**Enhancement of Human Resource Labor Market Information System**

**for LMD-PESO**

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4-A

**INTRODUCTION**

**1.1 Project Context**

Nowadays, the evolution of technology around the world has been noticeably rapid with the help of multiple emerging machines and powerful computers. The connection that the internet provides has been an important asset among the society especially in online job seeking. It also has been the companion of most agencies when looking for job applicants that suits the needs of the company. There are some cases that a job mismatch and overqualification occurs during the process of recruitment that is why researchers nowadays develop an E-recruitment platform to resolve these kinds of issues.

Furthermore, online job seeking has been popular and LMD-PESO has been assisting the local netizens in finding jobs in or out of the province. Providing its locals opportunities which will not only benefit its citizens but will also help with the employment stability of the province as a whole.

The Livelihood Manpower Development Public Employment Service Office

(LMD-PESO) is a multi-service facility located at Marinduque Provincial Capitol Compound, Santol, Boac, Marinduque is established to provide employment information and assistance to DOLE clients and constituents of Local Government Units (LGU). It is a one-stop shop center established to provide employment information and assistance to grassroots. LMD-PESO is a community-based and maintained largely by the LGUs and a number of NGOs, including schools and colleges.

The LMD-PESO is an organization committed to provide prompt, timely and efficient delivery of employment service, developing globally competitive human resources and promoting gainful employment. Provide a venue where people could explore simultaneously various employment options and actually seek assistance they prefer. They also serve as referral and information center for the various services and programs of DOLE and other government agencies present in the area.

The office of the LMD-PESO contributes an important role in terms of job recruiting and hiring, job application assistance, and other job seeker and employer related activities or transactions. Local applicants who find difficulties on job application coordinates with LMD-PESO as they offer a wide variety of job vacancies offered by their established partner recruiting agencies. They serve as the intermediary tool for employment and building connections amongst job seekers and employers.

However, just like any other employment agencies, a job mismatch is still being encountered as a problem. On some instances, an applicant is skilled and educated beyond the necessity for a job which results to overqualification. This applicant will then be referred to another employer outside the province that provides a better job that suits the jobseeker’s skills and qualifications better.

With the problem defined above, the developers proposed an enhancement project of the recently developed project entitled “Human Resource Labor Market Information System for LMD-PESO”. The proposed enhancement of the system entirely focuses on job matching techniques and strategies to avoid job mismatch and overqualification incidents providing a more organized and manageable job filtration process that can provide a reliable and accurate source of information for the jobseekers as well as the employers using the web-based system.

**1.2 Objective of the Project**

This project aims to enhance a developed web-based Human Resource Labor Market Information System for LMD-PESO by adding a reliable feature that will improve the system’s overall performance.

Specifically, this project aims to:

1. Analyze and review the developed system thoroughly.
2. Redesigning the website’s interface while adding new feature/s.
3. Attachment of a job-matching feature and some minor changes.
4. Test the functionality of the additional feature that will be added.
5. Subject the project for implementation.

**1.3 Significance of the Project**

The project enhancement of this system will benefit the organization. Creating a much more fluent flow of information processing on their clients.

Assignment of different job seekers on available job opportunities will depend on their overall experience and performance which can be processed through the system’s new additional feature, the job-matching. This feature will serve as a guide for the organization whenever they are unable to identify the most appropriate employment a client can avail.

The main significance of this project is to avoid and lessen the cases of job mismatch cases that occurs frequently. Avoidance of this kind of problem will benefit both parties as the clients will be much more comfortable on the job description they’ll avail. For the side of the employers, cases of absence without leave of employees will be reduced while also establishing a good relationship between LMD PESO and their respective partnerships amongst public and private employers.

**1.4 Scope of the Project**

The project involves several processes such as requirement analysis, system review and analysis, system planning and redesign, system enhancement, testing and validation.

Under requirement analysis, a series of interview are conducted in order to identify any major changes among the organization’s business processes.

For system review and analysis, the documentation of the developed system that will be enhanced will be analyzed thoroughly to apply any key changes and upgrades so as to achieve an efficient enhanced system.

For system planning and design, feasibility study is conducted to determine if the proposed system can be implemented and the organization is capable to adapt to the project. Project deliverables like Work Breakdown Structure is prepared as well as the Gantt Chart and Use-case diagram.

In the system development and redesigning, coding and debugging of the system will be executed for the enhancement of the existing developed system.

For testing and validation, requirements review, alpha testing and client’s feedback will be conducted.

**1.5 Definition of Terms***Client* refers mainly to jobseekers, companies and recruiting agencies.

*E-recruitment* is the process of online recruiting through the use of internet.

*Overqualification* refers to a person who is educated beyond what is requested by an employer.

*Job-mismatch* is when a jobseeker fails to meet the necessary skills and qualifications needed in order to fulfill the requirements of the job market.  
*Job-matching* refers to the process of matching the right person to the right job based upon the individual's inherent motivational strengths.

