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RESEARCH ARTICLE/ARAŞTIRMA MAKALESİ

LIBYAN PROGRAM FOR INTEGRATION AND DEVELOPMENT WEB SYSTEM PERFORMANCE ASSESSMENT USING NEURAL NETWORK

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Abstract

The Libyan Integration and Development Program (LPFIAD) is an Internet-based service that supports students to achieve educational opportunities in both graduates and students. This program was presented by the Libyan government to ease the efforts of students and ensure reasonable opportunities among them. This study is biased to a broad survey to gather people's opinions about the system (to measure satisfaction with the use of these services). The poll is designed to make candidates express their comments in depth after facing this system. The poll is designed to be online using an online survey platform from SurveyMonkey. Once the candidate is logged on to the questionnaire page, he/she will begin to answer a total of 46 questions and have already been categorized. Once the answers have been obtained, we have collected all the data including the candidate IDs and their comments, and we have applied the analysis to this data to evaluate the said system. The front neural Feeding Network (FFNN) is used in this study to learn from the candidates ' answers and then submit the evaluation decision on a predetermined basis. Data is analyzed using the Matlab program and the review results recorded by(Lpfiad) by 56%.

Keywords: Assessment. Education, Survey, Neural network, Scores, Performance, Target, Enhancement.

LİBYA ENTEGRASYON VE KALKINMA PROGRAMI AĞ SİSTEMİ PERFORMANSININ SİNİR AĞLARI YÖNTEMİYLE DEĞERLENDİRİLMESİ

Özet

Libya Entegrasyon ve Kalkınma Programı, hem öğrencilerin hem de mezunların eğitimsel fırsatları yakalamasına yönelik bir İnternet temelli hizmettir. Bu program, öğrencilerin işlerini kolaylaştırma hedefiyle Libya hükümetine sunulmuştur. Bu çalışma, insanların sistem hakkındaki görüşlerini toplamak için (bu hizmetlerin kullanımından memnuniyeti ölçmek için) geniş bir ankete ağırlıklandırılmıştır. Anket, adayların bu sistemle karşılaştıktan sonra yorumlarını derinlemesine açıklamalarını sağlamak için tasarlandı. Anket, SurveyMonkey anket platformu kullanarak çevrimiçi olacak şekilde tasarlanmıştır. Aday anket sayfasına giriş yaptıktan sonra toplam 46 soruya cevap verecektir. Tüm yanıtlar ulaştığında aday numarası ve yorumları dahil tüm veri toplanmış olmakta ve analiz gerçekleşmeye başlamış olmaktadır. Ön beslemeli sinir ağı bu çalışmada adayların cevaplarından ders almak ve daha sonra önceden belirlenmiş bir şekilde değerlendirme kararını vermek için kullanılmıştır. Veriler Matlab kullanılarak analiz edilmiş ve (Lpfiad) kaydedilen inceleme sonuçları %56 olarak gerçekleşmiştir.

Anahtar Kelimeler: Değerlendirme, Eğitim, Anket, Sinir ağı, Sonuçlar, Performans, Hedef, geliştirme.

1. INTRODUCTION

Information and Communication Technology (ICT) industry and the open doors it offers against the difficulties numerous African nations look in their deliberate endeavors to take an interest completely in the data society and learning economy (Kundishora, 2014). E-administration and the instruction and preparing divisions. It is vital to underscore the requirement for government to be e-proficient to ably oversee and screen the ICT part administrative activities are conducted throughout the last two decades (Noor-Ul-Amin, 2013). Education tends to be a collective effort with tutelage of high level of quality being traditionally associated with experienced tutors and instructors intensively interacting with individual learners.. being used in education ICT appears to be more appropriate in understudy scenarios. As this is the case and with further rapid advancement of the world moving quickly into digital electronic media information exchange , ICT as an element of education is becoming ,critical which will without doubt continue well into this century. In a world of ever growing competitiveness, the implementation of communication and education strategies for the establishment of new teaching and learning approaches becomes more feasible through the use of highly developed ideas of management concepts in an increasingly demanding and competitive world where nothing can be left to chance (Desjardins et al., 2001). Data society, developments in ICT have affected nationals' conduct and additionally their coveted data prerequisites by having on a very basic level changed the way how individuals function and impart (Wirtz et al., 2015).

