Arab Open University-Jordan

Faculty of Computer Studies

Information Technology and Computing Department

Training Management Portal (TDP)

At Ministry of Energy and Mineral Resources (MEMR)

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TM471: Final Year Project

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Signed declaration

I hereby declare that this project entitled "**Training Management Portal (TMP)"** is an original report, submitted by me in partial fulfillment of the requirement for the degree of "Bachelor's" for the academic year 2022-2023.

It has not been submitted elsewhere for any degree or examination at this or any other university.

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Abstract

In light of the global trend towards the automation of administrative and office work, whether governmental or private, it has become important to keep pace with this trend, which saves time and effort and increases the effectiveness and efficiency of work.

And since I faced, through my work at the "**Training and Administrative Development**" **department** at the Ministry of Energy and Mineral Resources, the problem of completing office work in a traditional way that drains time and effort and lacks the high accuracy that can be easily achieved. Turning towards automation, I decided to work on the project "Training Management Portal" by creating an internal portal available via the intranet based on an integrated database to manage the training process, in the following two parts:

- Management, implementation, and follow-up procedures and data for the enrollment of trainees of students or recent graduates of engineers and geologists, within cooperation agreements with each of:
  - The Ministry of Public Works
  - Jordanian Geologists Association
  - the Jordanian Engineers Association
  - and universities

And using the system to save (training enrollment documents) in the trainee's record to facilitate their retrieval, in addition to facilitating the mechanism of information exchange with the trainer, where the trainer can insert notes related to the trainee, such as the (Start enrollment in training) note, the (training details) note, or the monthly timesheet in the trainee's record in the database to be available to the training department for the purposes of preparing statements Monthly attendance to the concerned authorities and preparation of training certificates.

- Manage, organize and follow up staff training procedures, starting with the preparation of the training plan based on the instructions of the CSB (Civil Service Bureau) to determine the training needs according to the job category, job grade, and other data that are entered by HRM Officer to be available to the training department. and save training documents and certificates in (Employee records), and the possibility of preparing reports and statistics about the training process, completed training courses, completed training plan, and other inquiries and reports.

The system also facilitates the mechanism of communication with the Responsible (Working Hours Monitoring Division) to provide him with the list of employees enrolled in the training course during working hours within a specific period, and copies of the nomination letters through the system to cover (training days) as working time.

This project will be carried out using PHP programming language, and MySQL databases to implement the system.

Acknowledgment

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List of abbreviation

Abbreviation	Full Form
TDP	Training Department Portal
MEMR	Ministry of Energy And Mineral Recourses
HTML	HyperText Markup Language
PHP	Hypertext Preprocessor
SQL	Structured Query Language
UML	The Unified Modeling Language
WAMP	Windows, Apache, MySQL, PHP
FR	Functional Requirements
N-FR	Non-Functional Requirements
GUI	*Graphical User Interface*
CSS	Cascading Style Sheets

Chapter One

1 Introduction

1.1 Background

In the Ministry of Energy and Mineral Resources, the work of the (Training and Development) department of the Directorate of Human Resources and Administration performs two main functions:

1. Training of the Ministry's employees
2. training of recent graduates and university students

Training the Ministry's employees within a training plan that is prepared based on instructions from the (Civil Service Bureau) CSB that depends on the job category, job grade, and job title. Some training programs are also determined based on the work need.

The training plan is prepared using Excel tables, by referring in a traditional way to the conditions, reviewing the completed courses, and entering the names of the employees, their data, and the courses scheduled for them, where the employee data is already entered in other tables

, as there is no integrated database linking the employees' data and the courses scheduled for them with the plan without the need to re-enter the same data in each table we need in it.

Also, any modification process requires that the modification be made to more than one table that contains the same field

The work of the department is also linked with some other departments or employees from outside the department. For example, the (Working Hours Monitoring Division) must be provided with a list of the names of the participants in the training course on paper and a hard copy of the nomination letter to cover the period of enrollment of the employee in the training course and to provide (Human Resources Management Department) with employees who have completed the courses. required to verify that the promotion conditions are met. The training department must also provide the (Human Resources Management Department) with certificates of training programs in order to add them to the electronic card in the Civil Service Bureau. All these procedures are done in a traditional way.

