DEVELOPMENT OF AN ACADEMIC EMPLOYEE INFORMATION SYSTEM FOR CAVITE STATE UNIVERSITY - MAIN CAMPUS

THESIS

ARIANE MAE B. GONZALES
JAMAICAH L. LOÑOSA
JOSE EDELSON A. MEDINA JR.

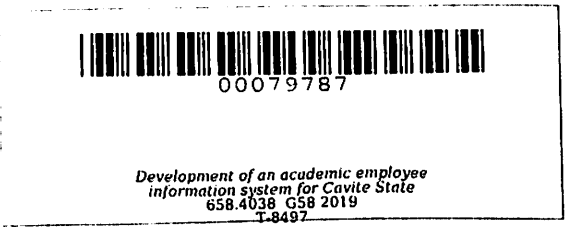
College of Engineering and Information Technology
CAVITE STATE UNIVERSITY
Indang, Cavite

June 2019

DEVELOPMENT OF AN ACADEMIC EMPLOYEE INFORMATION SYSTEM FOR CAVITE STATE UNIVERSITY – MAIN CAMPUS

Undergraduate Thesis
Submitted to the Faculty of the
College of Engineering and Information Technology
Cavite State University
Indang, Cavite

In partial fulfillment
of the requirements for the degree
Bachelor of Science in Information Technology


00079787

Development of an academic employee information system for Cavite State
658.4038 G58 2019
T-8497

ARIANE MAE B. GONZALES
JAMAICAH L. LOÑOSA
JOSE EDELSON A. MEDINA JR.
June 2019

ABSTRACT

GONZALES, ARIANE MAE B., LOÑOSA, JAMAICAH L. and MEDINA JR., JOSE EDELSON A. Development of an Academic Employee Information System for Cavite State University – Main Campus. Undergraduate Thesis. Bachelor of Science in Information Technology, Cavite State University, Indang, Cavite. June 2019. Adviser: Mr. Mark Philip M. Sy.

The study was conducted to provide an integrated solution that addressed issues of misplacement of personal documents, collecting personal documents and preserving those documents which was experienced by academic employees and management information system officers. The development was conducted at Cavite State University, Bancod I, Indang, Cavite, from August 2018 to April 2019 while system testing and evaluation was conducted also at the said university from March 2019 to April 2019. The study aimed to design the different modules (account management, document management and report); create the academic employee information system for Cavite State University - Main Campus; test the system using unit, integration and system testing; evaluate the system in terms of functionality, reliability, usability, efficiency, maintainability, portability and user-friendliness based on ISO 9126 standards.

Iterative development model was used in the development of the study. It has five phases namely; requirement/planning phases, design phase, implementation and test phase and a review phase. The system was evaluated based on its functionality, reliability, usability, efficiency, maintainability, portability and user-friendliness. The respondents were composed of the academic employees, Department MIS Officers, and College MIS Officers of different colleges inside the University. The results were tabulated, analyzed and statistically treated using mean and standard deviation.

Evaluation results indicated that the system passed and completed the needed requirements. Based on the results, the researchers formulated the following recommendations for further improvements of the study: (1) implement the system with a policy that the function of uploading the authenticated documents is the responsibility of each academic employee to encourage them to manage their own accounts. (2) implement other compression techniques to greatly minimize the size used by the documents in the storage. (3) create a module that can recognize vital information from a faculty development document like name of participant, date, and venue of the event to reduce the workload of the CMISO in tagging the documents.

TABLE OF CONTENTS

	Page
BIOGRAPHICAL DATA	ii
ACKNOWLEDGMENT	iv
ABSTRACT	vi
LIST OF TABLES	x
LIST OF FIGURES	xii
LIST OF APPENDIX TABLES	xiii
LIST OF APPENDIX FIGURES	xv
LIST OF APPENDICES	xvi
INTRODUCTION	1
Statement of the Problem	3
Objectives of the Study	5
Conceptual Framework	7
Significance of the Study	9
Time and Place of the Study	10
Scope and Limitations of the Study	10
Definition of Terms	12
REVIEW OF RELATED LITERATURE	15
METHODOLOGY	37
Materials	37
Method / Research Design	38