2. METHODOLOGY

In an educational framework the basis of every strategic and performance based advancement is accurate information; at the local and national levels there is a requirement for the study of an education

information infrastructure and the extent to which the impact of usability besides interest expected. Despite the relevance of education as part of laying the groundwork of data management data security and data retrieval, there are no national policies or guidelines on the collection and management of information and a national level appear to be non-existent.. The purpose of this study describes the opinion question, perception questions, attitude, empowerment, performance of the education providers towards the Libyan Program for integration and Development Web page, decide upon the essential categories with a markedly strong influence on training program besides determining the correlations between the higher education and qualification skills. Participants were Libyan soldier's providers, who worked in public/private government. The total number of participants was 216, with (16.20%, 35) percent female besides (83.80%, 181) percent male. Most participants ranged in age from 35-44. The level of education was almost Master Degree, (42.08%, 93) from the total of participants. There were roles at the practice which include the training of the Libyan students who their education is low as Diploma, doctors were response rate (15.84%, 35) besides different categories of Libyan Program for integration and Development Web page.

3. DEMOGRAPHIC CHARACTERISTICS OF THE PARTICIPANTS

Table 1.1 shows that 35 females and 181 males participated, over 80% of the whom were aged less than 35 years. The majority is of Higher education besides above, 42.08% Master's degree as in table1.2. High percentage of respondents in the 35-44 age group as shown in Table1.3.

3.1 Participants

Answer Choices	Responses	
Male	83.80%	181
Female	16.20%	35
	Answered	216
	Skipped	5

Table 1. The participant's percent in male and female.

3.2 Education Level

Education Level		
Answer Choices	Responses	
Diploma Degree	15.38%	34
Bachelor Degree	26.24%	58
Master Degree	42.08%	93
Doctoral Degree	15.84%	35
Professor Degree	0.45%	1

Table 2. The education level of the participants.

3.3 Age

Age		
Answer Choices	Response Percent	Responses
18-24	6.42%	14
25-34	40.37%	88
35-44	44.04%	96
45-54	8.26%	18
55-64	0.92%	2
65+	0.00%	0

Table 3. The age of the participants.

4. ANALYTICAL METHOD AND PRACTICAL MODEL

The distribution of questionnaires was Libyan students who they are using Libyan Program for integration and Development Web page. The aim of the study was to determine the influence of the Libyan Program for integration and Development Web page five categories on the opinion question, perception questions, attitude, empowerment, performance on Libyan Program for integration and Development Web page as well as the impact of demographic and educational training which followed the data gathering phase being contingent upon descriptive research methods and inductive statistics. This study presents and analysis of the pertinent statistics from information gathered through an Internet survey to expound upon the opinion question, perception questions, attitude, empowerment, performance of the website provider. In light of this , a questionnaire from past research was administered. However, Feed Forward Neural Network (FFNN) is implemented to learn from candidate's response in the survey and make the decision accordingly. The survey data are obtained from the MonkeySurvey where all candidates are promoted to access the questions and response to the same according to their own prospections and depending on their personal experience in the Libyan Program for Integration and Development (LPFIAD). preprocessing is initiating firstly. Whole processes are implemented in Matlab environments and is started with reading the data file downloaded from MonkeySurvey web system. Data is going through several process alike preprocessing, encoding, target preparation, Neural network training and results plotting. These five steps are leading to a decision generation which provides the percentage of success to Libyan Program for Integration and Development (LPFIAD). the answers are varying between four answers which are: 1-2, 2-3, 3-4, 4-5. However, the candidate of longer period of LPFIAD experience is considered more trusted to judge the system and give assessment. As per the provided sheet of whole responses from MonkeySurvey system, some candidates are actually login into the survey but not given any answer or published any reviews so we had filtered such content from the data and ignored the null candidates, Fig (2.1) demonstrating the preprocessing procedure

