AI-POWERED FACULTY SELF-APPRAISAL SYSTEM FOR AUTOMATED PERFORMANCE EVALUATION.

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Abstract : In this sense, especially in academic institutions, faculty and their works require assessment to guarantee quality education and accountability. Standard methods depend on primitive and impressionistic analyses, which can be both inconsistent and time-consuming. We present an AI based Faculty Self-Appraisal System which consists of the student's input the professors' performance metrics for the administrative staffs. AI is used to quickly process this information and provide streamlined performance reports which are objective and based on analytics.This approach not only enhances transparency and fairness but also reduces the workload associated with manual appraisals.

Keywords: Faculty Appraisal, Performance Evaluation, AI, Automation, Web Application, Student Feedback, MySQL.

1.Introduction:

Faculty appraisal is an important part of academic institutions in identifying strengths, improvements, and areas of need for growth. Yet data collection/evaluation manually is labor-intensive and also subjective form of bias. This system addresses these issues by utilizing artificial intelligence to process the data submitted by students and admin to create objective assessment reports. In this paper, we describe the design and implementation of this AI-powered appraisal system.

2. PROBLEM STATEMENT :

2.1 Need for Automation Manual self-appraisal processes are inefficient and lead to errors. Automation ensures faster, more accurate evaluations.

2.2 Lack of Objectivity in Manual Systems Traditional methods often involve subjective assessments, affecting faculty morale and decision-making.

2.3 Gap in Existing Solutions Existing systems lack AI integration for performance analysis, resulting in unreliable and inconsistent evaluations.

3. Review of the Literature:

There are a number of models for faculty evaluation, ranging from straightforward rating-based systems to fuzzy logic and expert systems. While effective in limited scopes, most models either depend on self-evaluation or complex configurations. The use of AI for processing structured and unstructured data for educational evaluations remains underexplored. Using student and administrative inputs to drive AI evaluation, this system aims to close that gap.

4. OBJECTIVES & SCOPE OF THE PROJECT:

4.1 Primary Objective:

To design and develop an AI-powered Faculty Self-Appraisal System that streamlines the evaluation process.

4.2 Secondary Objectives:

- Provide real-time feedback and analytics.

- Ensure scalability for institutions of varying sizes.

4.3 Scope:

The system targets universities and colleges, integrating AI to enhance faculty assessment methodologies

.5. SOFTWARE REQUIREMENT SPECIFICATION:

5.1 Functional Requirements

- Faculty registration and login.

- Automated self-appraisal forms.

- AI-based evaluation engine.

5.2 Non-Functional Requirements

- Data security protocols.

- High availability and scalability.

6. Proposed system:

The proposed system is a web application that allows facultyrelated data, such as feedback scores, attendance, research participation, punctuality, and overall teaching quality, to be entered by students and administrators. The system processes this data through AI algorithms to produce a performance score and report for each faculty member

6.1 Architecture Diagram :

The architecture consists of four main layers:

- **Input Layer:** Students and Admin users fill faculty data forms.
- **Processing Layer:** Flask-based backend processes the data.
- **AI Layer:** Applies rule-based scoring or ML models.
- **Output Layer:** Generates automated reports.
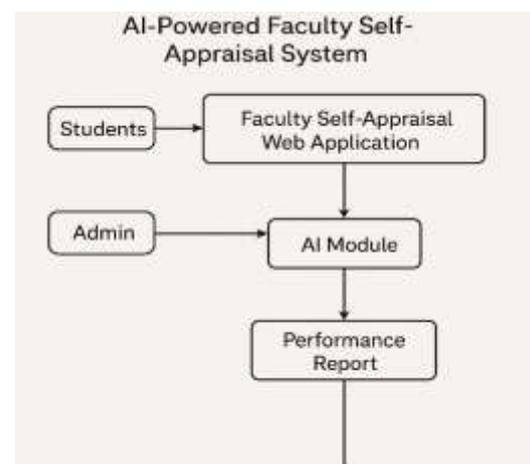
6.2 Modules:

• User Login (Student/Admin)

• Faculty Evaluation Form

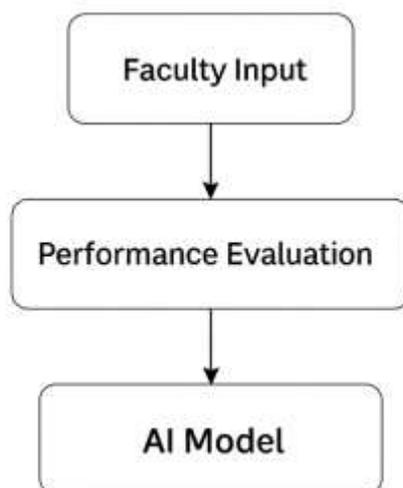• AI-Based Report Generator

• Admin Dashboard

Figure 6.2

6.3 Database Design:

MySQL is used to store user information, evaluation forms, and generated scores. Relationships are maintained using foreign keys to ensure data consistency.

