



CSST102 - Basic Machine Learning

Macatangay, Shaine Carla P.

BSCS 3A

Mini Expert System for University Logic Rules.

It demonstrates how logic (implication rules: $P \rightarrow Q$) can be applied in different school-related scenarios such as attendance, grading, login systems, bonus points, and library borrowing.

Features:

1. Attendance Rule Checker

- Checks if a student who is late has an excuse letter.
- If late (P) \rightarrow must bring excuse (Q).
- Logs whether the rule is satisfied or violated.

2. Grading Rule Checker

- Accepts the student's grade.
- If grade $\geq 75 \rightarrow$ student passes.
- Logs pass or fail status.

3. Login System Rule Checker (Admin Check)

- Simulates a login system with a password (**admin123**).
- If password is correct (P) \rightarrow access granted (Q).
- Logs success or denial, showing how authentication can be expressed in logic form.

4. Bonus Points Checker

- Checks if the student participated or attended regularly.
- If yes, bonus points are added to the grade.
- Logs final grade details.

5. Library Borrowing Checker

- Verifies if a student has a valid ID and no overdue books.
- If valid ID and no overdue \rightarrow borrowing is allowed.
- Logs borrowing eligibility.
-



6. **CSV Record Keeping**

- Every rule result is saved into **logic_results.csv**.
- Each student has a single row with all rule results and details.
- Records are updated after every check, so progress is never lost.

7. **View Records Option**

- Allows searching for a student by name.
- Displays all results (attendance, grading, login, bonus, library) in a summarized form.

Purpose of the System

- To demonstrate logical rules ($P \rightarrow Q$) in a practical school setting.
- To provide a record system for tracking student evaluations.
- To show how expert systems can store, update, and retrieve knowledge in a structured way.