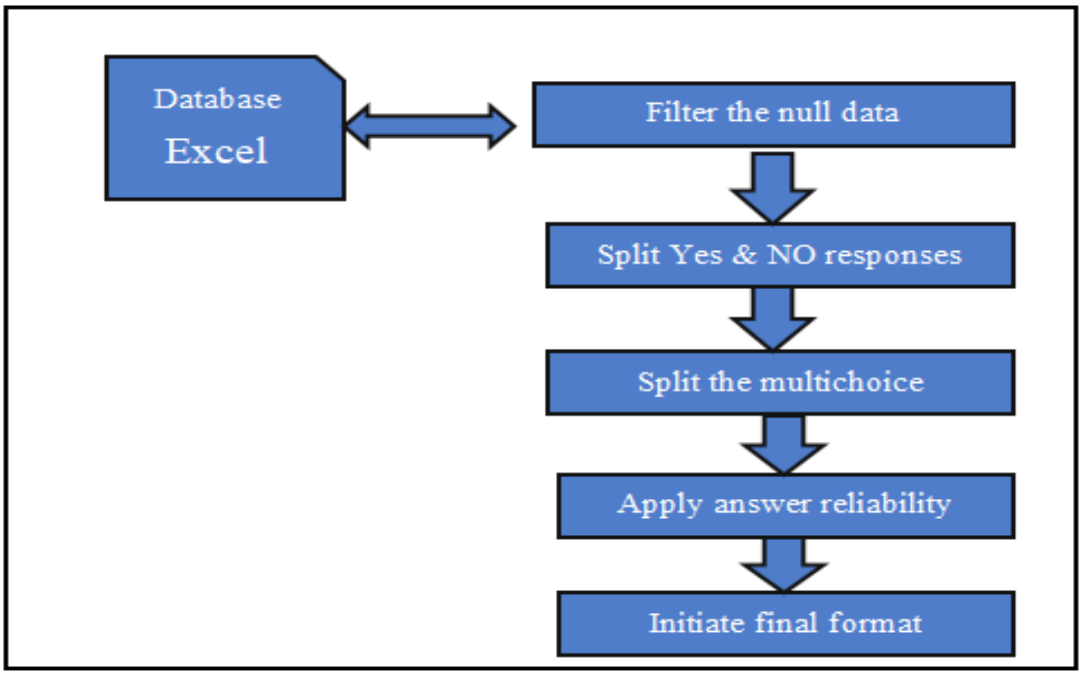

Figure 1. Preprocessing procedure demonstration**.**

4.1 Neural Network Training

As very essential step in this project, neural network is developed to produce these results from any kind of response of the same questions. Using the target of previous step, a Feed Forward Neural Network is designed in two layers as per the Table (2.1) which including the design parameters of this paradigm. Learning of any kind of response to the similar questions after passing the data from preprocessing step can lead to perfect results by letting the neural network doing the same.

Parameter	Value
Number of layers	3
First layer neurons	30
Second layer neurons	10
Maximum variance	1e-31

Table 4. The parameters that used to establish the Neural Network classifier.

The resultant training performance of this network are measured using the mean square error (mse)

$$\text{mse} = \left(\sqrt{\text{I} - \text{O}}\right)^2$$

Where "I" is the input vector of data and "O" is the output of the neural network. Further the resulted mse is lesser than 1*e-31 which means very small error in the training is resulted from this network and hereby the performance of the same is good.

4.2 Analytical outcomes

The analysis of responses data begins as we converted the responses to numerical forms where each question is equivalent to score from zero to five. Adding all the number per candidate will produce the total score that given by each candidate. We had obtained percentage of each candidate feedback with reference to the maximum score of each candidate as in figure 2.2 and table 2.2 .

