

# Corporate Appraisal System

Ravikant Kushwaha<sup>1</sup> Rahul Tipole<sup>2</sup> Ajinkya Bandewar<sup>3</sup> Manoj Desai<sup>4</sup> Prof. Sindhu M.R<sup>5</sup>

<sup>1,2,3,4,5</sup>Department of Computer Science Engineering

<sup>1,2,3,4,5</sup>G. H. Rasoni College of Engg. &Mngt, Wagholi Pune, India

**Abstract**— Managing human resources in today's dynamic environment is becoming more and more complex as well as important. Recognition of people as a valuable resource in the organization has led to increases trends in Employee maintenance, job security, etc. In this paper will explain how hr & employees can use corporate appraisal system & work from home. Corporate appraisal system has two main modules hr & employee in which each of them has four sub modules. Formal performance appraisal has become a widespread instrument of human resource management. Performance appraisal is a measurement of how well someone performs job-relevant tasks. These measurements can serve different organizational purposes, but the most common goal is to improve or sustain performance levels by eliciting behavioral change.

**Key words:** Employee Master, Payroll, Performance administration, Absence administration, Employee Self Service, K-means Algorithm

## I. INTRODUCTION

Once the employee has been selected, trained and motivated, then he / she is appraised for his performance. Performance is the step where the management finds out how effective it has been at hiring and placing employee. If any problems are identified, steps are taken to communicate with the employees and to remedy them. A "Performance Appraisal" is a process of evaluation an employee's performance of a job and in terms of its requirements.

Performance Management is the process through which HR ensure those employee's activities outputs contributes to the organization's goal. This process requires knowing what activities are desired, observing whether they occur, and providing feedback, managers and employees meet expectations. Performance Appraisal is an important part of performance management.

Performance appraisal is the process of obtaining, analysis and record in information about the relative worth of an employee. The focus of the performance appraisal is measuring and improving the actual performance of the employee and also the future potential of the employee. Its aim is measure what an employee does.

## II. LITERATURE SURVEY

### A. Towards Analyzing Information Management Requirements In New Zealand Genetic Services:

Towards breaking down the necessities for hereditary data administration, we examine the points of view of different partners of New Zealand hereditary administrations through semi-organized meetings.

### B. User Interface Harmonization for It Security Management:

User-Centered Design in the Posecco Project the End-Client Frontend Can Be Considered As a Building Layer On Top Of

The Posecco Applications Concealing Any Specialized Or Useful Detachment In The Model Usage.

### C. Informal Control, Knowledge Integration and Ijvs Innovation:

An Empirical Research In South China We Set Out To Add To The Comprehension Of The Parts Of Casual Control And Information Coordination For Ijvs In Building Upper Hand Of Administration Development.

### D. The Effects of Switching Costs on User Resistance to Enterprise Systems Implementation

Client impervio usness to change has been recognized as a standout amongst the most basic issues in the achievement of IS execution since the origin of authoritative IS.

### E. A Survey on Corporate Appraisal System

We have studied the different ways to do appraisal of employees.

## III. SYSTEM DESIGN

### A. System Architecture:

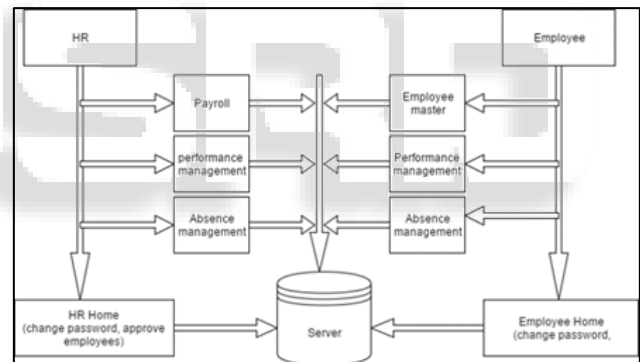


Fig. 1: System Architecture

### B. Module:1:

HR Home is used by HR to change password and give approval to any new employee registration and In Employee home, employee can change its password and ask for other details to change. 2. In Payroll System, HR generates the salary slip of employees 3. Performance Management Contains ratings of all the Employee and employees can give ratings to each other. 4. In Absence Management, Employee can ask for a leave. They can likewise see their last leave. 6. In Employee Master, Employee can see his/her Details and can see their salary slip and performance.

### C. Work Flow:

New employee need to register to get access to the website. After registration, HR checks whether the person asking for registration is an actual employee at the company. After the approval of HR, one can login using its first name and password. Employee has a nav bar consist of 1. Employee home where employee can change its password and ask HR to change any other details if they are wrong. 2. Employee

Master where employee can see its details, salary slip and its performance. 3. Performance management where one employee can give rating to other employees. 4. Absence management where employee can put their leaves.

HR also has 4 tabs in nav bar. 1. HR home where HR can change its password and give approval to any new employee registration. 2. Payroll where HR generates salary slip of all the employees. 3. Performance management where HR can see rating of all the employees. 4. Absence management where HR can see who has taken the leave and for what reason.

