Project Management Based On Skill Matrix

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ABSTRACT

A skill matrix is a general framework for mapping employees' abilities and skill levels. It's a system that keeps track of people's skills and how they're rated. It is used to manage employee skill levels, plan for employee skill development, and track existing and desired skills for a specific employee function, team, project, or firm[15]. Skills matrices are critical tools for any firm that relies on employee data, especially for HR and project management team leaders. A skill matrix is critical because, when properly set up, it may assist project team leaders in efficiently organising their teams, identifying any employee skills and sets that are required based on project needs[9-16]. The assessor will assign work to the employees based on their competence level. A skill grid is important because, when properly set up, it may management programs team leaders in efficiently organising their teams, identifying any employee skills and sets that are required based on project needs[3]. The organisation project is accomplished efficiently and by the most qualified and skilled team members with a good competence level. It is also beneficial to the company's HR department, since they will know what talents to

advertise for if they need to acquire additional staff or employees[10].

INTRODUCTION

Skill matrix is a data driven matrix which basically helps in keep track of the skills of the employees in the company. If any new project starts in the company that requires the human resource with certain skills[8-15]. Then skill matrix helps in finding the requires human resources availability with required skills in very quick time. Skill matrix helps in decision making whether organization has the required human resources to complete any upcoming project in required timeline[12].Skill matrix keeps track if the Organization has the ample resources that are required in the new upcoming project. It tracks the key employees in the organization and it also helps in identifying the right person to do a required job[1]. Skill matrix maintains the database of the employee works in the organization. It keeps track of the employees certain skill and the grade of employee in any particular skill. This helps the organization is allocating the right resources to a required project. Employee can also track the their performance and

contribution to the project they have worked currently or even in past project that they have worked on. Skill matrix keeps track of the key people work in the organization[02-09]. Key people have certain defined role for example Admin, Project manager, Project Lead etc. Skill matrix also keeps tracks of the projects that are running in the organization. It measures the progress of all the projects. It keeps track of the employees who are working on which project[3-22]. Projects progress is needed so that organization can take any action if it sees any project is out of track of given timeline for example Organization can allocate additional resource in the project. Skill matrix maintains the skill database that are required to complete the projects that any organization deals with. To complete any project there is a need of specialized human resource with required skills. Skill matrix maintains the database of the skills and also maintains the grade of the employees for certain skills. Examples of skills are communication, Java programming, Technical knowledge, management skill, data analysis etc[6-19].

Employees	Techical SKill	Management	Java programming	Data analysis	Communication
Preeti Singh	8/10	7/10	7/10	2/10	3/10
Subham	6/10	4/10	7/10	3/10	6/10
Robert	4/10	4/10	6/10	6/10	5/10
Allen	7/10	7/10	4/10	3/10	5/10
Aadya	3/10	2/10	6/10	8/10	4/10
Sonu	4/10	6/10	5/10	3/10	8/10
Nitin	4/10	4/10	6/10	6/10	5/10
Suresh	7/10	7/10	4/10	3/10	5/10
Aadarsh	3/10	2/10	6/10	8/10	4/10
Seema	4/10	6/10	5/10	3/10	8/10

This maintains the grade system for the employee for specific skill. For example Novice, professional, Expert, Trainer. Employees grade for any skill will be helpful when allocating the employee to any project. In the current system grade for any skill for any employee is put by the Project manager[17]. Employee can improve their grade for any skill by taking the course provided by the organization. This will be the part of the future enhancement[21].

LITERATURE SERVEY

Life skills refer to an individual's ability (Knowledge, Values, Attitudes, and Skills) to execute life activities and fully participate in daily life, according to a study done in Vietnam by the National Institute for Education Strategies and Curriculum and support[2].

Devika conducted a study on critical skill mapping of operators at Tata Steel, Jamshedpur, and found that staff in the 'G'Blast Furnace operation have critical skills. The paper discusses how to create a quadrant chart for each employee in the operations department, as well as how to analyse a quadrant chart[1].

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According to a study undertaken by Annop. K. Satpathy, Jimuta.P. Mishra, and Nishith Prakash on Skills Mapping and Skill Development for Employability: The Case of Cuttack, the impact of globalisation on society and

economy is encapsulated in its consequences on the labour market (Faculty member in Economics, Assistant professor, Ohio University). It has brought the importance of labour skills to the fore. The search for social specifics is necessary in order to analyse the impact on globalisation. A disaggregated examination of the labour market is required, with an emphasis on: a) the skill training infrastructure available in each community and its effectiveness in fostering employability; and b) the necessity of collaboration between training institutions and other social actors. The significance of collaboration between educational institutions and other social actors. This study aims to look into the case of Cuttack District in Orissa in this regard. In order to measure the growth trend and likely demand for skills in the district, a description of the sorts of industries and the ways of acquiring skills is also provided[3].