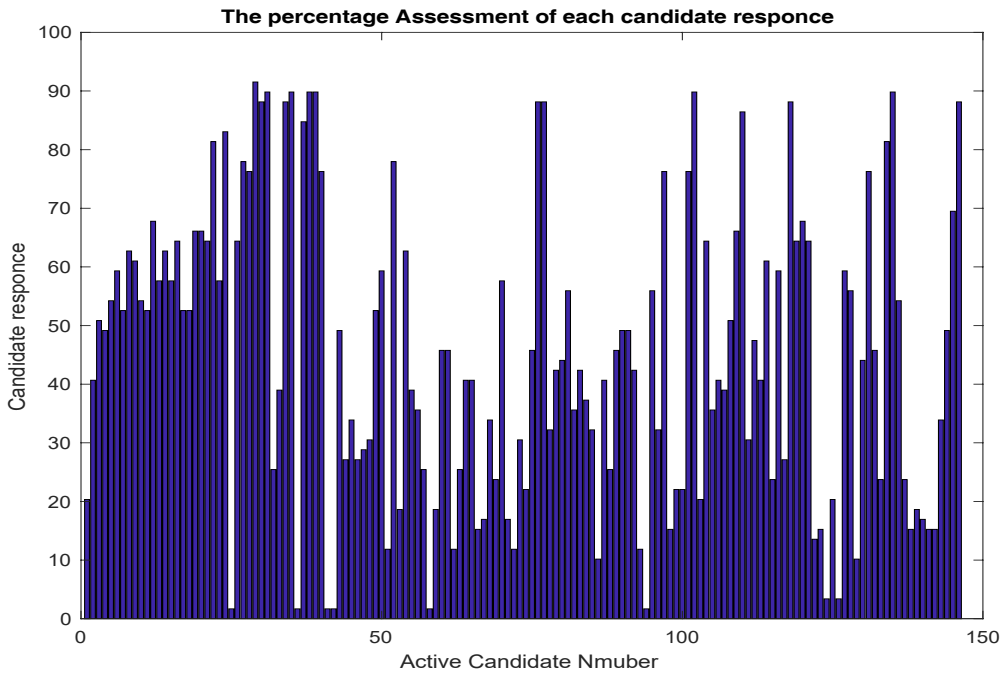

Figure 2. The percentage assessment of each candidate response.

Figure shows the percentage score from each candidate according to the feedbacks collected from them by the survey. The x axis is representing the candidate number and y axis is representing the percentage response of every candidate. The details value that taken to plot the above figure is tableted at appendix. The minimum feedback was given by some candidates was equal to 1.69 % whereas the maximum feedback was equal to 91.5 %. We can summarize the results of the above figure in the following table.

Term	Details
Total number of subscribers excluding the null ones	146
The number of subscribers who have given > 50 % assessment to LPFIAD	63
The number of subscribers who have given > 90 % assessment to LPFIAD	1
The number of subscribers who have given < 50 % assessment to LPFIAD	83
The number of subscribers who have given > 60 % assessment to LPFIAD	42
The number of subscribers who have given > 70 % assessment to LPFIAD	25
The number of subscribers who have given > 80 % assessment to LPFIAD	18

Table 5. Interpretation the results of feedback percentage.

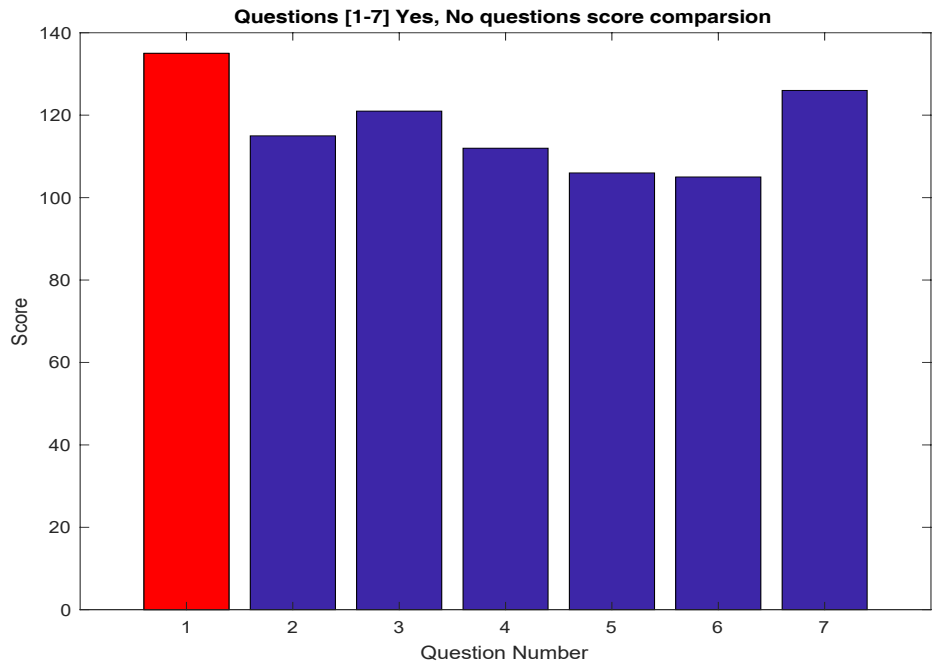

Figure 3. The first seven question in the survey score results.

in the Fig (2.3) where it is demonstrating the first seven questions that can be answered with "yes" and "no", the first question which is states: are you having experience of using the internet (web)? The figure shows that more than 90% of the candidates are experiencing using the web network and it sounds that all are using the internet in their life routine. The table below is demonstrating the first seven question scores as per the candidate's response.