**D. Key's Of Performance Appraisal:**

1. Honesty.
2. Quality.
3. Productivity.
4. Technical Skill.
5. Work Consistency.
6. Co-Operation.
7. Initiative.
8. Creativity.
9. Punctuality.
10. Dependability.
11. Communication Skill

**IV. APPRAISAL METHOD**

**A. Related work:**

There are several methods of appraisal such as Critical incident method, Weighted checklist method, Management by Objectives (MBO).

This paper focuses on the method of appraisal using K-means. This format is considered the oldest and most popular method to assess the employee's performance. In this style of performance appraisal, the management just simply does checks on the performance levels of their staff.

The data is measured at ordinal level. The appraisal metrics are evaluated on the following scale:

- 1) Average (Needs Improvement)
- 2) 3 Good (Fully Achieves Expectations)
- 3) Excellent (Frequently Exceeds Expectations)

**B. Appraisal Metrics:**

There are 11 keys of performance which are used in this paper for appraisal.

Every key has three options which are Average, Good and Excellent and each of these options has some weight assigned to them.

Option	weight
Average	3
good	5
excellent	8

Table 1: weightage for the appraisal metrics.

**C. K-means Algorithm:**

1) Step 1: Input Dataset, Clustering Variables and Maximum Number of Clusters (K in Means Clustering)

In this dataset, only one variables is considered for clustering. When one employee gives rating to another employee then the weight given to each of option is added and one number is obtained. Hence, as number of people giving rating to a employee increases so does the values.

2) Step 2: Initialize cluster centroid  
In this paper, value of K is considered as 2. Cluster centroids are initialized with first observations.

3) Step 3: Calculate Euclidean Distance  
Euclidean is one of the distance measures used on K Means algorithm. Euclidean distance between of an observation and initial cluster centroids 1 and 2 is calculated. Based on

Euclidean distance each observation is assigned to one of the clusters - based on minimum distance.

$$\text{Euclidean Distance} = \sqrt{(X - K_1)^2 + (X - K_2)^2}$$

Where,

X: Next rating given by one employee.

K\_1: Centroid value of cluster 1.

K\_2: Centroid value of cluster 2.

4) Step 4: Calculate Euclidean Distance for the next observation, assign next observation based on minimum Euclidean distance and update the cluster centroids.

5) Step 5: Continue the steps until there is no change in the clusters. In the end, we will get two means K1 and K2, out of which one is the minimum and other is the maximum performance of employee. By taking their we can find the exact value.

**D. Rating scale:**

cALculated value	Inferred Appraisal
>=70	Excellent
>=40 AND <70	Good
<40	Average

Table 2: Rating Scale

**V. CASE STUDY**

A sample performance appraisal case is demonstrated as follows: An employee gets performance appraisal every month. Hence lets us consider an employee who got the following appraisal from a single employee:

Metrics	Appraisal option	weight
Honesty	Good	5
Quality	Excellent	8
Productivity	Average	3
Technical Skill	Good	5
Work Consistency	Excellent	8
Co-Operation	Excellent	8
Initiative	Good	5
Creativity	Good	5
Punctuality	Excellent	8
Dependability	Good	5
Communication Skill	Good	5
Total		65

Table 3: Case study values

Similarly, if 9 other employees give appraisal to the same employees then we get the following data:

65	70	50	74	83	56	45	35	72	40
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Table 4: Case study monthly values

It won't be disclosed that which employee has given what rating. Now let us use K-means to evaluate the performance the employee.

1) Create two clusters randomly.

$$K1 = \{65,70,50,56,35\} \quad K2 = \{74,83,45,72,40\}$$

2) Intializing centroids.

$$K1 = (65+70+50+56+35)/5 = 55.2$$

$$K2 = (74+83+45+72+40)/5 = 62.8$$

Now, we got two centroids. Now assign values to the nearby cluster by observing Euclidean distance.

3) Assingn values.

$$K1 = 55.2 \quad K1 = \{50,56,45,35,40\}$$

$$K2 = 62.8 \quad K2 = \{65,70,74,83,72\}$$

Now, we got the new clusters with new values. Again, calculate its centroids.

$$K1 = (50+56+45+35+40)/5 = 45.2$$

$$K2 = (65+70+74+83+72)/5 = 73.2$$

Now, again assign values to the clusters with new centroids.

$$K1 = 45.2 \quad K1 = \{50, 56, 45, 35, 40\}$$

$$K2 = 73.2 \quad K2 = \{65, 70, 74, 83, 72\}$$

As you can see there no change in the cluster. Hence, we got our final values.

$$\text{Min} = 45.2 \text{ and } \text{Max} = 73.2 \text{ and Overall performance} = (45.2+73.2)/2 = 59.2$$

As 59.2 is less than 70 and greater than 40. Hence according to our criteria, the performance of the employee of a month is GOOD.

### VI. CASE STUDY ANALYSIS

As, mentioned in the above section. Consider an employee with the following performance appraisal for the whole year.