**2. Review of Related Literature**

In the rapidly changing global world economy, the only vital value for an enterprise is the experience, skills, innovativeness and insights of its manpower resources they are the key components in every organization. Competitive organizations of the present have to attract and retain the best and outstanding manpower to remain competitive in the human resource market. [1]

Worldwide struggle in trendy market provides a business to overwhelm the competitors by looking out for a mixed bag of strategy, so many organizations purposefully in implementing e recruitment for their growth and sustainability, to source right person for right time with right cost. The superiority of real-time communication over the Internet is a reason why e-recruitment become the main podium for HR Professionals to think and use e-recruitment. Many companies use e-Recruitment to post jobs and accept resumes on the Internet, and correspond with the applicants by e-mail. The main success factors of e-Recruitment are the value-added services provided by the job sites, cost effectiveness, speed, providing customized solutions, helping to establish relationships with HR managers and facilitates brand building of the companies. Management of human resource in an organization cannot work smoothly if it’s not electronically adopted properly. [2]

A normal job matching process usually starts with task to retrieve data from both resume and vacancy. The data will be stored in an external storage in different format. The job matching task is usually driven by predefined matching rules on extracted data. These rules captured the necessary criteria of resume and vacancy that is defined by a group of job market domain experts. [3] This good practice is to avoid conflicts of interest as well as bias during job matching decision making by one individual. [4]

Higher educational attainments have a great impact on expecting and securing better jobs, particularly in the technical and professional fields. Youth with low educational attainments, particularly primary education and lower, have a higher tendency to expect to be employed in occupations with low job complexity. Our results indicate a severe job-skill mismatch in all occupational categories, both before and after the youth’s transition into the labor market. Using education as the only selection criterion, we found that less than 10 per cent of employment expectations match with skills required while 55 per cent and 34 per cent are under or over-educated for the jobs expected, respectively. [5]

Different designs of job matching system platforms have been developed and are in an undergoing process of evolving and still needs insights on upgrading to perform better and produce the most accurate outcomes for the job hiring industries and third-party organizations in order to perform better and provide a better service for the clients around the world.

**3. Methodology**

**3.1 Requirement Analysis Procedure**

To get the needed information, preliminary investigation was done thru fact finding Techniques such as interview, observation and research.

Letter of Interview is handed in first to be able to conduct a series of interview to identify if there are some key changes the organization has applied since last year that may affect the enhancement of the new proposed feature for the system. A face to face using open ended question was conducted and take down notes the answer of the client among the different processes involved in the recruiting activities initiated by the organization.

Moreover, observation is conducted to see the ongoing process of the organization. The review of the existing developed prototype was conducted to gather insights on how to approach the enhancement and upgrading of the system

**3.2 Feasibility Analysis Procedure**

Feasibility analysis is conducted through a series of interviews and observation. Various research work related to the proposed system to understand the process involved. This analysis helps in determining if the proposed project is feasible or not.

Operational feasibility is conducted using SWOT analysis of the organization for the proponents to define the organization’s strengths and weaknesses on how they are capable to adapt the changes that may be applied upon the enhancement of the system.

Moreover, Technical Feasibility is assessed to determine the technical of ICT resources of the organization. This is done to determine the system requirements needed for the proposed project such as hardware and software requirements. Also gap analysis is performed to compare the existing resources of the organization and the resources needed for the implementation of the system.

**3.3 Development and Testing Procedure**

Upon series of interviews and observation used in gathering information, the features and functionalities of the system were proposed. In developing the system, the following methods will be used:

Flowchart or use case diagram to illustrate the existing process of the organization and the flow of the proposed system. The diagram is used to provide clear picture of the organization process and expected capability of the system.

Prototype is used as guide in designing the system to be able to define the user’s requirements. In designing the prototype, the user interface was mostly designed using HTML, CSS and Javascript with the help of Sublime Text Editor and XAMPP.

Moreover, after the development procedures, testing procedure will be executed using Alpha Testing. ISO 9126 will be used to measure the system’s quality base on the user’s criticisms and feedbacks.

**4. Results and Discussion**

**4.1 Description of the Existing System**

The recently developed system is a web-based system that is designed for the LMD-PESO, for the job seekers and employers. The system still involves the organization’s processes and which is converted into the web to lighten their workloads. The first process starts with the system configuration wherein the admin, the concerned personnel, sets an account for the organization’s employees and Barangay Peso Coordinators for their access in the system.

To verify the employer’s request whether it is from a company or it is for overseas employment, they ought to send in their requirements which will be checked and verified manually by the concerned personnel and as for the overseas employment, they will still verify the overseas recruiting agency through the POEA website. Within three working days, LMD-PESO will either accept or decline their request. The employer will not be able to do anything until the admin accepts their request, but they can create their respective profile. If LMD-PESO approved the request, the company will be able to create the jobs information on the system but jobs will not be posted until LMD-PESO approves it. After the company creates an account, they can view the applicant’s profile. But if the job vacancy opportunity if from a DOLE program, then the organization is the one to set the job details and descriptions.

Once the job seekers have seen and viewed the job posts with available jobs, they can create and build their profile which serves as their resume.

In addition, applicants can visit the website anytime they want. They can browse and search for jobs and view more of the employer’s and job details, but an account is required in order to do so for them to view all the description and full details. After the registration, there will be filtering of jobs based on the skills they have provided in the information required by the system. This filtering will show all the jobs related to the job seeker’s skills. If a job seeker is interested in one, they can submit their profile resume right away. The applicant’s resume will be reviewed by the employer and the rest of the transaction regards to application happened traditionally between the employer and the applicant.

