Vol. 5, No. 1, 2022, pp. 21-27
DOI: https://doi.org/10.32698/01581

Contents lists available at Journal Redwhitepress

Journal of Counseling and Educational Technology
ISSN: 2654-8194 (Print) ISSN: 2654-9786 (Electronic)

Journal homepage: http://journal.redwhitepress.com/index.php/jcet

Development and use frame of programme management system for organization

Siti Sarah Malini Bt Mohd Hanifa[1*)], Rasmaliza Bt Rashid[1], Zubaidah Bt Abdul Rahman[2]
[1]Department of Information and Communication Technology, Politeknik Kuala Terengganu,Jln Sultan Ismail, 21200 Kuala Terengganu, Terengganu, Malaysia
[2] Department of Electrical Engineering, Politeknik Kuala Terengganu,Jln Sultan Ismail, 21200 Kuala Terengganu, Terengganu, Malaysia

Article Info

Article history:

Received Jan 14th, 2022
Revised Feb 25th, 2022
Accepted Mar 22th, 2022

Keyword:

System framework
Management System
Manage Information
Programme Management System

ABSTRACT

The frame of Programme Management System for organization is an online system which has basic functions to manage information about certain program. These include courses, workshop or event, participant's information such as attendance, as well as generating document, for example certification of attendance and report for organization. In fulfilling problem statement for attendance, it is not available since it cannot be administered face to face due to pandemic Covid'19. Next, it is costly to print certificate for participants and it also involved postage cost. Lastly, difficulty in getting the updated list of participants. The objectives of this project are to design, develop and implement an online system in real situation. Methodology used is Prototype, whereby the developing of system is simultaneously administered with the implementation. In conclusion, this project helps organization to run programmes smoothly.

Corresponding Author:

Siti Sarah Malini Bt Mohd Hanifa,
Department of Information and Communication Technology, Politeknik Kuala Terengganu, Jln Sultan Ismail, 21200 Kuala Terengganu, Terengganu Malaysia
Email: sitisarah@pkt.edu.my

Introduction

Programs are activities such as training, courses, workshops, and ceremonies that are often conducted by an organization, whether in the public or private sectorfor various purposes such as, improvement of staff's skills, strengthen the relationship between staffand contributing social responsibility to the community.The implementation of a program has a specific periodof time that targets a specific group of individuals with the objective of achieving a certain goal.

The series of Covid 19 pandemics has caused most programs to be implemented onlinewhich has affected the program management process, especially in terms of program data management which starts from data management before program implementation, during program implementation and after program implementation is carried out.According to Xie et al., 2020 an online synchronous class, seminar, or event can be broadcast to anybody in the world utilising video conferencing software to deliver webinars is implemented online.

The organizers face a problem when the program, which is the problem that program information to participants cannot be distributed through the distribution of copies of the program invitation letter, participants

did not receive information about the program, the number of participants attending the program decreased, program information is not stored systematically, confirmation of program participant attendance cannot be implemented dan participant certificates cannot be distributed.

Therefore, the development of a basic program management system framework is designed and developed so that it can meet the basic specifications of system requirements that can be implemented in all organizational sectors as a solution to the problems faced.A framework, in general, is a physical or conceptual structure used to support or serve as a roadmap for the construction of something that enlarges the original structure into something useful(Lutkevich, 2020).The system is designed and developed so that it can be accessed online by program organizers and also program participants. The system is also designed to store all program data on one database so that the data can be processed at one stop center.

The development of this system uses PHP programming technology as the system code programming language, and MySQL database technology as the data storage center and for the system development site using the Windows operating system. To speed up the system development process, developers also use the XAMPP software package which contains a library of functions that can be used directly during the implementation of development.

During development, verification of system functionality was carried out in a program implemented during the pandemic period, namely workshop Program on The Use of Teaching Aids in The Field of Electrical Engineering for instructors from Community Colleges, Polytechnics, Vocational Colleges and Technical Secondary Schools throughout Malaysia for the field of Electrical Engineering. The purpose of verification with faultless component connections, functional verification establishes that the design will function as intended (D.Peterson & A. Teegarden, 2007) and to ensure that the system design has a good level of usability among end users.

Method

Methodology is the method used during project development so that the project development process is done more disciplined, using the right equipment, in the right and systematic way. For the development of this project, the Prototype model was selected as a model for development to speed up the project development process. This is because, in the Prototype model there are TWO (2) phases in which the process is repeated, namely the user evaluation process and the refining prototype process based on the evaluation by the end user.