This includes for the employee from other departments to visit the training department or communication through e-mail to request documents and information, and then obtain them either on paper or via e-mail, for employees whose work nature requires access and review of these documents, as all this data is stored in the department's devices only in the form of separate Excel tables or as pdf fils

(Note that the official correspondences are all stored in the database of the Ministry's office(aldeewan), but there is a need to keep a copy of some of letters in the database of the Training Department in order to link them to some procedures related to the training process)

As for the second job, which is the training of freshly graduated engineers and geologists in cooperation with the Jordanian Engineers Association, the Geologists Association, the Ministry of Works and As for the second job, which is the training of freshly graduated engineers and geologists in cooperation with the Jordanian Engineers Association, the Geologists Association, The (Ministry of Public Works and Housing) and universities, the internal procedures for enrolling trainees in training programs and following up their training, and preparing monthly attendance sheets for the purposes of disbursing the financial compensation, whether from the ministry or from the partner, are done manually by preparing Monthly statements and exchange of training notes and (training details) notes for the purposes of preparing experience certificates. training data are generally stored in Excel files in addition to paper files.

1.2 Project Aims and Objectives

The objectives of the project **"Training Management Portal (TMP)"** are summarized in achieving the following:

- **Saving time and effort**: Automation represents a step in the success chain of any organization, as it saves time and effort, increases productivity, and allows for flexible handling.

- **Increase productivity**: Automation shortens the internal processes associated with the training department, which includes cumbersome tasks such as preparing a training plan, archiving trainees' data, and managing the training process, which saves time for other work to develop and improve work.

- Processing files and documents electronically and restoring data quickly and accurately.

- **Accessibility:** access to data quickly and easily and facilitate linking, coordination and information flow between the concerned trainers, trainees and employees, each according to his powers through the system without the need to return to the training department to request information

- **Decision making**: Enabling senior management to easily view statistics and analytical reports, which gives them a clear vision before making decisions.

- **saving physical storage spaces**: Automation is a civilized alternative to traditional archives, facilitating data extraction, and saving space in offices and institutions

- **Provide a paperless work environment**; this keeps the environment clean of waste and reduces the use of forest trees in paper production.

- **Reducing the production of waste**, which helps to preserve the environment and reduce costs

1.3 <u>Problem Definition</u>

Through my work in the training department at the Ministry of Energy and Mineral Resources and through discussions with colleagues in the training department and the departments participating in the training process, I came across some problems that hinder the smooth and effective completion of work, which I summarize as follows:

1. **Time and effort draining**: Performing some internal tasks and procedures such as preparing a training plan and exchanging information with other departments using manual methods consumes time and effort. This also applies to retrieving old files and data archived in old ways.0

2. **Difficulty retrieving data and making statistics or queries**, as the data is stored in tables separately and is not linked to a database, which increases the difficulty of preparing reports, queries and statistics, as the information is collected by manual methods, which are less efficient and less accurate.

3. **Poor accessibility**: As the current method is characterized by weak streamlined data flow, employees must, in order to exchange information and files between departments, visit the department or use e-mail.

4. **Poor data accuracy**: Old methods of manually entering data into tables may make data vulnerable to mistaking or loss.

5. 1. **Lack of physical space:** paper files occupy a large space inside offices, and it is difficult to keep some files stored on paper for a long time, and the department must get rid of old files, and thus it is difficult to access them in case they are needed again.

6. **Waste paper production:** Keeping paper copies of files consumes paper and ink and increases paper waste

1.4 <u>Suggested solution</u>

The vision for the solution is to design a **website** to be a portal for managing and organizing the training process and accessing data. This website is available via the intranet with simple and easy graphical interfaces linked to an integrated and interconnected database. Through this website, it is possible to read and write in the database according to permissions in addition to storing files. Available to all employees through a username and password that identifies the user and thus defines powers, allowing access to specific information. The categories of users and their permissions will be clarified next in the Scope of Work section.