Population, Sample Size, and Sampling Technique 40

Instrumentation 41

Statistical Treatment of Data 42

System Architecture 44

RESULTS AND DISCUSSION 47

System Description 47

Software Evaluation 58

Evaluation from Technical Respondents 58

Evaluation from Non - Technical Respondents 66

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS 77

Summary 77

Conclusions 79

Recommendations 80

REFERENCES 82

APPENDICES 86

LIST OF TABLES

Table		Page
1	Comparison of related studies to the proposed	35
2	Technical respondents' evaluation on the functionality of the system..	59
3	Technical respondents' evaluation on the reliability of the system	60
4	Technical respondents' evaluation on the usability of the system	61
5	Technical respondents' evaluation on the efficiency of the system	62
6	Technical respondents' evaluation on the maintainability of the system	63
7	Technical respondents' evaluation on the portability of the system	64
8	Technical respondents' evaluation on the user-friendliness of the system	65
9	CMISOs' evaluation on the functionality of the system	66
10	CMISOs' evaluation on the reliability of the system	67
11	CMISOs' evaluation on the usability of the system	68
12	CMISOs' evaluation on the user-friendliness of the system	69
13	DMISOs' evaluation on the functionality of the system	69
14	DMISOs' evaluation on the reliability of the system	70
15	DMISOs' evaluation on the usability of the system	71
16	DMISOs' evaluation on the user-friendliness of the system	72
17	Academic employees' evaluation on the functionality of the system ..	73
18	Academic employees' evaluation on the reliability of the system	74
19	Academic employees' evaluation on the usability of the system	75

20 Academic employees' evaluation on the user-friendliness of the system 76

LIST OF FIGURES

Figure		Page
1	Conceptual framework of the system	7
2	Iterative model process (Ghahrai, 2017)	27
3	ISO/IEC 9126 quality model- external and internal quality	28
4	ISO/IEC 9126 quality model - quality in use	29
5	System architecture of the system	44
6	User login interface of CvSU Employee Information System (EIS)	49
7	Administrator dashboard interface of CvSU EIS	50
8	Administrator creating CMIS Officer account for CvSU EIS	51
9	Management of users for CvSU EIS	52
10	Department MIS Officer dashboard interface of CvSU EIS	53
11	Report generation interface of CMIS Officer for CvSU EIS	54
12	College MIS Officer dashboard interface of CvSU EIS	55
13	Report generation interface of College MIS Officer for CvSU EIS	56
14	CMIS creating DMIS Officer account for CvSU EIS	57
15	Academic employee interface for CvSU EIS	57

LIST OF APPENDIX TABLES

Appendix Table		Page
1	Distribution of the respondents' evaluation based on the functionality of the system	89
2	Distribution of the respondents' evaluation based on the reliability of the system	90
3	Distribution of the respondents' evaluation based on the usability of the system	90
4	Distribution of the respondents' evaluation based on the efficiency of the system	91
5	Distribution of the respondents' evaluation based on the maintainability of the system	91
6	Distribution of the respondents' evaluation based on the portability of the system	92
7	Distribution of the respondents' evaluation based on the user-friendliness of the system	93
8	Distribution of the CMISOs' evaluation based on the functionality of the system	93
9	Distribution of the CMISOs' evaluation based on the reliability of the system	94
10	Distribution of the CMISOs' evaluation based on the usability of the system	94
11	Distribution of the CMISOs' evaluation based on the user - friendliness of the system	95
12	Distribution of the DMISOs' evaluation based on the functionality of the system	95
13	Distribution of the DMISOs' evaluation based on the reliability of the system	96