Precision Consultancy conducted a study on graduate employability abilities in August 2007 for the Business, Industry, and Higher Education Collaboration Council. The following topics are discussed in the paper:

• The current state of employability skills development and integration in university programmes of study.

• How universities instruct students on how to be employable.

• The current method by which universities assess students' employability skills.

• How to evaluate and report on graduate employability skills[4].

Paul Mayes, University of Teesside, conducted a study on UKAN skills. The project's major goal was to create demonstration versions of online "skills development maps" for a variety of skills development methodologies. The Project worked with Janet A. Hale of curriculummapping101.com and Rubicon International to host the skills development maps on Rubicon's Atlas online curriculum mapping software (as well as demonstrate the product to a British audience[5].

A Discussion Paper on Skills Mapping: Assessing Australia's Longer-Term Requirements for Professional Skills The report Mapping Australia's Longer-Term Requirements for Professional Skills, prepared by Professions Australia's Education Committee, will provide the data and research needed to better manage the supply and demand for professional skills[6].

Books, case studies, and journal articles were among the materials examined. Elsevier Science Direct, ProQuest, Wiley Online Library, Sage and Springer were among the databases searched for research resources, as were South Western, Oxford, Emerald Insight, IEEE, HBR Press, Canterbury, Pergamon, JSTOR, and Springer. This study used a seven-step strategy for conducting a systematic literature review. "1) Identify the research question(s); 2) Define inclusion and exclusion criteria; 3) Search for studies; 4) Select studies for inclusion based on pre-defined criteria; 5) Extract data from included studies; 6) Evaluate

the risk of bias of included studies; 7) Present results and assess the quality of evidence" [7] .

A project facilitator, often known as a project manager, is in charge of overseeing the complicated project management process. The Project Management Body of Knowledge (PMBOK) defines a project manager as "the individual selected by the performing organisation to head the team responsible for achieving the project objectives" (Project Management Institute, 2013). The Project Management Body of Knowledge (PMBOK) is a reference book that provides project managers with principles, rules, and characteristics to work with. According to the PMBOK, in order to have an effectively managed project, a project manager must have technical, interpersonal, and conceptual talents that allow them to assess various situations and make knowledgeable judgements. According to Joslin and Müller (2015), the ability of a project manager to modify project management approach to handle difficulties is the most important factor in project success[8].