Month	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Calculated value	59	67	78	64	70	50	45	30	55	73	79	60
Inferred appraisal	GOOD	GOOD	EXCELLENT	GOOD	EXCELLENT	GOOD	GOOD	AVERAGE	GOOD	EXCELLENT	EXCELLENT	GOOD

Table 5: Case study analysis values

Now, let's plot a graph to see the graphical representation of the employee performance

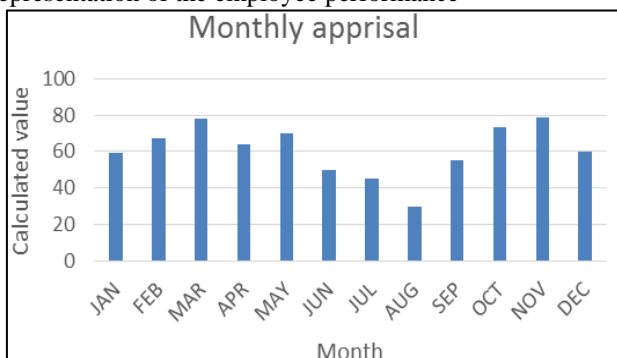


Fig. 2: Column Graph of Month vs calculated values

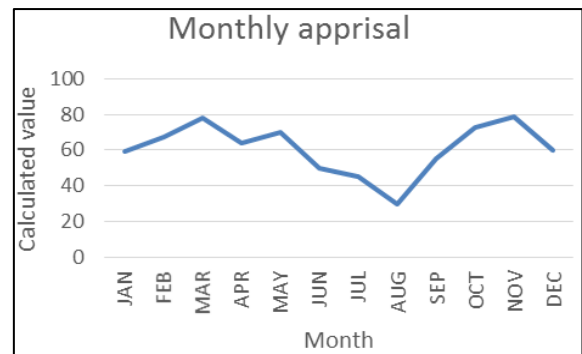


Fig. 3: Line chart of Month vs calculate values

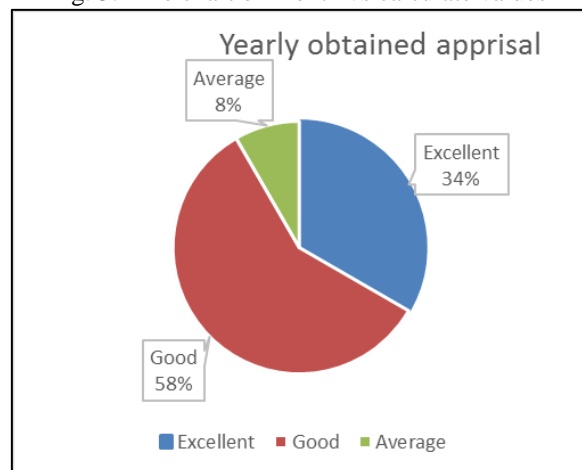


Fig. 4: Pie chart of Annual performance

### VII. USER INTERFACE

The user interface of the corporate appraisal system developed is given in Figure below. The user can select specific value for each appraisal metric pertaining to a given case. The software shows the output in terms of the

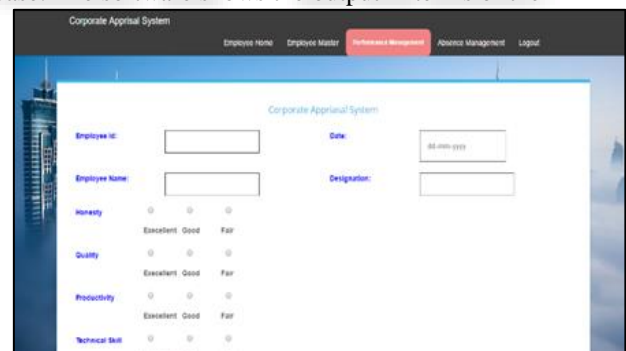


Fig. 5: User Interface

### VIII. FUTURE WORK

The appraisal value from this model can be fed as an input to another system which calculate how much incentive employee should get based on its performance. It can be further modified to act as an intelligent system, which learns from experience. It can be extended to apprise the employees of other organizations by suitably modifying the appraisal metrics. Also, it can be used by other companies to hire an employee depending on its performance data of previous company.

## IX. CONCLUSION

Human resources are the vital source of every organization. Every employee in an organization increases the productivity and goodwill of every company. An employee, being an individual is treated as assets in the organization. So, the organization should mainly emphasis performance appraisal techniques and its development programme. Both the appraiser and appraise should realize the principle and use the tool of appraisal system in a constructive way for the prosperity of the organization.

The performance appraisal technique prevailing in the organization is fair. Employees are satisfied with the present performance appraisal system that is a traditional one. As many new appraisal techniques are emerged, the organization can implement modern technique which would be more effective. The welfare measure of organization is at par with the company policies and has brought a great sense of involvement in work among the employees of the organization. If the suggested measures are taken into consideration it will help to increase the effectiveness of performance appraisal system.

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