The final processes are the monitoring of employment status and the generation of reports in which the organization gathers all the transaction information. Approximately, the report is system generated, the rest will be filled by the admin who can print the reports afterwards.

**4.2 Requirements Specification**

* Enhanced Job Filtration – job filtering can be done through searching for a specific job a jobseeker is looking for or by filling in different required fields from job seekers or employers about the description they are looking for and will be matched accordingly.
* Job matching – the website will require different multiple fields from the jobseeker and will be matched from an employer with the same required skills and will be ranked accordingly.
* Resume Builder – jobseekers can build their resume in the website by creating their profile and attaching different valid certifications that may help them in impressing employers.

The system administrator has full control of the web-based system, just like the previous version of the recent project developed.

In this case, enhancement of the project will be applied by attaching a job matching feature proposed into the existing system. The job matching feature will be requiring four or more fields about the user. Once the system has gathered enough data about the user, the website will process the provided data and find a specific job description match inside the system’s database and will be filtered by a graphic result showing the number of *Matched*, *Acceptable*, and *Unmatched*. The jobseeker can also view the full details about the job they have been matched. From there on, submission of resume created by the jobseeker through the resume builder can be filed and will then be subjected for review by the employer.

**5. Design of Prototype**

This developed prototype provides a user-friendly and minimalistic interface for the user’s convenience around the website. This prototype can be subjected from minor to major changes whenever the client asks to do so before it will be implemented on the existing system that will be enhanced.

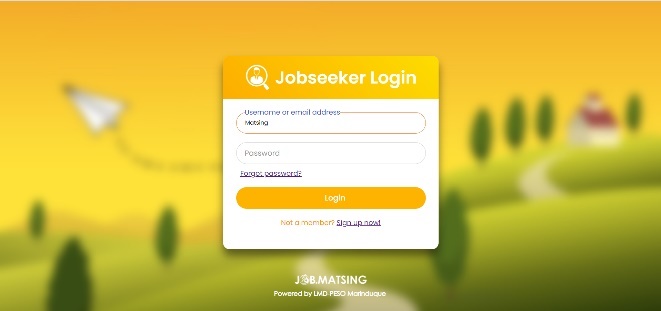
This prototype only aims to provide and direct the client and users on how the process along the website is conducted.

**Homepage**



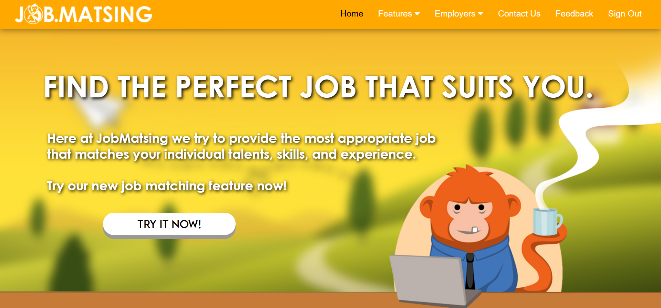
Login form will appear whenever the user clicked any of the three buttons.

**Jobseeker Login Page**



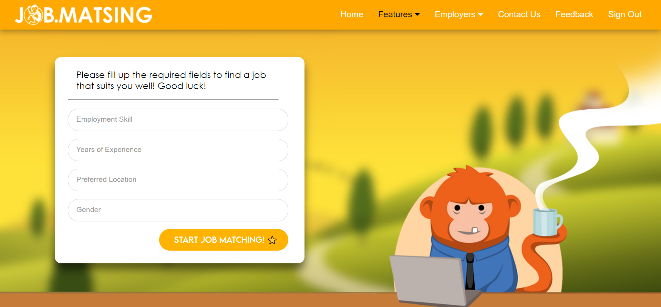
The login form requires a username or email and a password. A user can sign up for an account if they haven’t registered in the website.

**Jobseeker Home Page**



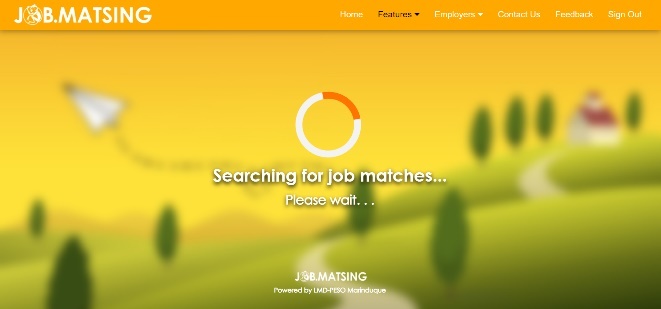
This is the home page when a jobseeker has successfully logged in into the website. As you can see, it promotes the new feature of job matching.