ARCHITECTURE

Activity Diagram:
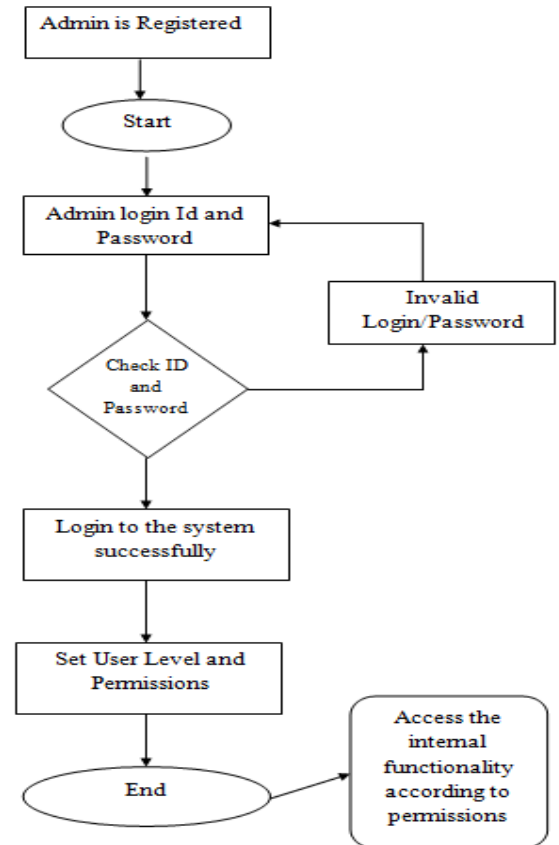
Admin can manage all type of user like project manager, project tem lead and the employees. whereas the project manager can handle the project team lead details and project manager can create new project for the company. He will add the skill and the skill level. the project manager can monitor the all the running project in the company. Project lead can monitor the working of the project and he will assign the work to the employees. He will give the skill level of the employee on the basis of their performance. Employee can see the whatever work the has assigned to him by project team lead and he can see his skill level too.
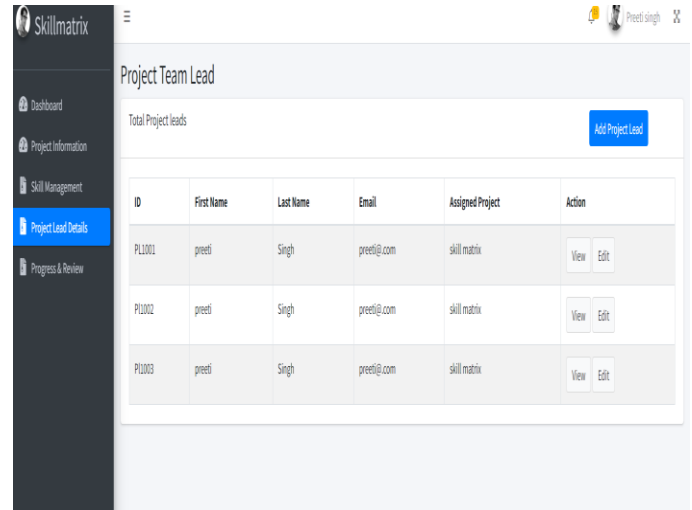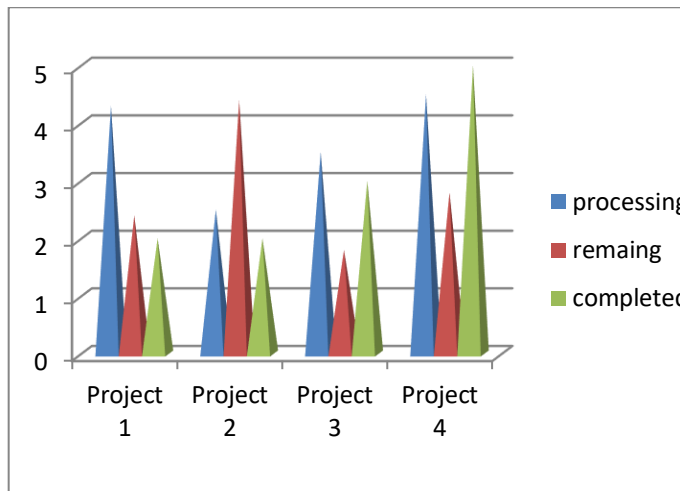
2.Project Progress Graph:

fig: project progress graph

fig: Project ten lead information

Here in this graph It will show the progress status of all the project running in the company. By using this graph the project manager can easily justify the progress of any project. In the above graph it is showing How much project is completed and how much is processing and the remaining part. A project leader is a professional who guides or verifies his team members that a project is completed. Project leader who happens to involve the team in their project. Project leader is motivating to his team members and takes care of their every need and is absolutely friendly with every team members. All the members are given work according to their skills.

In above diagram, The Admin, Project Manager, Project Lead and Employee have to register first then only then can login. After the registration is completed then it will check the username and password is correct or not , if it is not correct again it will ask for username and password and it will the message the username and password is invalid. If it is correct it will move to the next process and it will show the message login to the system successfully or welcome username. Then the Project Manger, Project team lead and Employees can use the access internal functionality according to their permissions. A skill matrix is critical because, when properly set up, it may assist project team leaders in efficiently organising their teams, identifying any employee skills and sets that are required based on project needs. The organisation project is accomplished efficiently and by the most qualified and skilled team members with a good competence level. It is also beneficial to the company's HR department, since they will know what talents to advertise for if they need to acquire additional staff or employees.The project manager will add a talent to the project, and the project team lead will assign work to the