The following is an illustration of how the project meets current situation problems:

- The **web site** provides **accessibility** and facilitates communication between directorates, departments and employees so as to ensure a smooth flow of data to them according to their permissions without the need to request data through the training department, the employees can access the website and obtain data related to their work directly, as all data is stored in the database stored in the server. They can also include a document in the database as well, such as including a copy of a training certificate, and so on.
- The use of databases provides **ease of data retrieval** in various forms, such as queries, statements, or reports as needed, in addition to facilitating the preparation of statistics
- Data retrieval from databases through reports, queries and statistics is of **higher quality and accuracy** and in **less time**

- Data interdependence in databases eliminates the need to enter the same data several times in several tables, which increases **data accuracy** and reduces human mistakes.
- Saving files on servers within the database **saves physical storage space**, avoids the accumulation of papers and paper files in the office, and makes it easy to refer to them, even if they are old, as we do not have to get rid of them after a certain period of time.
- The system reduces the use of paper and **reduces paper waste** due to its adoption of Soft Copy as an alternative to Hard Copy

1.5 Scope of Work

The project is to create a website (portal) using **PHP MySQL**, which consists of a set of graphical user interface (**GUI)** these interfaces are interconnected and easy to use. The website allows reading and writing to the database, and allows accessing to data and documents in the form of tables, reports, queries. Or documents.

These interfaces are available to employees in MEMR under specific authorization via (**intranet**) by logging in using the username and password that identifies the user and thus defines the permissions for him.

a. **In the Human Resources Directorate**:

- Training department official
- Human resource planning department official
- Human resources department official
- Responsible for monitoring working hours

b. **In all departments of the ministry**

- Officials from the directorates participate in training trainees at MEMR
- All employees of the Ministry

➢ **HR management officer**

- He has access to an interface that displays all employees and their data in a database, through which he can choose the option to add an employee or remove an employee
- Amendment in the employee's data, such as the job grade and the year in the grade (promotion status: obligatory, permissive, or none), for the purposes of preparing the plan
- The employee of the Human Resources Department has access to the training records, list of courses for each employee, and copies of training certificates

➢ **HR Planning Officer:**

- Has access to all data in the employees' records.
- He is also allowed to enter and modify the career succession plan field

➢ **Training department official**

A- With regard to employees:

- The training department official is allowed to enter the training plan for each employee with the possibility of modification or deletion
- Preparing a record of courses for the employee containing all the courses he has obtained and adding or removing a training course
- Add a training certificate file to the employee's record
- Access to employee data associated with the training process
- Preparing a statement of expenses for the training department
- Preparing statements and statistics related to the training process for employees

B- With regard to trainees from outside the ministry within the agreements or university students

- The training department official has the ability to add or remove a trainee
- Preparing a monthly list of the trainees' names on the job, according to the training partner
- Include and store training enrollment documents, start-up notes, and training description notes
- Preparing reports and statistics on the trainees' data

➢ **Responsible (Working Hours Monitoring Division)**
- He has access to a monthly statement of the employees participating in the training courses, indicating the enrollment and ending dates, and a copy of the nomination letter to document and cover the employee's enrollment period within official working hours.

➢ **Trainers(fresh graduates)**
- Each trainer can access a list of the names of his trainees with their data
- Adding a training starting note to the trainee's record and adding a note of training details for the purposes of preparing an experience certificate by the training department. Inclusion of a monthly statement of attendance.

➢ **All employees :**
- Each employee has access to the data in his personal record, in addition to the possibility of filling out the (return report form from the training program) added to the employee's record and stored in the database
- The employee is allowed to add the Soft Copy of a training certificate to his personal record

1.6 Project outlines

Outlines	
Chapter one	- This chapter describes the current methods of conducting work in the training department at MEMR, which are considered traditional and old, and compared to using the website as a portal to manage databases and conduct work. - The chapter explains the objectives of project implementation - - represents the scope of work
Chapter two	- The chapter describes the literature review required to compare (**Training Management Portal**(**TMP**)) with others
Chapter three	- This chapter describes the requirements specification and models required for the proposed system.

Chapter two

2 Literature Review

2.1 Overview

The world is still moving forward towards the use of technology to facilitate and organize business until automation has become an urgent necessity, which is the natural development of business at the present time. However, this process must take place according to the correct foundations to achieve the desired goals of the automation process, to keep pace with the world of technology, and to benefit from the technological revolution in the best way to perform business.