**Job Matching Page**



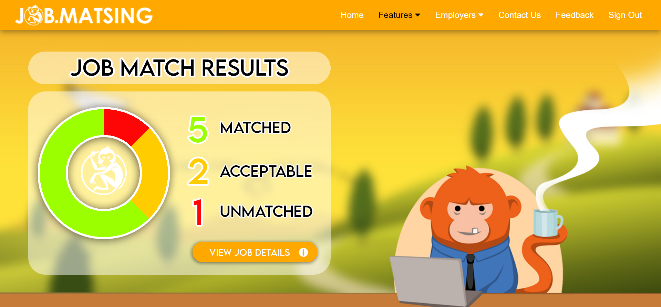
This will appear when the by clicking the “TRY IT NOW” button from the previous page and show the sample required fields needed in order to initiate the job matching feature.

**Searching for Matches Loading Page**



After clicking the “START JOB MATCHING” button, it will initiate a loading page wherein the system will gather and match the provided data needed for the job matching.

**Job Matching Results**



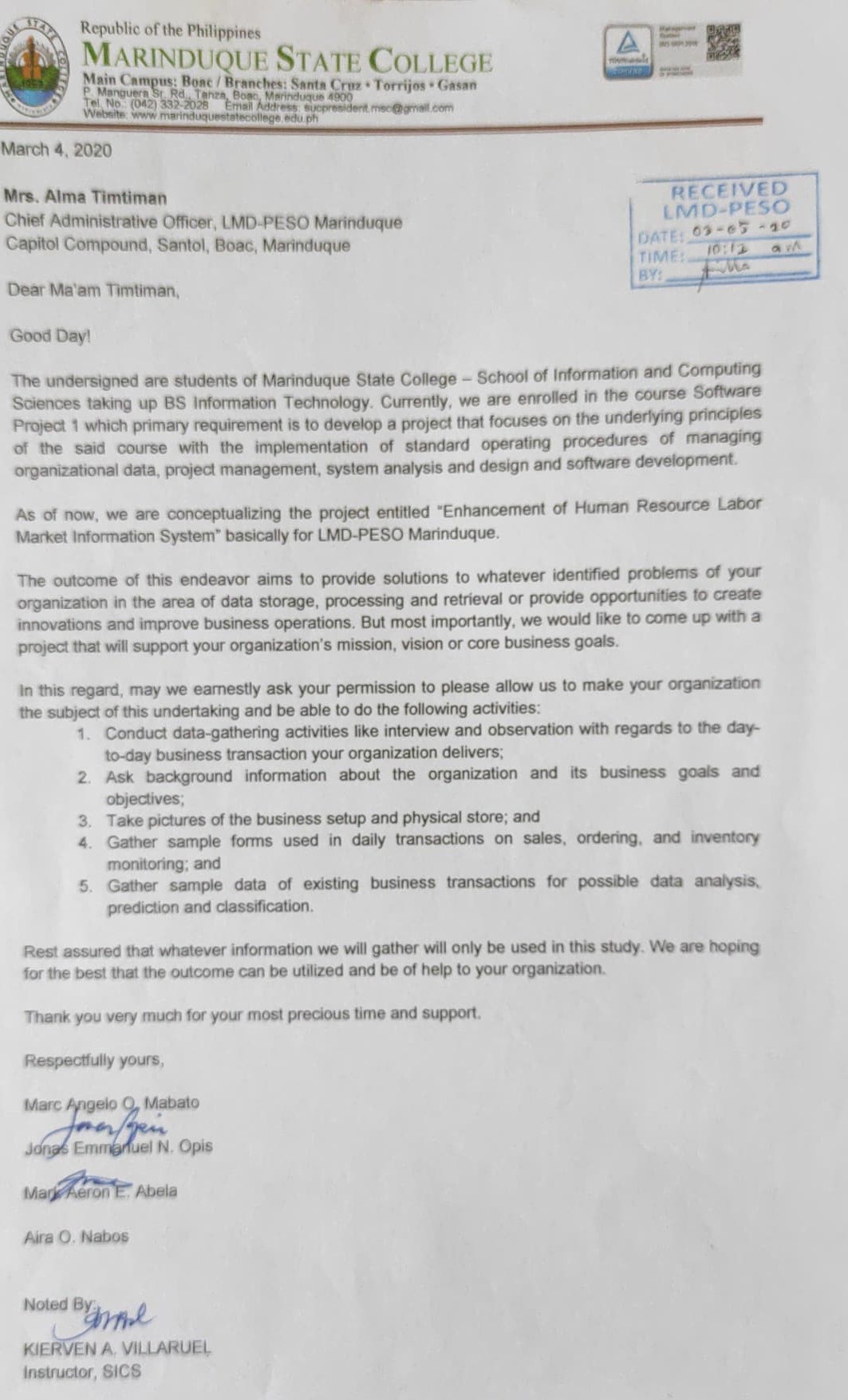
After the loading has finished, it will show the job matching results and see how many jobs they been matched, how many are acceptable jobs and how many jobs are unmatched. They can also see the view job description and details of the job matching results afterwards.