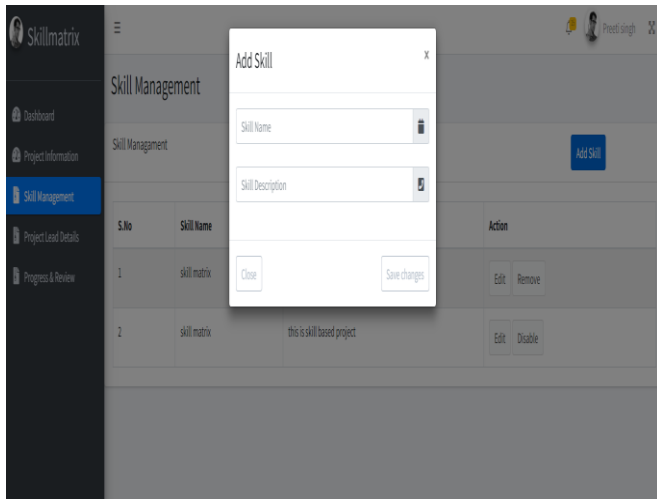employees based on this skill. The skill title and description will be added by the project manager.

fig: skill management

Skills matrices are critical tools for any firm that relies on employee data, especially for HR and project management team leaders. The project manager will assign the project to an assessor based on this information. Matrices are perfect for keeping track of your employees' abilities, qualifications, certifications, and competencies across the board. They work incredibly well in practise and boost team efficiencies while also increasing your bottom line when applied correctly.
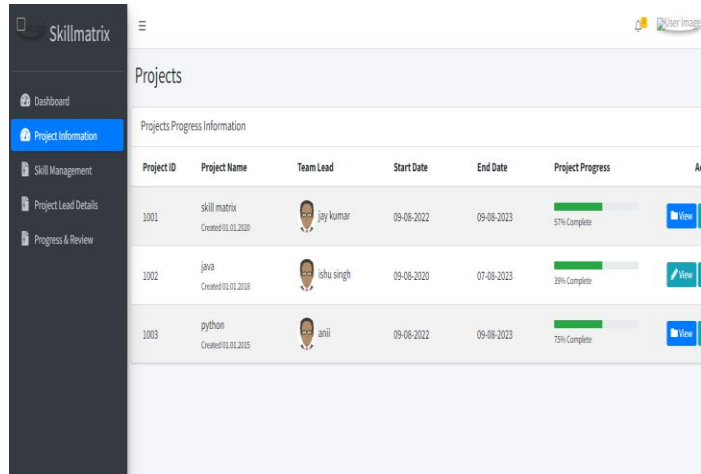
Result

So the resultant system will produce provide the matrix of skills for employees in the organization. Based on the skill grade of the employee we can easily map the project requirement with available resources. There are lot of advantages of creating skill matrix of the employees . This will enhance the rate of success of any project .This also helps in monitoring the employees progress and defining meaningful career path and learning curve and overall assigning people to the ongoing projects effectively. Following are the benefits of the resultant project management systems based on the skill matrix :

- Identifying the right human resources for the required job. Track the progress of the ongoing project and estimate the resources for the new project.

- Track the employees skill development process.

- Define the relevant skill required for the project.

- Identify the gap of skills from the skill matrix in the organization.

take the courses and retake the assessment and improvise the skill grade.

CONCLUSION

Future Enhancement

In the current system, the Project Manager determines the employee's skill level based on his or her work experience. But this data won't be proper because it's not possible for the any manager to track the exact skill data of his team member. Later we can propose the assessment system for every skill and for interested employees in the organization. Employee can take the assessment for the skills he is interested in and based on the assessment result the grade for the skill for any employee is decided and will be updated in the system automatically. This way tracking the employees grade for any employee will be accurate and will be maintained in easy way. If any employee wants to improve the grade for any skill , then he can retake the assessments but there should be limitation of taking the no of assessment in certain timeline. As a improvement this system can also propose the courses from the courses repository. Employee can

Project management based on the skill matrix is assigning the human resource to the project based on the skill from the skill matrix. Skill matrix is the data source that indicates the which employee have the required skill to complete the project. This system maintain the database of the employees and database of the skill sets that are required for the completion of the project. Organization can use this skill matrix to get the performance review of the employees, organizational planning purpose The advantages of using the skill matrix is better resources management , timely completion of any project. Better customers services and improve employee engagement to the employers. We can use the skill matrix data to know any missing skill sets in the organization. After that you can either train your employee for the missing skill set or you can even hire new people with the required skill sets. Skill matrix helps the employees to track their performance and they can also know where they excel and where do they lack in terms of skill, so they can focus on that skill. This system also track the progress of any ongoing project, And it they feel the project progress is not on track , then they can take action such adding more human resources with required skill set. This way will increase the ability of the organization to complete the taken project on time with high quality and this willfinally increase the growth of the organization.

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