2.2 Related work

This paper looks at some of the automation experiments for human resources, as it is similar to the (**Training Management Portal(TMP)**) project in terms of managing employee data, work tasks organization, and so on.

Here is an overview of some of these systems:

2.2.1 PHP HR software:

PHP HR An online program to manage and improve the daily tasks of a human resource manager. The PHP HR program allows human resources employees and managers to control the employee database, manage employee data, and facilitate doing their tasks (Anon., 2021).
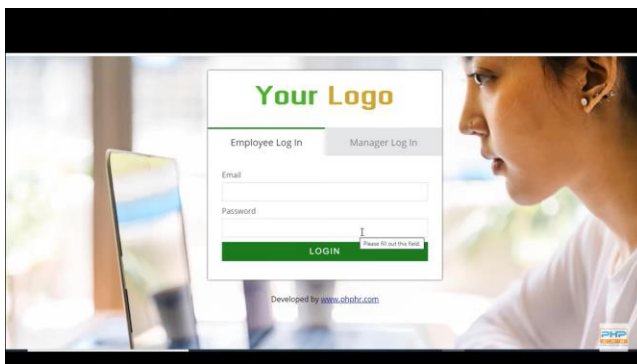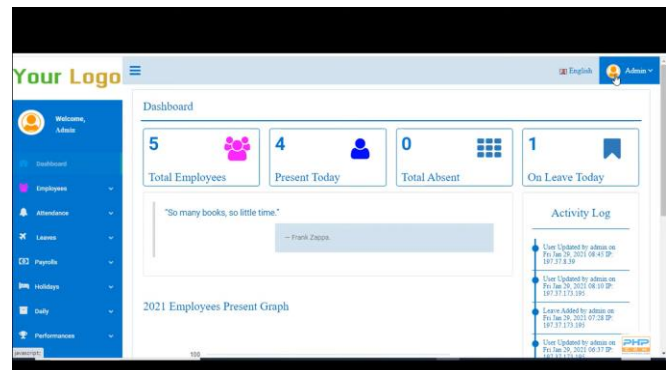