LIST OF APPENDIX TABLES

Appendix Table		Page
1	Distribution of the respondents' evaluation based on the functionality of the system	89
2	Distribution of the respondents' evaluation based on the reliability of the system	90
3	Distribution of the respondents' evaluation based on the usability of the system	90
4	Distribution of the respondents' evaluation based on the efficiency of the system	91
5	Distribution of the respondents' evaluation based on the maintainability of the system	91
6	Distribution of the respondents' evaluation based on the portability of the system	92
7	Distribution of the respondents' evaluation based on the user-friendliness of the system	93
8	Distribution of the CMISOs' evaluation based on the functionality of the system	93
9	Distribution of the CMISOs' evaluation based on the reliability of the system	94
10	Distribution of the CMISOs' evaluation based on the usability of the system	94
11	Distribution of the CMISOs' evaluation based on the user - friendliness of the system	95
12	Distribution of the DMISOs' evaluation based on the functionality of the system	95
13	Distribution of the DMISOs' evaluation based on the reliability of the system	96

14	Distribution of the DMISOs' evaluation based on the usability of the system	96
15	Distribution of the DMISOs' evaluation based on the user - friendliness of the system	96
16	Distribution of the academic employees' evaluation based on the functionality of the system	97
17	Distribution of the academic employees' evaluation based on the reliability of the system	98
18	Distribution of the academic employees' evaluation based on the usability of the system	98
19	Distribution of the academic employees' evaluation based on the user-friendliness of the system	98
20	Data dictionary for table cvsu_researchers	101
21	Data dictionary for table dmis_file_detail	102
22	Data dictionary for table eis_educ	103
23	Data dictionary for table eis_employee_file	103
24	Data dictionary for table eis_file_detail	104
25	Data dictionary for table eis_log	104
26	Data dictionary for table eis_status	105
27	Data dictionary for table eis_users	105
28	Data dictionary for table employee_position	106
29	Data dictionary for table tbl_college	106
30	Data dictionary for table tbl_department	106
31	Breakdown of respondents	107
32	Breakdown of respondents for evaluation	107

LIST OF APPENDIX FIGURES

Appendix Figure		Page
1	Way of keeping of personal documents	109
2	Lost or misplacement of documents	110
3	Lost or misplaced documents	110
4	Reports generated by CMISO	111
5	CMISO experienced delay in submission	112
6	Reason of delay in submission	113
7	Fishbone diagram for lost or misplacement of personal documents	114
8	Fishbone diagram for delay in submitting of reports	115
9	Fishbone diagram for repetition of submission of authenticated documents	116
10	Gantt Chart	117
11	Context diagram of the existing system	118
12	Context diagram of the system	119
13	Use case diagram for account management module	120
14	Use case diagram for document management module	121
15	Use case diagram for report module	122

LIST OF APPENDICES

Appendix		Page
1	Interview Letter	123
2	Interview Report	125
3	Line Item Budget	129
4	Survey/evaluation letter	130
5	Survey/evaluation questionnaire	137
6	Sample accomplished software technical evaluation sheet	142
7	Sample accomplished software non - technical evaluation sheet	145
8	Unit testing	152
9	Integration testing	155
10	System testing	157
11	Source code snippets	162
12	Forms, Certificates, and other Appendices	170

DEVELOPMENT OF AN ACADEMIC EMPLOYEE INFORMATION SYSTEM FOR CAVITE STATE UNIVERSITY – MAIN CAMPUS

Ariane Mae B. Gonzales
Jamaicah L. Loñosa
Jose Edelson A. Medina Jr.

An undergraduate thesis manuscript submitted to the faculty of the Department of Information Technology, College of Engineering and Information Technology, Cavite State University, Indang, Cavite in partial fulfillment of the requirements for the degree of Bachelor of Science in Information Technology with Contribution No. CEIT 2018-19-2-095. Prepared under the supervision of Prof. Mark Philip M. Sy.

INTRODUCTION

As a part of professional bureaucracy—an academic institution, it is a vital requirement to have the means in providing updated and most advance human resource information system to its employees. Over the years, many methods of record keeping have been applied in regulating organization but one thing that has remained relatively constant in modern management is Human Resource Information Systems (HRIS). Typically, HRIS provides management of all employee information. One of the features of HRIS is Employee Information System (EIS). Employees play a major role in deciding the success of an organization. According to Singh, HRIS have become one of the most important tools for many organizations. It is a computerized system typically comprising a database or inter related database that track employees and their employment specific information. With HRIS, the administrative efficiency maintains faster information processing, improved employee communications, and greater information accuracy.