# **REFERENCES**

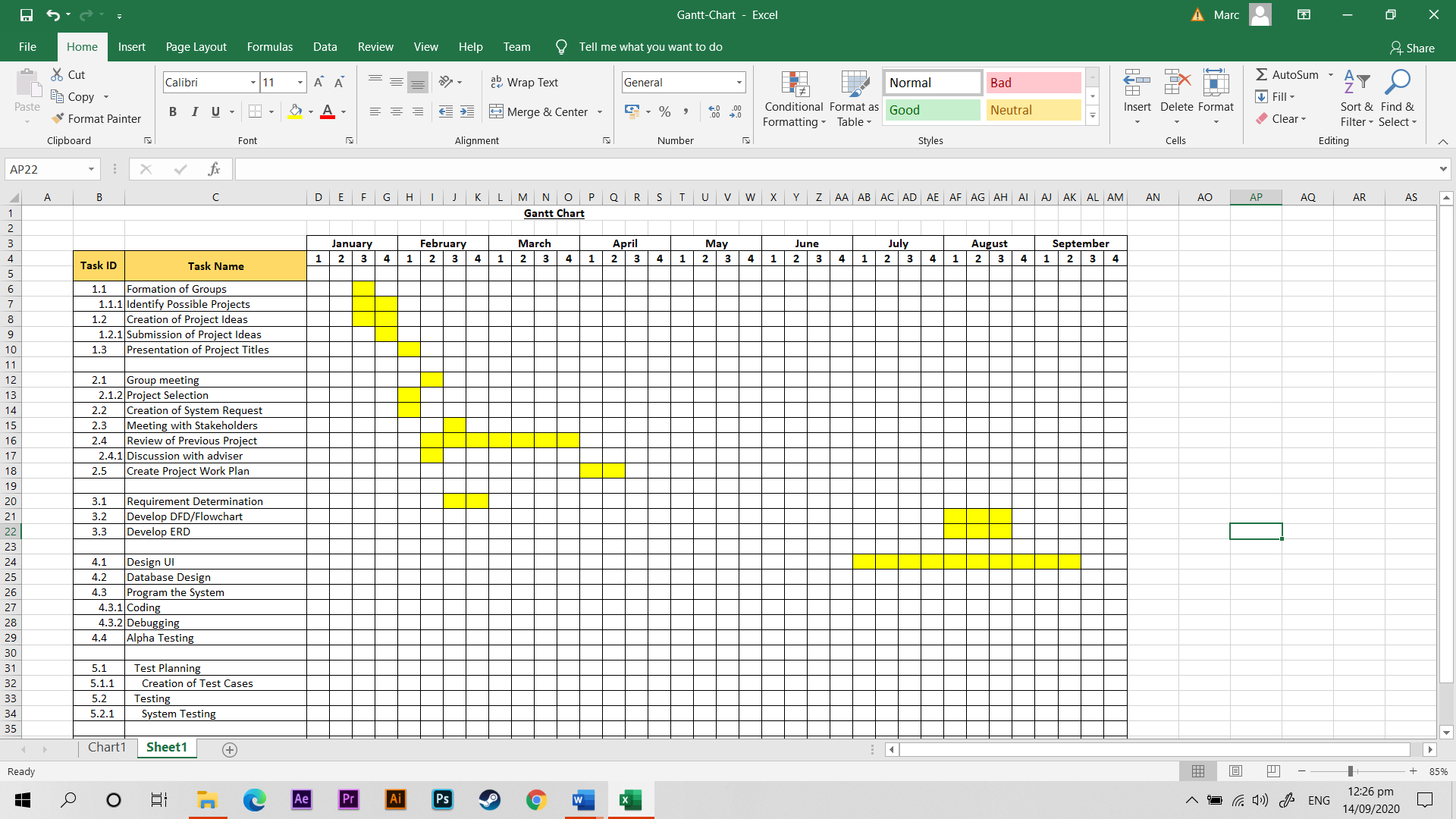
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| --- | --- |
| [1] | M. O. F. &. D. U. M. Kinange, "Effectiveness of E-Recruitment in Organization Development," *Management and Economic journal,* vol. 2, no. 4, pp. 294-301, 2019. |
| [2] | A. J. &. D. C. D. S, "The Impact of E-Recruitment and challenges faced by HR Professionals," *International Journal of Applied Research,* vol. 2, no. 2, pp. 410-413, 2016. |
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| [5] | A. Bandara, "Youth labor market expectations and job matching in sub-Saharan Africa: evidence from school-to-work transition surveys," *Applied Economics,* vol. 51, no. 8, pp. 762-780, 2019. |
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**APPENDICES**

**Letter of Interview**



**Gantt Chart**



**OPERATIONAL FEASIBILITY**

**SWOT Analysis of the Organization**

|  |  |
| --- | --- |
| **Strengths** | **Weaknesses** |
| * The employees of LMD-PESO are computer literate. * ICT resources are available in the organization. * Internet connection is available. * Employees are versatile and cooperative. | * Lack of ICT maintenance personnel. * Computers are not connected to a network. |
| **Opportunities** | **Threats** |
| * The organization has the ability to acquire sponsorship. * Other branches of the organization may be encouraged to use the system. | * Power interruption. * Unstable internet connection. * Computer viruses. * Disruption due to natural causes. |

**TECHNICAL FEASIBILITY**

**Hardware Specification**

|  |  |
| --- | --- |
| **Existing Specification** | **Needed Requirement Specification** |
| **Processor**  Pentium® Dual Core E660 /  Intel® Core i3-417 | **Processor**  Pentium® Dual Core T4300 |
| **Random Access Memory (RAM)**  2 GB – 4 GB | **Random Access Memory (RAM)**  2GB or more |
| **Hard Disk Drive Capacity**  500 GB – 1 TB | **Hard Disk Drive Capacity**  250 GB or more |