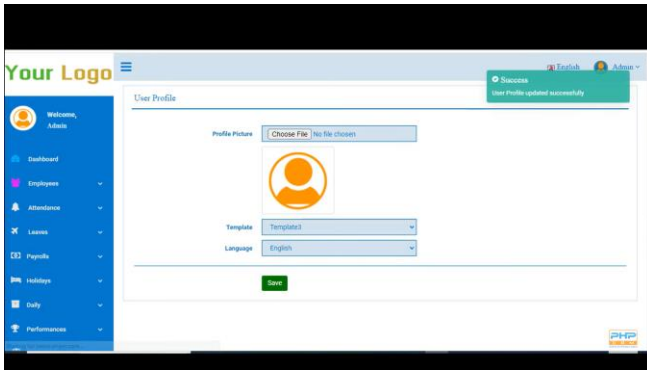*Figure 2-1 Login page*

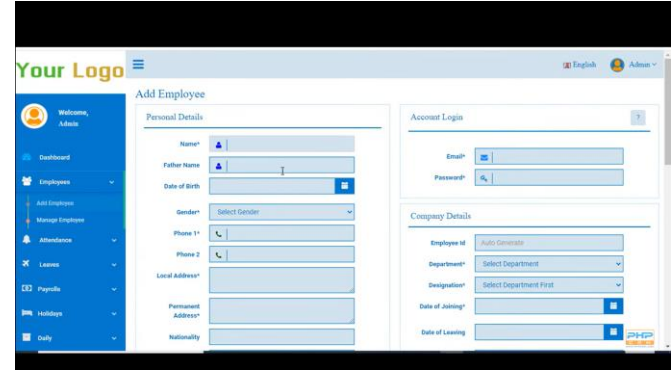*Figure 2-2 dashboard*

Figure 2-3 profile
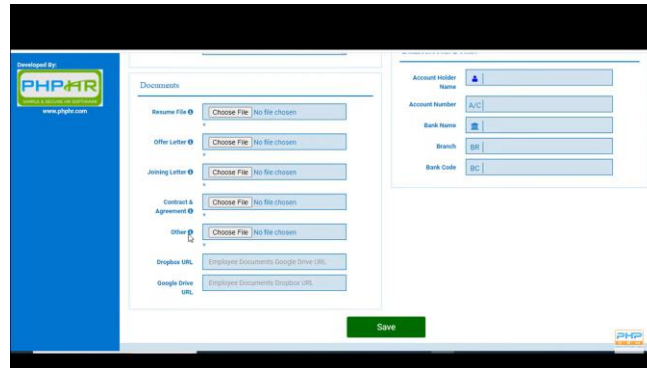

Figure 2-4 Add employee

Figure 2-5 add document

(PHP CRM, 2021)

2.2.2 VeenaPro(HRMS):

The VeenaPro (HRMS)represents a portal for managing human resources. User Login to the system by user name and password. It includes a database somewhat similar to the (**Training Management Portal (TMP)**) system. It is composed of a set of easy-to-use interfaces for dealing with data, reading and writing in the database. and modify their data .It is also allowed to add a training courses to the employee's file . The following is a glimpse of some of the interfaces of this system (Solutions:, 2020):
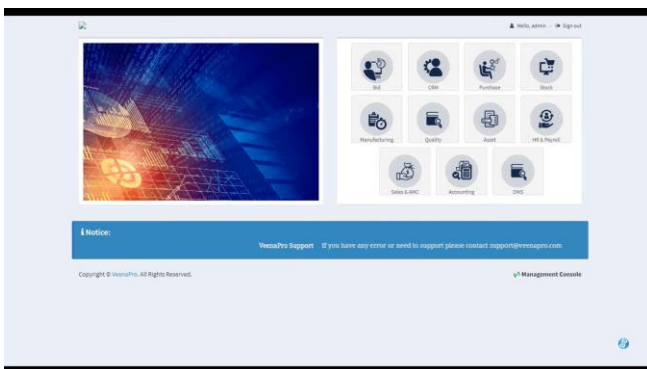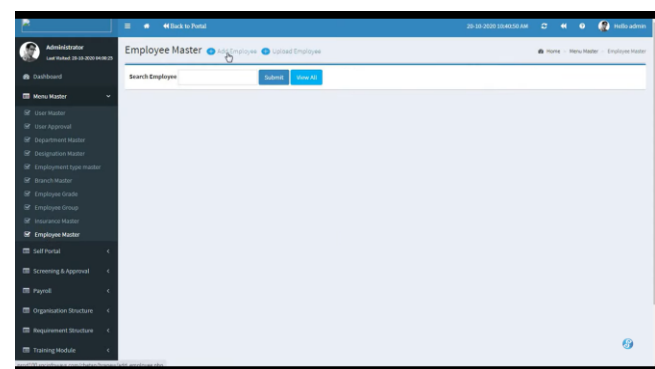

Figure 2-6 home page

Figure 2-7 Employee Master

Figure 2-8 Add employee basic data

Figure 2-9 work informations

Figure 2-10 Employees list

Figure 2-11 Training Master To Feedback

Figure 2-12 Add Training

Figure 2-13 List of Registered Training

(veenapro, 2020)

2.2.3 BetterHR:

It is also an online human resources data management system that allows managing databases and documents and facilitates and speeds up HR work tasks (BetterHR, 2018)

Figure 2-14 login page

Figure 2-15 employee dashboard

Figure 2-16 personal file

Figure 2-17 company documents

Figure 2-18 employees access management

(BetterHR, 2018)
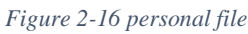
The applications mentioned are similar to **(Training Management Portal(TMP)** in terms of managing employee files and some operations on them, but they were somewhat deficient in organizing the training process and preparing training plans in general, in addition to that these systems may not suit to the characteristics of the training process in government institutions that are governed by steps and instructions Moreover, the aforementioned systems did not address the organization of the work of the trainees in the institution, and this is what makes the **(Training Management Portal(TMP)** able to better meet the work requirements in the training department and manage and organize them.

