# Assignment-C6 (Expert System)

def evaluate\_employee():

print("🔍 Employee Performance Evaluation System\n")

# Input section

attendance = input("1. Attendance (Good / Average / Poor): ").strip().lower()

project = input("2. Project Completion (On Time / Delayed / Incomplete): ").strip().lower()

teamwork = input("3. Teamwork (Excellent / Good / Poor): ").strip().lower()

punctuality = input("4. Punctuality (Always on time / Often late): ").strip().lower()

# Score system

score = 0

# Attendance score

if attendance == "good":

score += 3

elif attendance == "average":

score += 2

elif attendance == "poor":

score += 0

# Project completion score

if project == "on time":

score += 3

elif project == "delayed":

score += 1

elif project == "incomplete":

score += 0

# Teamwork score

if teamwork == "excellent":

score += 3

elif teamwork == "good":

score += 2

elif teamwork == "poor":

score += 0

# Punctuality score

if punctuality == "always on time":

score += 2

elif punctuality == "often late":

score += 0

# Decision logic

print("\n📊 Evaluation Result:",score)

if score >= 9:

print("⭐ Performance: Excellent")

elif score >= 6:

print("✅ Performance: Good")

elif score >= 3:

print("⚠️ Performance: Needs Improvement")

else:

print("❌ Performance: Poor")

# Run the expert system

evaluate\_employee()

Here's a **detailed explanation** of your **Employee Performance Evaluation Expert System**, followed by well-prepared **viva questions and answers** to help you during academic or professional reviews.

**✅ Code Explanation**

This Python script is a **simple rule-based expert system** that evaluates employee performance based on four key attributes.

**🔹 1. Function Definition**

def evaluate\_employee():

* The code is encapsulated in a function for modularity and reusability.

**🔹 2. User Input Section**

attendance = input("1. Attendance (Good / Average / Poor): ").strip().lower()

project = input("2. Project Completion (On Time / Delayed / Incomplete): ").strip().lower()

teamwork = input("3. Teamwork (Excellent / Good / Poor): ").strip().lower()

punctuality = input("4. Punctuality (Always on time / Often late): ").strip().lower()

* The program takes **four inputs** from the user:
  1. Attendance
  2. Project completion
  3. Teamwork
  4. Punctuality
* .strip().lower() ensures the input is trimmed and in lowercase for consistent matching.

**🔹 3. Scoring Logic**

score = 0

* Initializes total score to 0.

Each attribute contributes to the total score:

**✅ Attendance**

if attendance == "good":

score += 3

elif attendance == "average":

score += 2

elif attendance == "poor":

score += 0

**✅ Project Completion**

if project == "on time":

score += 3

elif project == "delayed":

score += 1

elif project == "incomplete":

score += 0

**✅ Teamwork**

if teamwork == "excellent":

score += 3

elif teamwork == "good":

score += 2

elif teamwork == "poor":

score += 0

**✅ Punctuality**

if punctuality == "always on time":

score += 2

elif punctuality == "often late":

score += 0

**🔹 4. Decision Logic**

if score >= 9:

print("⭐ Performance: Excellent")

elif score >= 6:

print("✅ Performance: Good")

elif score >= 3:

print("⚠️ Performance: Needs Improvement")

else:

print("❌ Performance: Poor")

* Based on the total score, the system prints the **final performance category**.

**🔹 5. System Execution**

evaluate\_employee()

* Calls the function to run the expert system.

**🎤 Viva Questions with Answers**

**🔸 1. What is an expert system?**

**Ans:** An expert system is a computer program that mimics the decision-making ability of a human expert, using rules and logic to evaluate information and make conclusions.

**🔸 2. What is the purpose of your code?**

**Ans:** This code acts as an expert system to evaluate employee performance based on input factors like attendance, punctuality, project completion, and teamwork.

**🔸 3. What inputs does the system take?**

**Ans:** It takes four inputs:

* Attendance (Good/Average/Poor)
* Project Completion (On Time/Delayed/Incomplete)
* Teamwork (Excellent/Good/Poor)
* Punctuality (Always on time/Often late)

**🔸 4. How is scoring implemented?**

**Ans:** Each input is given a specific score. The total score is calculated by adding the scores for all four attributes, which is then used to determine the performance level.

**🔸 5. How is performance categorized?**

**Ans:**

* 9 or more: ⭐ Excellent
* 6 to 8: ✅ Good
* 3 to 5: ⚠️ Needs Improvement
* Below 3: ❌ Poor

**🔸 6. Why is .lower() and .strip() used?**

**Ans:** To make the input case-insensitive and remove any leading/trailing spaces, ensuring more accurate comparison with expected values.

**🔸 7. How can this system be improved?**

**Ans:**

* Add a **GUI** for user-friendly interaction.
* Store **results in a database**.
* Implement **machine learning** to adapt scoring patterns over time.
* Include **more evaluation parameters**.

**🔸 8. What type of expert system is this?**

**Ans:** This is a **rule-based expert system** because it makes decisions using predefined rules and conditions.

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