Question number	Question contents	Score that equivalent to number of candidates how are answered positively
1	Do you have an experience on using Web site services?	135
2	Do you trust in management of Libyan Program for Integration and Development Website?	115
3	The students classified in this category are represented by meetings, seminars and workshops through the page	120
4	Do you think this Website will enhance the management procedures of the government	112
5	The site will follow up the collection of each student to know his level of study	106
6	The site nominates links to benefit the student	105
7	What is the classification of this page as a new type of education and human development in Libya High quality and performance	126

Table 6. The assessment of the questions as per the positively answered candidates.

For the first six questions that is holding the answers as yes and no, considering all the candidates in this survey, the scoring results of every question is listed at the table 2.3. the scoring results reveals that the majority of the candidates are having experience in using the web applications and internet. Proceeding through the remaining results, 115 candidates were trusting the Libyan Program for Integration and Development Website, 112 candidates were thinking that Libyan Program for Integration and Development Website will enhance the management process of the government. The lesser score was granted to the question of "dose this service provide a benefit to the students?" the scoring for this question was 105 positive responses.

5. OVERALL SYSTEM DESCRIPTION

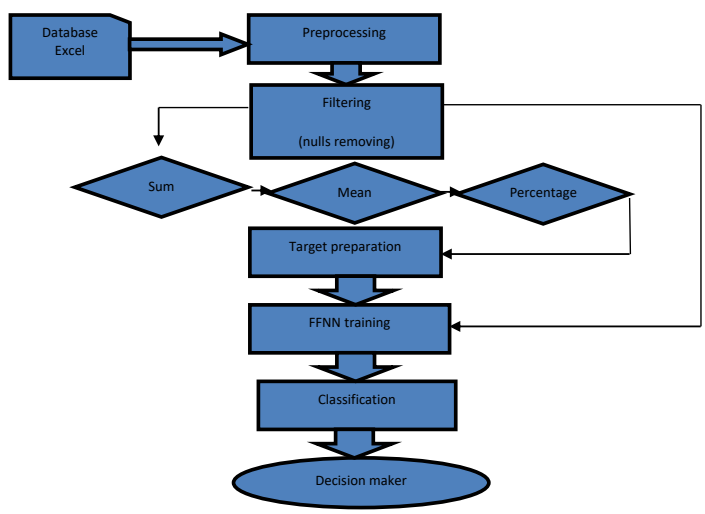

Figure 4. The whole processed of the proposed paradigm.

6. Conclusion

This article was in interest of project established to find the wortheness of Libyan Program for Integration and Development Website from the visitors point of view, the survey is established on SurveyMonky web site which is a famous platform that conducting a lot of surveys is various areas. Survey is establish so that clear vision can be obtained about this web service in order to state the final conclusion and suggest a solutions of any drawbacks detected. After getting the data from the SurveyMonkey website, Matlab is used to process the said data in multi-steps alike preprocessing and filtering. In order to analyze the data, we converted the answers into scores using the Matlab and then data are filtered to remove the effects of null users who are entered the survey but not actually participated with their feedbacks so that all such users are ignored and omitted from the data. Data is made in such form to evaluate the LPFIAD performance with percentage value; hence every candidate have undergone the calculation of performance percentage. The total average performance of all the candidates are found 56 %. This study included a smart way to learn the responses and take the decision automatically, Feed Forward Neural Network is used to perform this function. The study shoes that some candidates are not totally realizing that LPFIAD can ensure the same chances for all candidates, this can be due their mind sets and not actually real as this program is new and need some more time for getting users trust, on the contrary, other candidates are satisfied with the program functionality. The reason made the survey response in boundary of 56 % (moderated) not a high acceptability by the candidates may be the stringent norms used by this study to evaluate the survey responses as we relied on each candidate on his back ground and his knowledge of using internet and e-government staff.

Conflict of Interests/Çıkar Çatışması

Authors declare no conflict of interests/Yazarlar çıkar çatışması olmadığını belirtmişlerdir.

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