2.3 Time schedule work

Task Description	Task Duration	Start Date	End Date	Oct				Nov				Dec			
Planning	17	October 14, 2022	October 31, 2022	■	■	■	■								
Product overview	7	October 14, 2022	October 20, 2022	▣											
Problem definition	5	October 22, 2022	October 26, 2022		▣										
Features	4	October 28, 2022	October 31, 2022			▣									
Scope of work	7	October 31, 2022	November 6, 2022				▣								
Requirement Analysis	30	November 7, 2022	December 6, 2022					■	■	■		■			
Review existing system	7	November 7, 2022	November 13, 2022					▣							
Define functionality	10	November 14, 2017	November 23, 2017						▣						
Requirements document created	10	November 24, 2017	December 3, 2017									▣			

Problem definition

Chapter Three

3 Requirements and analysis

3.1 The scope of the system

This project entails designing a website that works within the intranet as a portal to manage and organize the work of the training department, which mainly includes training employees or training trainees from outside the ministry within the agreements

This portal allows for employees to login using a username and password that identifies the user and the system determines accordingly the permission to access the data

Through this site, it is possible to access data and documents related to the training process and to add or remove trainees, courses and documents to the database according to the permissions in order to serve the workflow in the training department and the Human Resources Directorate as a whole.
(Team, 2022)

3.2 (Training Management Portal(TMP)) entities and their attributes

3.2.1 Employee Entity

Employee	
User_Name	Empoyee_no
Password	Birth_date
First_name	Employment_date
Middle_name	Job_title
Last_name	Directorate_name
Civil_no	Department_name
Qualification	Employment_date
employee_mobile	Employment category
employee_email	Grade_on_job
employee_address	Year_On_grade
	Promotion_mandatory_bypass_none
	Career succession

Table 3-1 Employee Entity

3.2.2 Trainee Entity

Treenee	
First_name	Training_Exp_DATE
Middle_name	Training_period
Last_name	Directorate_name
Trainee_id	Trainer_name
Qualification	Partner_letter
Academic_sepecialization	
trainee_mobile	Attendance_note
trainee_email	Training_detail_note
Training_Partner	Trainer_notes
Training_Inrolment_Date	Training_program

Table 3-2 Trainee Entity

3.2.3 Training course entity

Training course	
Training_id	Training_institute
Training_name	PLACE
Training_type	Coverage_course_period
Training_year	Inside_Outside
Training_description	Training_hours
Training starting date	Num_of_days
training_employee_id	Candidacy letter
Training ending date	Training_institute_letter

Table 3-3 Training course Entity

3.2.4 (Trainees Training) partner

Partner	
Partner_id	Partner_Name
Training_name	PLACE
Training_Program	Program_period
Trainee_id	

Table 3-4 Partner Entity

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3.3 System requirements

Project users are MEMR employees classified according to permissions as follows:

a. In the Human Resources Directorate:

- Training department official

- Human resource planning department official

- Human resources department official

- Responsible for monitoring working hours

b. In all departments of the ministry

- Officials from the directorates participate in training trainees at MEMR

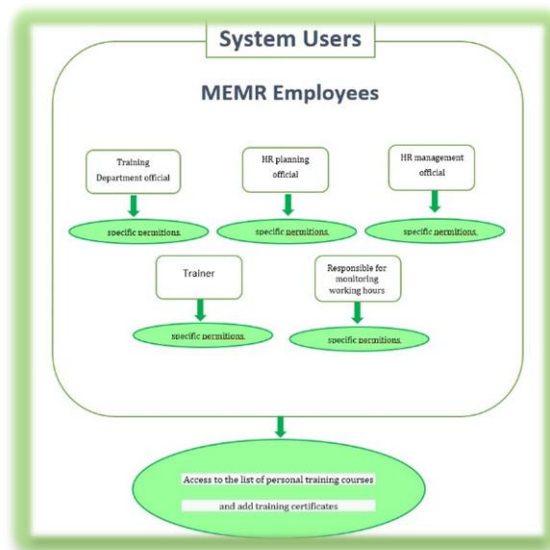- All employees of the Ministry

Figure 3-1 System users

3.4 Requirements specification

3.4.1 Functional requirements

3.4.1.1 Functional requirements for <u>Human Resource Management Officer (HRMO)</u>:

- **(HRMO)_FN1**: user should login to the system by username and password.
- **(HRMO)_FN 2**: user can edit his password.
- **(HRMO)_FN 3**: Add a new employee or remove an employee.

