MAJORIO: A WEB BASED APPLICATION FOR DETERMINING COURSE AT BAKRIE UNIVERSITY USING FUZZY ANALYTICAL NETWORK PROCESS (FANP) AND TECHNIQUE FOR ORDER PREFERENCE BY SIMILARITY TO IDEAL SOLUTION (TOPSIS)

UNDERGRADUATE THESIS

UTOMO HENDRA SAPUTRA
1112002021

INFORMATION SYSTEM
FACULTY OF ENGINEERING AND COMPUTER SCIENCE
BAKRIE UNIVERSITY
JAKARTA
2017
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2017
STATEMENT OF ORIGINALITY

This undergraduate thesis is my original work and all information contained in this project paper which is derived from the work of others had been given an award by citing the name of the source’s author correctly. All the contents of this undergraduate thesis are the responsibility of the author thoroughly.

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Signature :
Date : September 14, 2017
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Title : MAJORIO: A Web Based Application For Determining Course At Bakrie University Using Fuzzy Analytical Network Process (Fanp) And Technique For Order Preference By Similarity To Ideal Solution (Topsis)

Has been approved by the Board of Examiners and accepted as a partial fulfillment of the requirements for Undergraduate Degree in Information System, Bakrie University.

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The greatest thankfulness and praises are conveyed to Allah SWT for all the endless blessing and mercy that the author could finish this undergraduate thesis with the title “MAJORIO: A Web Based Application for Determining Course at Bakrie University using Fuzzy Analytical Network Process (FANP) and Technique for Order Preference by Similarity to Ideal Solution (TOPSIS)”. This final project is submitted as the partial fulfillment of the requirement for the Undergraduate Degree (Strata 1) of Information System at Bakrie University.

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Jakarta, September 14, 2017

Utomo Hendra Saputra
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Utomo Hendra Saputra

ABSTRACT

In selecting course at University, graduated students from high school rarely exposed with the information regarding with the courses offered. This lack of information about university’s courses may lead to a problem which student may choose course that less preferences. This research aims to design and develop a Decision Support System (DSS) that can be used to assist students in selecting preferable course according to their interests and talents. The DSS named Majorio. The system build according to the curriculum 2013 and multiple information theories. Majorio is developed using combination of two algorithms/functions: Fuzzy Analytical Network Process (FANP) and Technique for Order Preference by Similarity to Ideal Solution (TOPSIS). This combined function is used to calculate a combination of talents and academic competence and analyze how far the individual match against course. The methodology used in the development of Majorio is Web Methodology Language. This requires five stages including: requirement analysis, conceptual modelling, implementation, testing and implementation, deployment. Since Majorio is a web-based application, it will be accessed in majorio.org. Majorio is developed using PHP as a medium for data access which is supported by Apache web service while Javascript is used as a criterion calculating machine on the client side. The results of this study are 10 criteria used in determining the course, Majorio DSS design formed into Unified Modeling Language (UML), and Comparison ranking between Fuzzy ANP and Fuzzy ANP TOPSIS resulting in calculation of Fuzzy ANP TOPSIS more accurate than Fuzzy ANP. In summary, the analysis of study show that 80% respondent students agree that Majorio can help them in selecting preferable course according to their interests and talents.

Keywords : FANP, TOPSIS, DSS, Majorio, WebML
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<td>AHP</td>
<td>Analytical Hierarchy Process</td>
</tr>
<tr>
<td>ANP</td>
<td>Analytical Network Process</td>
</tr>
<tr>
<td>BSC</td>
<td>Balanced Scorecard</td>
</tr>
<tr>
<td>BOCR</td>
<td>Benefit Cost Opportunity Risk</td>
</tr>
<tr>
<td>BEER</td>
<td>Building Energy Efficiency Retrofit</td>
</tr>
<tr>
<td>CCS</td>
<td>Cascading Style Sheets</td>
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<tr>
<td>CPU</td>
<td>Central Processing Unit</td>
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<tr>
<td>CHP</td>
<td>Cognitive Hierarchy Process</td>
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<td>CI</td>
<td>Consistency Index</td>
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<td>DFD</td>
<td>Data Flow Diagram</td>
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<td>DSS</td>
<td>Decision Support System</td>
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<td>DOD</td>
<td>Document Oriented Database</td>
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<tr>
<td>E-commerce</td>
<td>Electronic-commerce</td>
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<tr>
<td>EPC</td>
<td>Engineering, Procurement and Construction</td>
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<tr>
<td>ERD</td>
<td>Entity Relationship Diagram</td>
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<tr>
<td>E-R</td>
<td>Entity-Relationship</td>
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<td>EIS</td>
<td>Executive Information Systems</td>
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<td>ES</td>
<td>Expert Systems</td>
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<td>XML</td>
<td>Extensible Markup Language</td>
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<td>FANP</td>
<td>Fuzzy Analytical Network Process</td>
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<tr>
<td>HDM</td>
<td>Hierarchical Development Methodology</td>
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<tr>
<td>HTML</td>
<td>Hyper Text Markup Language</td>
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<td>Hypertext Preprocessors</td>
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<td>IA</td>
<td>Intangible Assets</td>
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<td>IC</td>
<td>Intellectual Capital</td>
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<td>OO</td>
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<td>OODBMS</td>
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<td>Representational State Transfer</td>
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<td>TOPSIS</td>
<td>Technique for Order Performance by Similarity to Ideal Solution</td>
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