20dlya%20sistemy%20tamozhennogo%20kontrolya
%20%5BComparison%20of%20Approaches%20to%20Implementing%20the%
20Decision%20Support%20System%20for%20the%20Customs%20Control%2
0System%5D.%20In%20Yanishevskaya%20A%20G%20%28eds%29.%20Infor
macionnye%20tekhnologii%20v%20naukec%20i%20proizvodstve%3A%20mat
erialy%20IV%20Vseros.%20molodezh.%20nauch.-
tekhn.%20konf.%20%28Omsk%2C%208-
9%20fevr.%202017%20g.%29%20%5BInformation%20Technologies%20in%2
0Science%20and%20Production%3A%20Materials%20of%20the%20Forth%2
0All-
Russian%20Youth%20Scientific%20and%20Technical%20Conference%5D.%2
0M-vo%20obrazovaniya%20i%20nauki%20Ros.Federacii%2C%20M-
vo%20obrazovniya%20Omskoj%20obl.%2C%20OmGTU%20%28ed.%29.%20
Omsk%3A%20Publ.%20OmGTU%2C%20pp%207%E2%80%9311)

5. Burgemeestre B, Liu J, Hulstijn J, Tan Y-H (2009) Early requirements
    engineering for e-customs decision support: assessing overlap in mental
    models. In: Dagstuhl seminar proceedings. Schloss Dagstuhl-Leibniz-Zentrum
    für Informatik
    Google Scholar (https://scholar.google.com/scholar?
    q=Burgemeestre%20B%2C%20Liu%20J%2C%20Hulstijn%20J%2C%20Tan%2
    0Y-
    H%20%282009%29%20Early%20requirements%20engineering%20for%20e-
    customs%20decision%20support%3A%20assessing%20overlap%20in%20men
    tal%20models.%20In%3A%20Dagstuhl%20seminar%20proceedings.%20Schlo
    ss%20Dagstuhl-Leibniz-Zentrum%20f%C3%BCr%20Informatik)

6. Permanasari AE, Najib W (2012) Infolab 3-link as a proposed decision support
    system for assisting livestock disease diagnose. In: 2012 International
    conference on computer and information science (ICCIS), vol 1, IEEE, pp 176–
    179
    Google Scholar (https://scholar.google.com/scholar?
    q=Permanasari%20AE%2C%20Najib%20W%20%282012%29%20Infolab%20
    3-
    link%20as%20a%20proposed%20decision%20support%20system%20for%20a
    ssisting%20livestock%20disease%20diagnose.%20In%3A%202012%20Interna
    tional%20conference%20on%20computer%20and%20information%20science
    %20%28ICCIS%29%2C%20vol%201%2C%20IEEE%2C%20pp%20176%E2%8
    0%93179)

7. Ramadhan A, Sensuse DI, Pratama MO, Ayumi V, Arymurthy AM (2014) GIS-
    based DSS in e-Livestock Indonesia. In: 2014 International conference on
    advanced computer science and information systems (ICACSIS). IEEE, pp 84–
    89
    Google Scholar (https://scholar.google.com/scholar?
    q=Ramadhan%20A%2C%20Sensuse%20DI%2C%20Pratama%20MO%2C%20
    Ayumi%20V%2C%20Arymurthy%20AM%20%282014%29%20GIS-
    based%20DSS%20in%20e-
    Livestock%20Indonesia.%20In%3A%202014%20International%20conference

%20on%20advanced%20computer%20science%20and%20information%20sys
tems%20%28ICACSIS%29.%20IEEE%2C%20pp%2084%E2%80%9389)

8. Antonov L, Privezentsev D, Orlov A (2015) Identification of the main
    parameters for animal performance assessment in decision support system of a
    livestock enterprise. In: 2015 International conference stability and control
    processes in memory of VI Zubov (SCP). IEEE, pp 508–509
    Google Scholar (https://scholar.google.com/scholar?
    q=Antonov%20L%2C%20Privezentsev%20D%2C%20Orlov%20A%20%282015
    %29%20Identification%20of%20the%20main%20parameters%20for%20anim
    al%20performance%20assessment%20in%20decision%20support%20system%
    20of%20a%20livestock%20enterprise.%20In%3A%202015%20International%
    20conference%20stability%20and%20control%20processes%20in%20memory
    %20of%20VI%20Zubov%20%28SCP%29.%20IEEE%2C%20pp%20508%E2%
    80%93509)

9. Mnale F, Salama S, Park J, Eltawil AB (2017) MobDesctop: a mobile decision
    support application for monitoring real-time container terminals operations
    Google Scholar (https://scholar.google.com/scholar?
    q=Mnale%20F%2C%20Salama%20S%2C%20Park%20J%2C%20Eltawil%20A
    B%20%282017%29%20MobDesctop%3A%20a%20mobile%20decision%20sup
    port%20application%20for%20monitoring%20real-
    time%20container%20terminals%20operations)

10. Iheme P, Omoregbe N, Misra S, Ayeni F, Adeloye D (2017) A decision support
    system for pediatric diagnosis. In: Innovation and interdisciplinary solutions
    for underserved areas. Springer, Cham, pp 177–185
    Google Scholar (https://scholar.google.com/scholar?
    q=Iheme%20P%2C%20Omoregbe%20N%2C%20Misra%20S%2C%20Ayeni%2
    0F%2C%20Adeloye%20D%20%282017%29%20A%20decision%20support%20
    system%20for%20pediatric%20diagnosis.%20In%3A%20Innovation%20and%
    20interdisciplinary%20solutions%20for%20underserved%20areas.%20Springe
    r%2C%20Cham%2C%20pp%20177%E2%80%93185)

