Behavioural Analysis Model for Enhancing Attendees Experiences in Events Through K-Clustering Technique

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Certification

This is to certify that Babajide Samson Adegbite with matriculation number LCU/PG/006063 carried out this research work titled "Behavioral Analysis Model for Enhancing Attendees Experiences in Events Through K-Clustering Technique" in the Department of Computer Science, Faculty of Natural and Applied Sciences, Lead City University, Ibadan, Oyo State, for the award of Master of Science Degree (MSc) in Computer and Information Science.

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(Supervisor)

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(Head of Department)

Dedication

This research work is dedicated to Almighty God for the grace upon my life and inspiration to carry out this academic work successfully and to my wonderful family for their great support.

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I want to express my appreciation to this great Citadel of learning Lead City University Ibadan for the opportunity to learn and complete my Master's Program and to the University Library for provision of adequate materials needed.

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Though the above-mentioned institutions and persons have assisted in the process of this research work, I alone stand responsible for the errors, if any, found in the work.

Abstract

Events management landscape plays an important role in delivering an exceptional attendee experience, from planning to implementation and attendee's engagement which serves as a critical success element for event organizers. Despite the increasing use of technology in event management, there remains a limited understanding of attendees' behavioural engagement in events either during or after for enhanced attendees' experiences. This study seeks to bridge the gap and examine attendees' behavioral segmentation into K-clustering technique for the identification of attendees' engagement during and after events. This research aims to develop a behavioural analysis model using K-clustering techniques to identify attendees' engagement in events for improved attendees' experiences. The quantitative research method was used for this research. The designed and model implementation was developed using Python Programming language. The results showed that the attendees' engagement was clustered into four namely the minimally, multidimensionally, highly cognitive and quietly, highly affective and socially engaged. Also, there was no string engagement in terms of the observed age or gender. The elbow performance metrics shows that the four behavioural engagement patterns best represent the data without complexities with the within-cluster sum of squares value of 171820.15 as the inflection point. The silhouette score of 0.37 indicates a decent but not perfect clustering and good enough for the early-stage attendee segmentation and need further tuning for decision making. The study concludes that event attendees participate more in highly affective and multidimensional segments and that K-clustering technique serve as an important method for understanding both low- and high-involvement of attendees in events

Keywords: Behavioural Analysis, Machine Learning, Events, Behavioural Patterns, K-Clustering

Word Count: 253

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List of Acronyms

Abbreviation	Meaning
DBSCAN	Density Based Spatial Clustering of Application with Noise
AMOS	Analysis of moment structures
GBM	Gradient Boosting Machines
AUC	Area Under the ROC Curve
ROC	Receiving Operating Characteristics
EFA	Exploratory Factor Analysis
CFA	Confirmatory Factor Analysis
RMSEA	Root Mean Square Error of Approximation
CNN	Convolutional Neural Networks
LSTM	Long Short-Term Memory Network
RNN	Recurrent Neural Network
RFID	Radio Frequency Identification

List of Appendices