These TWO (2) phases help the development of the system faster because it can identify the specifications of the actual system requirements from the perspective of the end user when the user is allowed to experience using the system for the system modules that have been completed even if the system is not fully completed. Suggestions for improvement from end users are implemented directly and uploaded back to the server to be re-evaluated by end users. These TWO (2) phases are repeated until the entire system can meet the specifications of the actual system requirements (Sommerville, 2007).

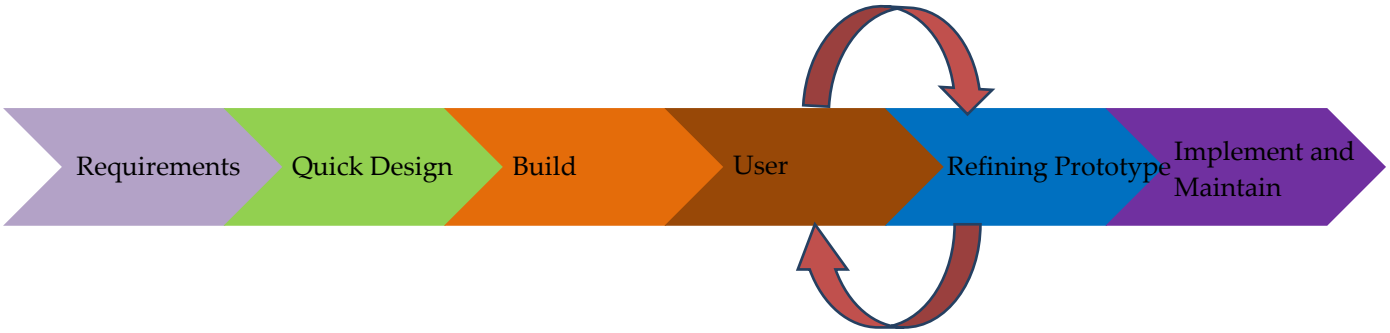

Figure 1. Model Prototype

Before the development of the system is carried out, the collection of information to identify the system requirements is carried out in the requirement phase. The requirement gathering process is done by obtaining information from stakeholders such as program organizers and program participants, then the priorityof the requirements is listed to identify the system requirements more specifically and the usability of those requirements when developed in the form of a system. Prioritizing needs is the process of controlling the relative urgency and relevance of various requirements to deal with the constrained resources of projects(Schedlbauer,

2011).Apart from that, the program management process flow is also designed to help developers develop system functionality.

Table 1. List of System Requirements Collected

Num	System Requirement	System Requirement Spesification
1	Program information to be implemented is stored and can be accessed by the organizers quickly	Program data: Program Title Program Start Date Program End Date Program Start Time Program End Time Program Introduction Programme's objective Program organizer stored in a database table. Search function to enable organizers to access information
2	Distribution of program information to participants	The function of sending program information to the participant's email Participants receive a notification on the system regarding the program they need to join
3	Confirmation of program participant attendance is kept for each program implemented	Participant data: Participant identification number Parrticipant name Participant address Participant email Participant phone number recorded and stored on a database table. The function for participants to confirm attendance to the program is activated during the program.
5	Generation of certificate for participation	The organizer uploads the program certificate design for each organized program Participants generate their own certificates for programs they have attended
6	Report generation	Program Report by Year Program Report by Program Category: Courses, Workshops, Activities

A quick system design sketch is produced in the quick design phase where in this phase the system context diagram which a technique for illustrating data flow in information systems(TANABE & KOBAYASHI, 2020) is used to describe the overall boundaries of the system, the flow of data in and out and the entities that are connected to the system. The design of the relationship diagram between entities is implemented as a guide for developers to build tables on the database as well as illustrate the relationship between the tables on the database.