11. Thompson T, Sowunmi O, Misra S, Fernandez-Sanz L, Crawford B, Soto R
    (2017) An expert system for the diagnosis of sexually transmitted diseases–
    ESSTD. J Intell Fuzzy Syst 33(4):2007–2017
    CrossRef (https://doi.org/10.3233/JIFS-161242)
    Google Scholar (http://scholar.google.com/scholar_lookup?
    title=An%20expert%20system%20for%20the%20diagnosis%20of%20sexually
    %20transmitted%20diseases%E2%80%93ESSTD&author=T.%20Thompson&a
    uthor=O.%20Sowunmi&author=S.%20Misra&author=L.%20Fernandez-
    Sanz&author=B.%20Crawford&author=R.%20Soto&journal=J%20Intell%20F
    uzzy%20Syst&volume=33&issue=4&pages=2007-
    2017&publication_year=2017)

12. Azeez NA, Towolawi T, Van der Vyver C, Misra S, Adewumi A, Damaševičius R,
    Ahuja R (2018) A fuzzy expert system for diagnosing and analyzing human
    diseases. In: International conference on innovations in bio-inspired computing
    and applications, Springer, Cham, pp 474–484
    Google Scholar (https://scholar.google.com/scholar?
    q=Azeez%20NA%2C%20Towolawi%20T%2C%20Van%20der%20Vyver%20C%
    2C%20Misra%20S%2C%20Adewumi%20A%2C%20Dama%C5%A1evi%C4%8D
    ius%20R%2C%20Ahuja%20R%20%282018%29%20A%20fuzzy%20expert%20
    system%20for%20diagnosing%20and%20analyzing%20human%20diseases.%

20In%3A%20International%20conference%20on%20innovations%20in%20bi
o-
inspired%20computing%20and%20applications%2C%20Springer%2C%20Cha
m%2C%20pp%20474%E2%80%93484)

13. Iheme P, Omoregbe NA, Misra S, Adeloye D, Adewumi A (2017) Mobile-
bayesian diagnostic system for childhood infectious diseases. In: ICADIWT, pp
109–118
Google Scholar (https://scholar.google.com/scholar?
q=Iheme%20P%2C%20Omoregbe%20NA%2C%20Misra%20S%2C%20Adeloy
e%20D%2C%20Adewumi%20A%20%282017%29%20Mobile-
bayesian%20diagnostic%20system%20for%20childhood%20infectious%20dise
ases.%20In%3A%20ICADIWT%2C%20pp%20109%E2%80%93118)

14. Sowunmi OY, Misra S, Omoregbe N, Damasevicius R, Maskeliūnas R (2017) A
semantic web-based framework for information retrieval in e-learning systems.
In: International conference on recent developments in science, engineering
and technology, Springer, Singapore, pp 96–106
Google Scholar (https://scholar.google.com/scholar?
q=Sowunmi%20OY%2C%20Misra%20S%2C%20Omoregbe%20N%2C%20Da
masevicius%20R%2C%20Maskeli%C5%ABnas%20R%20%282017%29%20A%
20semantic%20web-
based%20framework%20for%20information%20retrieval%20in%20e-
learning%20systems.%20In%3A%20International%20conference%20on%20re
cent%20developments%20in%20science%2C%20engineering%20and%20tech
nology%2C%20Springer%2C%20Singapore%2C%20pp%2096%E2%80%93106
)

15. Knyaz' D V (2014) Analiz osnovnyh algoritmov klasterizacii mnogomernyh
dannyh. Lambert Academic Publishing, p 64. ISBN 978-3659636493
Google Scholar (https://scholar.google.com/scholar?
q=Knyaz%E2%80%99%20D%20V%20%282014%29%20Analiz%20osnovnyh%
20algoritmov%20klasterizacii%20mnogomernyh%20dannyh.%20Lambert%20
Academic%20Publishing%2C%20p%2064.%20ISBN%20978-3659636493)

16. Kritskij OL (2012) Mnogomernye statisticheskie metody. Lambert Academic
Publishing, p 168. ISBN 978-3848486755
Google Scholar (https://scholar.google.com/scholar?
q=Kritskij%20OL%20%282012%29%20Mnogomernye%20statisticheskie%20
metody.%20Lambert%20Academic%20Publishing%2C%20p%20168.%20ISBN
%20978-3848486755)

17. Idris I (2014) Python data analysis. Packt Publishing, p 348. ISBN
9781783553358
Google Scholar (https://scholar.google.com/scholar?
q=Idris%20I%20%282014%29%20Python%20data%20analysis.%20Packt%20
Publishing%2C%20p%20348.%20ISBN%209781783553358)

18. Python 3.5.10 documentation [Elektronnyi resurs].
https://docs.python.org/3.5/ (https://docs.python.org/3.5/) (Accessed
07.08.2020)

19. NumPy: The fundamental package for scientific computing with Python
[Elektronnyi resurs]. http://www.numpy.org/ (http://www.numpy.org/)
(Accessed 07.08.2020)

20.   Flach P (2012) Machine learning: the art and science of algorithms that make sense of data. Cambridge University Press, p 410
Google Scholar (https://scholar.google.com/scholar?
q=Flach%20P%20%282012%29%20Machine%20learning%3A%20the%20art%
20and%20science%20of%20algorithms%20that%20make%20sense%20of%20
data.%20Cambridge%20University%20Press%2C%20p%20410)

Copyright information

About this paper

Personalised recommendations