

**Propositional Logic**

**Advance Knowledge Representation and Reasoning**

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**Introduction**

The **Mini Expert System** is a rule-based program made using Python. It evaluates students based on their academic performance and classroom behavior. The system uses a set of logical rules to decide results such as exam eligibility, grades, login access, and bonus points. It also records all the results in a CSV file named **logic\_results.csv** for documentation and review.

This project shows how an expert system can help make decisions automatically by following defined rules, instead of depending only on human judgment.

**Rules Tested**

1. **Attendance Rule**

This rule evaluates whether a student is eligible to take examinations based on attendance percentage.

* If the attendance is **75% or higher**, the student is marked as **“Eligible to take exams.”**
* Otherwise, the result is **“Not eligible to take exams.”**

1. **Grading Rule**

This rule assesses a student’s academic performance.

* **90 and above:** *Excellent*
* **75–89:** *Passed*
* **Below 75:** *Failed*

1. **Login System Rule**

This rule simulates a school login verification process.

* If the student has an account and enters the correct password →  **Login successful**
* If the password is wrong → **Incorrect password**
* If the student has no account → **No account found**

1. **Bonus Point Rule**

This rule checks whether a student qualifies for extra points.

* If the student participated in class and submitted **2 or more projects**, they receive **Bonus points awarded**
* If they participated but submitted fewer projects → **Partial bonus**
* If not active → **No bonus points**