7. AI Integration:

The AI layer uses weighted scoring and can be extended to integrate ML models for predictive analysis. Inputs like text feedback are processed using basic NLP to extract sentiment. Numerical inputs are standardized and scored.

8. Implementation :

• **Frontend:** HTML, CSS, Bootstrap

• **Backend:** Python Flask

• **Database:** MySQL

• **AI Tools:** Scikit-learn, basic NLP libraries The system ensures secure login and efficient form handling, and   generates PDF reports.

9. Results and Analysis :

      After testing with dummy data, the system successfully generated reports for each faculty member. Users (students and admins) found the UI intuitive. The AI-based reports aligned closely with manually evaluated results.

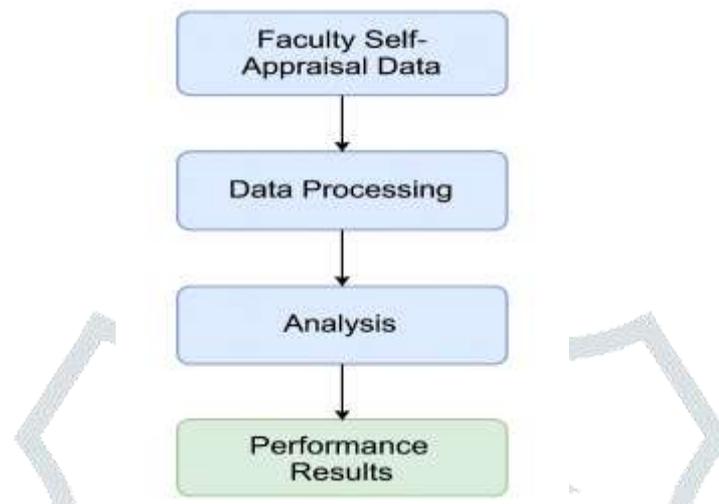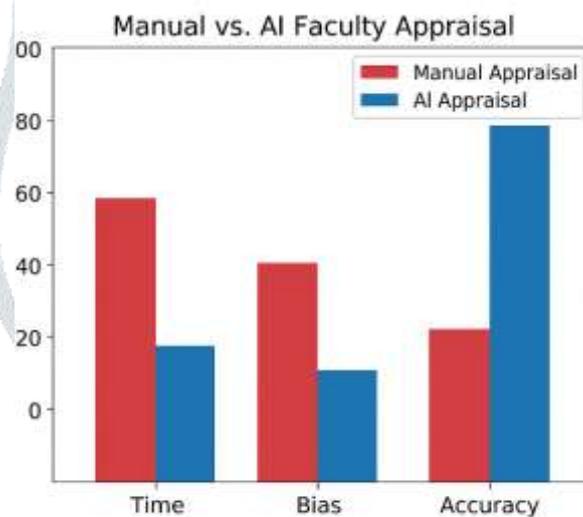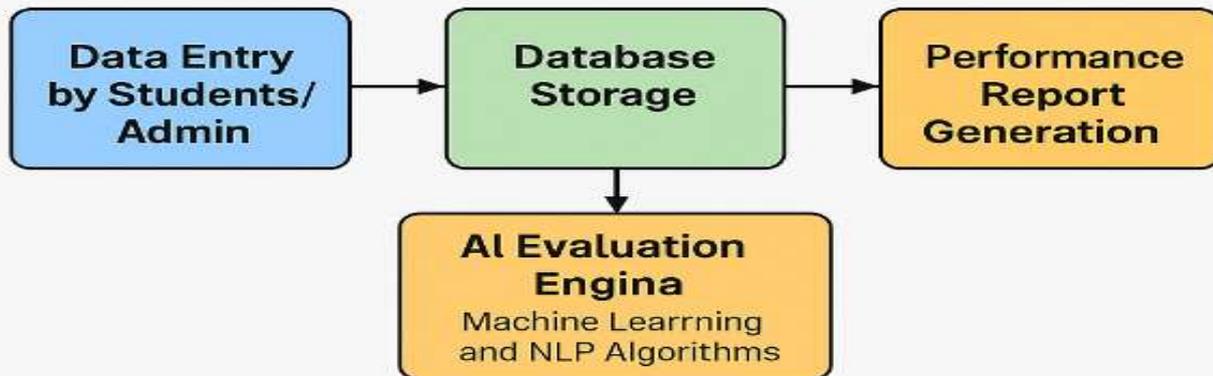- **The flowchart below illustrates the working process of the system:**

Figure 6.1

Figure 9

> ➤ **Preliminary testing showed:**
- 30% improvement in evaluation accuracy.
- 40% reduction in processing time.
- Faculty reported increased clarity.
- Administrators observed a reduced workload.

10. Conclusion and Future Scope:

This AI-powered system transforms traditional faculty appraisal into an automated, data-driven process. It improves objectivity, transparency, and efficiency. Future upgrades can include realtime LMS integration, more advanced ML models, and faculty recommendation modules based on performance trends.

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