**Software Specification**

|  |  |
| --- | --- |
| **Operating System**  Windows 7 Home Basic / Windows 7 Home Premium 32-bit/64-bit OS | **Operating System**  Windows 7 or higher  32-bit/64-bit OS |
| **Web Browser**  Internet Explorer 11/Google Chrome | **Web Browser**  Internet Explorer version 9 or higher/ Microsoft Edge/ Google Chrome version 14 or higher. |

**Database Schema**

*user\_account*

|  |  |  |
| --- | --- | --- |
| **Field Name** | **Data Type** | **Rules of Constraints** |
| ID | int(11) | Primary Key |
| user\_id | varchar(50) | Not Null |
| email\_address | varchar(50) | Not Null |
| password | varchar(50) | Not Null |
| role | enum(‘jobseeker’, ’employer’, ’admin’) | Not Null |

*jobseeker\_personal\_info*

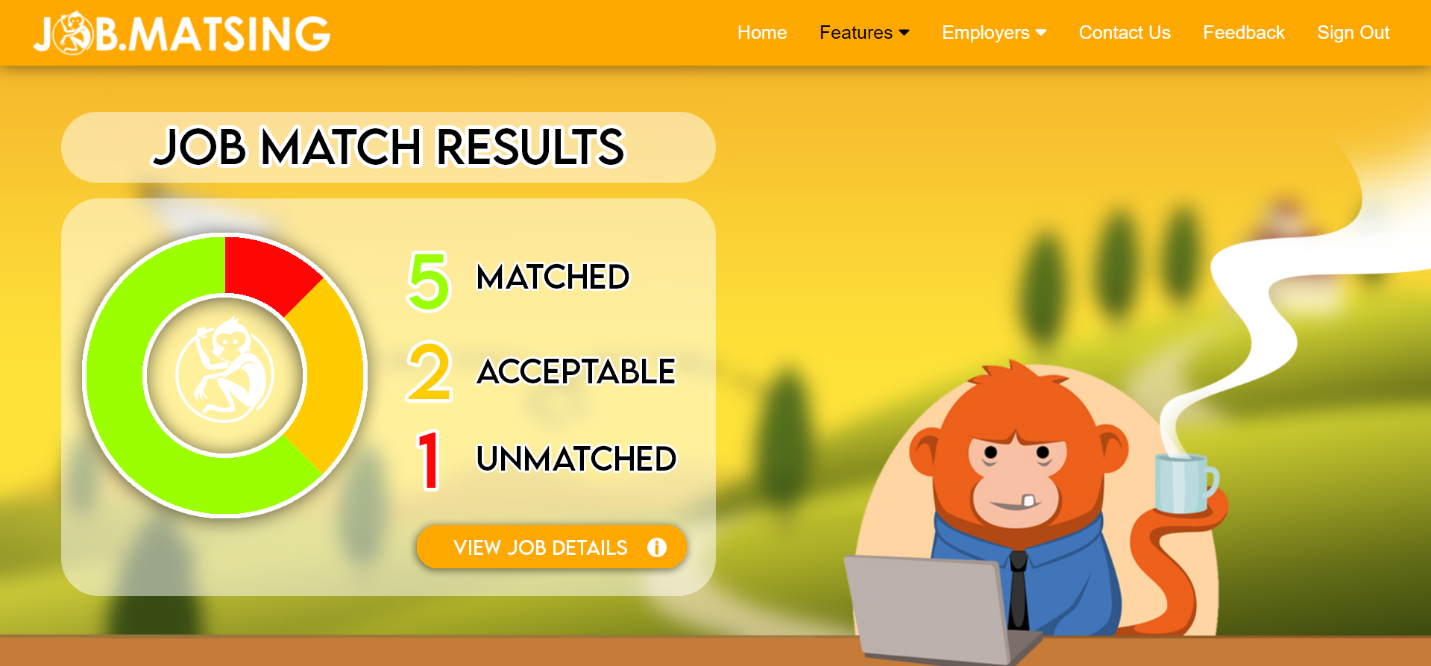
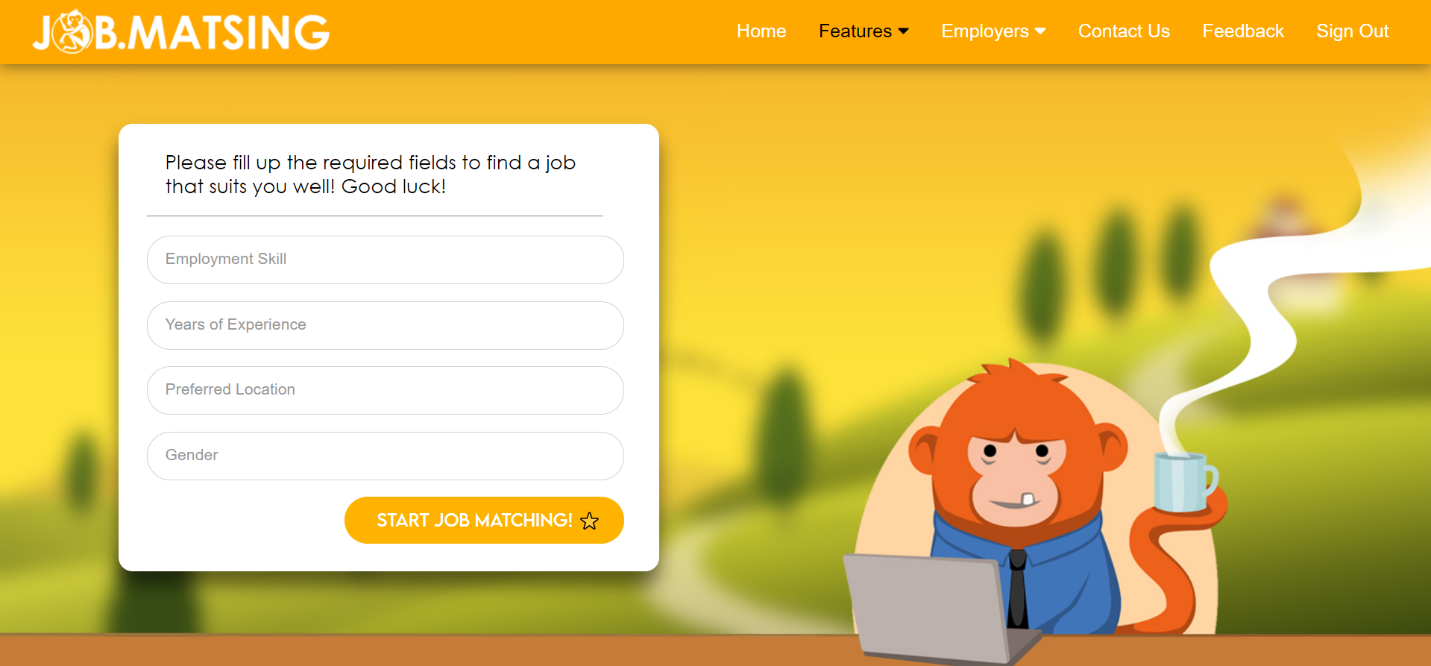
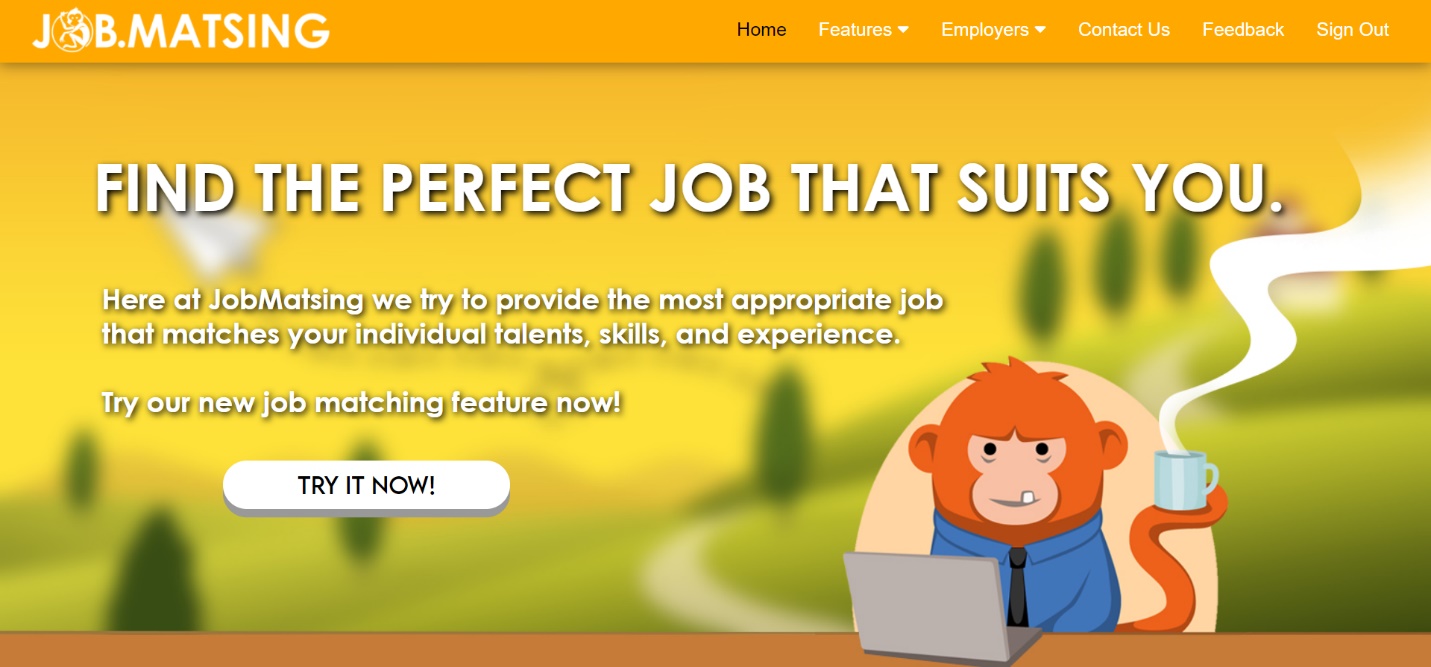
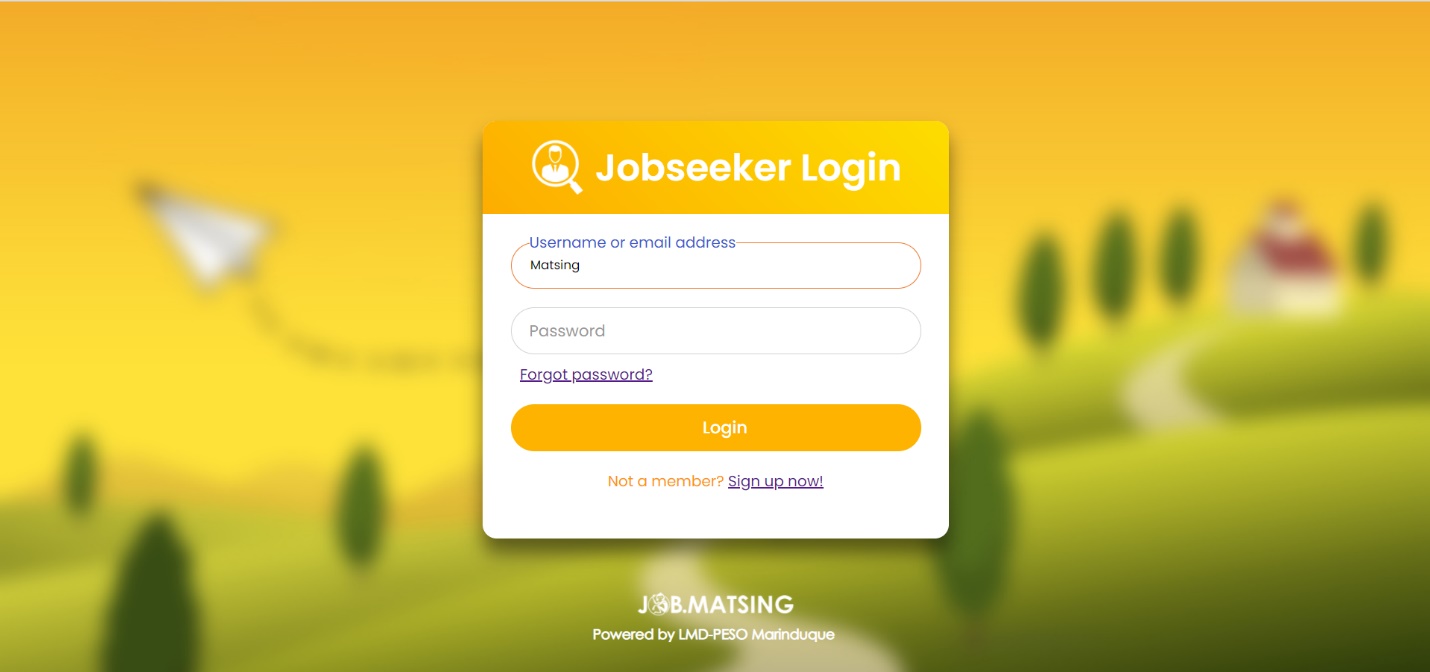
|  |  |  |
| --- | --- | --- |
| **Field Name** | **Data Type** | **Rules of Constraints** |
| ID | int(11) | Primary Key |
| user\_id | varchar(50) | Not Null |
| fname | varchar(30) | Not Null |
| mname | varchar(30) | Not Null |
| lname | varchar(30) | Not Null |
| bday | varchar(30) | Not Null |
| gender | enum(‘male’, ’female’) | Not Null |
| nationality | varchar(30) | Not Null |
| civilstatus | varchar(30) | Not Null |
| language | varchar(30) | Not Null |
| displaypicture | text | Not Null |