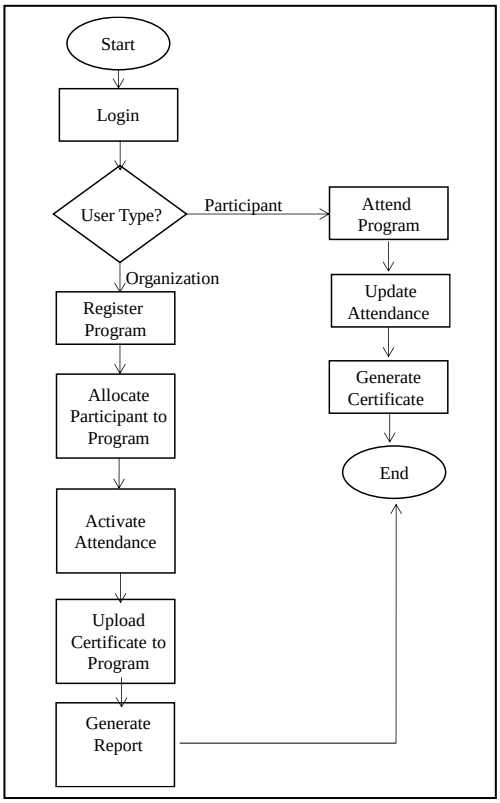

Figure 2. Process Flow Design Chart

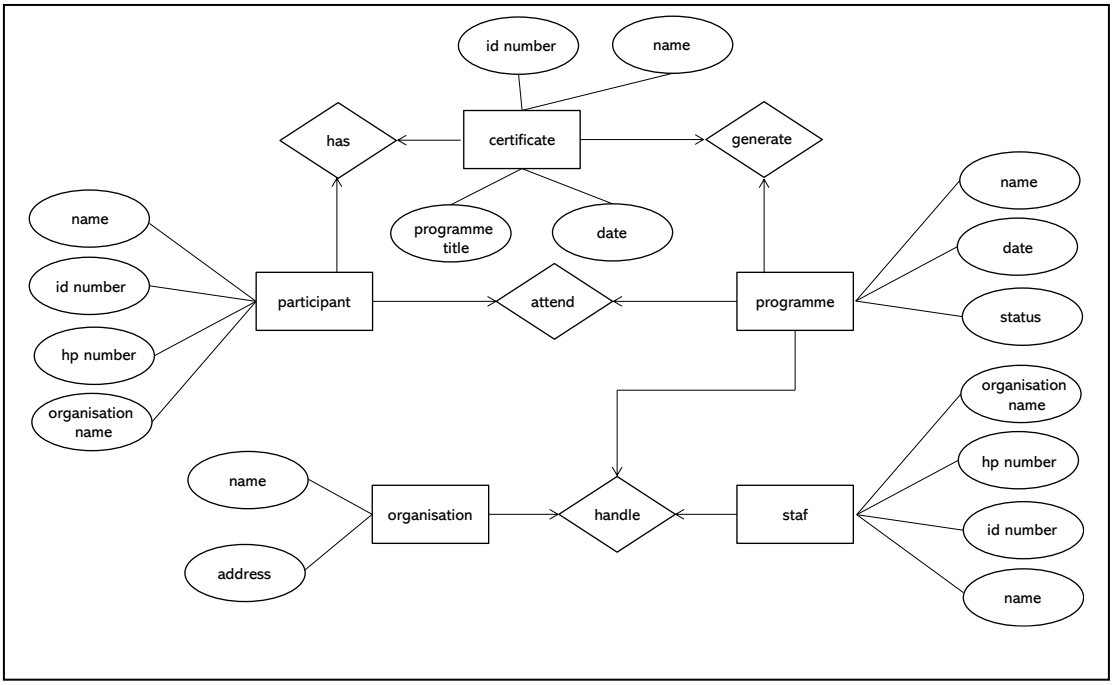

Figure 3. Context Diagram

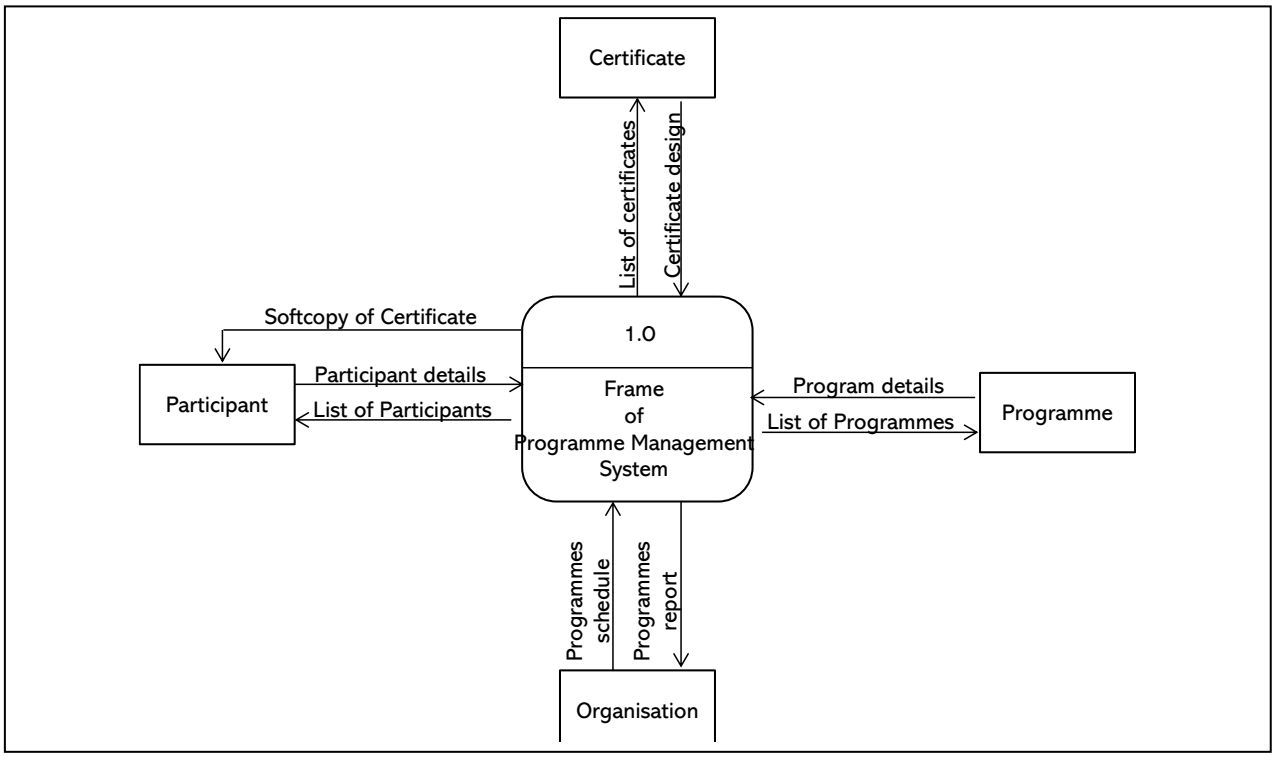

Figure 4. Entity Relationship Diagram

Results and Discussions

As a result of this research project, the development of the system began with the gathering of requirements from the program organizers and program participants. Program organizer and participants for workshop Program on The Use of Teaching Aids in The Field of Electrical Engineering for instructors from Community Colleges, Polytechnics, Vocational Colleges and Technical Secondary Schools throughout Malaysia are used as a sample for the verification of the basic specifications of the system requirements.The results of the initial system prototype implementation in this program show that the basic design of the system has been achieved and meets the specifications of the actual system requirements.

Unit Testing Plan

Table 2. Unit Testing Plan

Test Case Name	Test Procedure	Pre-Condition	Expected Result	Result (Pass/Failure)
Sign Up	User is required to register name identification number address email phone number	The user does not have an account on the system	User successful register to the system Userfails to register to the system because of invalid data or user already registered before	Pass
Login	User is required to login using identification number as their username and password to access to the system	User already registered to system	User successful login User fails to login because of wrong identification number or identification number does not exist	Pass
Register program	Program organizer is required to register program information	Data about the Program is complete	Program organizer successful register program to system	Pass

Test Case Name	Test Procedure	Pre-Condition	Expected Result	Result (Pass/Failure)
Allocate participant to program	Program organizer is required to tick checkbox to assign participant to program	Participant already registered to system	Program organizer successful allocate participant to program	Pass
Attendance confirmation	Participant required to tick checkbox for confirmation of attending the program	Participants have chosen the program they participate in	Participant successful update attendance confirmation	Pass