- FN4: Modifying employee data (including name, employee number, date of employment, e-mail, phone number, job title, job category, job grade, year in grade, promotion status, directorate, department, employee status)
- **(HRMO)_FN4:** View the list of training courses for the employee, which includes the following data (course name, date of the training course start date, training course end date, training course implementer, place, (online or online), soft copy of the training certificate)

3.4.1.2 Functional requirements for <u>Human Resource Planning Official (HRPO)</u>

- **(HRPO)_FN1**: user Should login to the system by username and password.
- **(HRPO)_FN2**: user Can edit his password.
- **(HRPO)_FN3**: View the entire employee database
- **(HRPO)_FN4**: Fill in and modify the succession plan field in the employee's data
- **(HRPO)_FN5** View a list of the completed training programs, the number of training hours completed, and the names of those enrolled during a specific period, which he enters into the system.

3.4.1.3 Functional requirements for <u>Human Resource Training Official (HRTO)</u>

- **(HRTO)_FN1**: user Should login to the system by username and password.
- **(HRTO)_FN 2**: user Can edit his password.

A. enter to employees training management page

- **(HRTO)_FN 3**: access to all data in the personnel database and retrieval statements below:
  - A list of names of candidates for compulsory promotion
  - A list of employees who can be promoted bypass
  - A list of the names of those enrolled in training courses and course data in a specific period.
  - A list of courses attended by employees, course data, letters of nomination, course cost, and total costs paid.
  - A list of the names of those enrolled in a specific training course during a specific period
- **(HRTO)_FN 4**: Add a training course in the training plan for the employee in the field of the training plan.
- **(HRTO)_FN 5**: Retrieving the training plan data for the entire institution sorted by directorate
- **(HRTO)_FN 6** Adding a training course to the list of completed courses for the employee, including the training course data, the name of the training course, the start and end date, the number of hours, the entity implementing the course, the cost, a copy of the training certificate and a copy of the nomination letter.

B. enter to trainees training management page

- **(HRTO)_FN 7::**Adding and deleting a trainee.

- **(HRTO)_FN 8 :** Modification and addition to the data of the trainee

- **(HRTO)_FN 9:** View and print all training data for trainees from outside the ministry

- **(HRTO)_FN 10:** View and print the following statements

  - a list of the trainees' names within a specific month and a specific training partner

    - a list of the names of the trainees in a specific directorate

3.4.1.4 Functional requirements for (Working Hours Monitoring) Official (WHMO)

- **WHMO_FN1**: user should login to the system by user name and password.

- **WHMO_FN2**: user Can edit his password

- **WHMO_FN3:**View and print the list of employees enrolled in training courses within a certain period With the joining and ending dates, and a copy of the nomination letter to attend the training course for the purposes of covering the employee's enrollment period within the official working hours

3.4.1.5 Functional requirements for Trainer

- **Trainer_FN1**: user should login to the system by username and password.

- **Trainer_FN2**: user Can edit his password

- **Trainer_FN3**: View the records of his trainees and all their data

- **Trainer_FN4:**Upload the training enrollment note in the trainee's record or the training details note

3.4.1.6 Functional requirements for Employee

- **Employee _FN1**: user should login to the system by username and password.

- **Employee _FN 2:** user Can edit his password

- **Employee _FN 3**: View all his data

- **Employee _FN 4**: View all training sessions in his history

- **Employee _FN 5**: View the annual plan scheduled for him

- **Employee _FN 6**: Add a completed training course to its courses and upload a copy of the training course certificate

3.4.2 Non-functional requirements (N-FR) will be there:

The **(Training Management Portal (TMP)** must meet the following non-functional requirements that indicate the characteristics that the system must have.

3.4.2.1 Look and feel requirements

The user interface should reflect the style of the government e-portal and be easy to use

3.4.2.1 Usability and humanity requirements

- Users should be able to learn to use functionality of the product in 2 hours.