*employer\_info*

|  |  |  |
| --- | --- | --- |
| **Field Name** | **Data Type** | **Rules of Constraints** |
| ID | int(11) | Primary Key |
| user\_id | varchar(50) | Not Null |
| name | varchar(30) | Not Null |
| short\_desc | text | Not Null |
| address | text | Not Null |
| contactno | varchar(30) | Not Null |
| email | varchar(30) | Not Null |
| displaypicture | text | Not Null |

*employer\_jobs*

|  |  |  |
| --- | --- | --- |
| **Field Name** | **Data Type** | **Rules of Constraints** |
| ID | int(11) | Primary Key |
| user\_id | varchar(50) | Not Null |
| job\_id | varchar(30) | Not Null |
| com\_logo | varchar(30) | Not Null |
| com\_name | varchar(30) | Not Null |
| com\_address | varchar(50) | Not Null |
| position | varchar(50) | Not Null |
| jobtype | varchar(50) | Not Null |
| industry\_id | varchar(30) | Not Null |
| years\_exp | varchar(30) | Not Null |
| months\_exp | varchar(30) | Not Null |
| description | text | Not Null |
| status | enum(‘complete’,’pending’,’canceled’,  ’approved’,’disapproved’) | Not Null |

**PHYSICAL DESIGN OF THE PROPOSED SYSTEM USER INTERFACE**