Upload certificate design	Program organizer required to upload certificate to system	Program organizer already have a final certificate design	Program organizer successful upload final certificate design	Pass
Download Certificate	Participant gets a view of link to download a certificate	Participant already update confirmation attendance	Participant successful download the certificate of attending the program	Pass
Generating report	Program organizer required to choose type of report to be generated	Program has been completed	Program organizer successful generate a report	Pass

Integration Testing Plan

Table 3. Integration Testing Plan

Test Case Name	Test Procedure	Pre-Condition	Expected Result	Result (Pass/Failure)
Notification program	Participants receive program notification to attend	Program organizer already registered program allocated participant to program	Participant successful receive notification	Pass
Update attendance	Participants require to update attendance	Program organizer already allocated participant to program	Participant successful update attendance	Pass
Generate Certificate	Participants require to download certificate link	Program organizer already: upload certificate design to system participant already update attendance	Participant successful download certificate	Pass
Generate Report	Program organizer requires to choose type of report	Program has been completed	Program organizer successful generate report	Pass

Conclusions

As conclusion, this project successfully achieved the objectives of project to design, develop and implemented in real situations. This system has been implemented in the workshop program on the use of teaching aids in the field of electrical engineering for instructors from community colleges, polytechnics, vocational colleges and technical secondary schools throughout Malaysia. Frame of Programme Management System also helps organisation to manage the programme smoothly. The selection of a prototype methodology is appropriate for system development because it can speed up the system development process that meets the needs of the project. This project solved the problems faced while running the programme during the pandemic Covid 19 in our country.

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