3.4.2.2 Performance requirements

- The system should be able write to and retrieve from database.
- The time taken for the system to load and retrieve database data will depend on the network connection over the Intranet and the performance of the server.

3.4.2.3 Operational and environmental requirements

- The system should be able operate through web browser.

3.4.2.4 Security requirements

- User login requires user authentication to use the system
- Secure access of confidential data
- Administrator will only be able to access all pages.

3.4.3 Software Requirements

- Operating System: **Windows**
- **MySQL** Database: has better advanced features and properties, and good security, in addition it has open source and cross platform operability.
- Development Platform :
    1) **PHP**
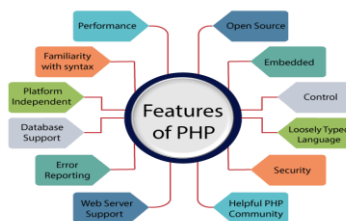   2) **HTML**
    3) **CSS**
    4) Web server: **WAMP**.

Figure 3-2 PHP Features (.javatpoint.com, n.d.)
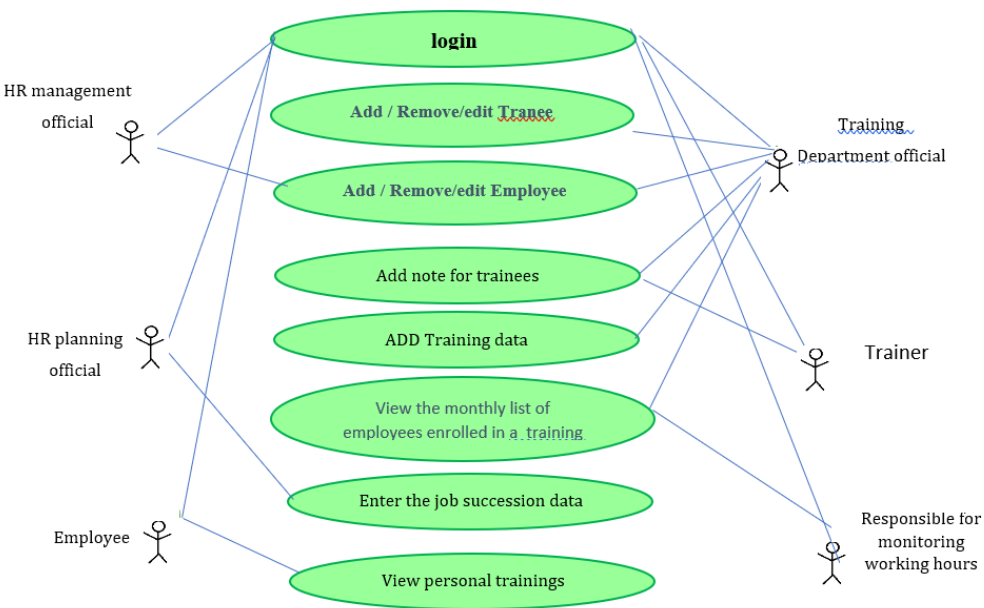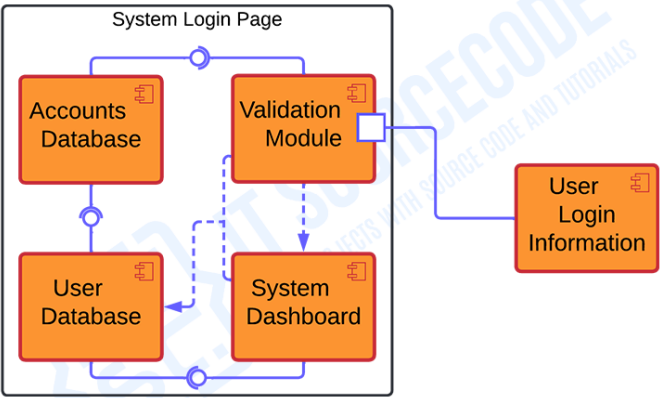
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3.5 UML diagrams

Figure 3-3   DFD

LOGIN SYSTEM

COMPONENT DIAGRAM

Figure 3-4 login System (itsourcecode.com, 2022)

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