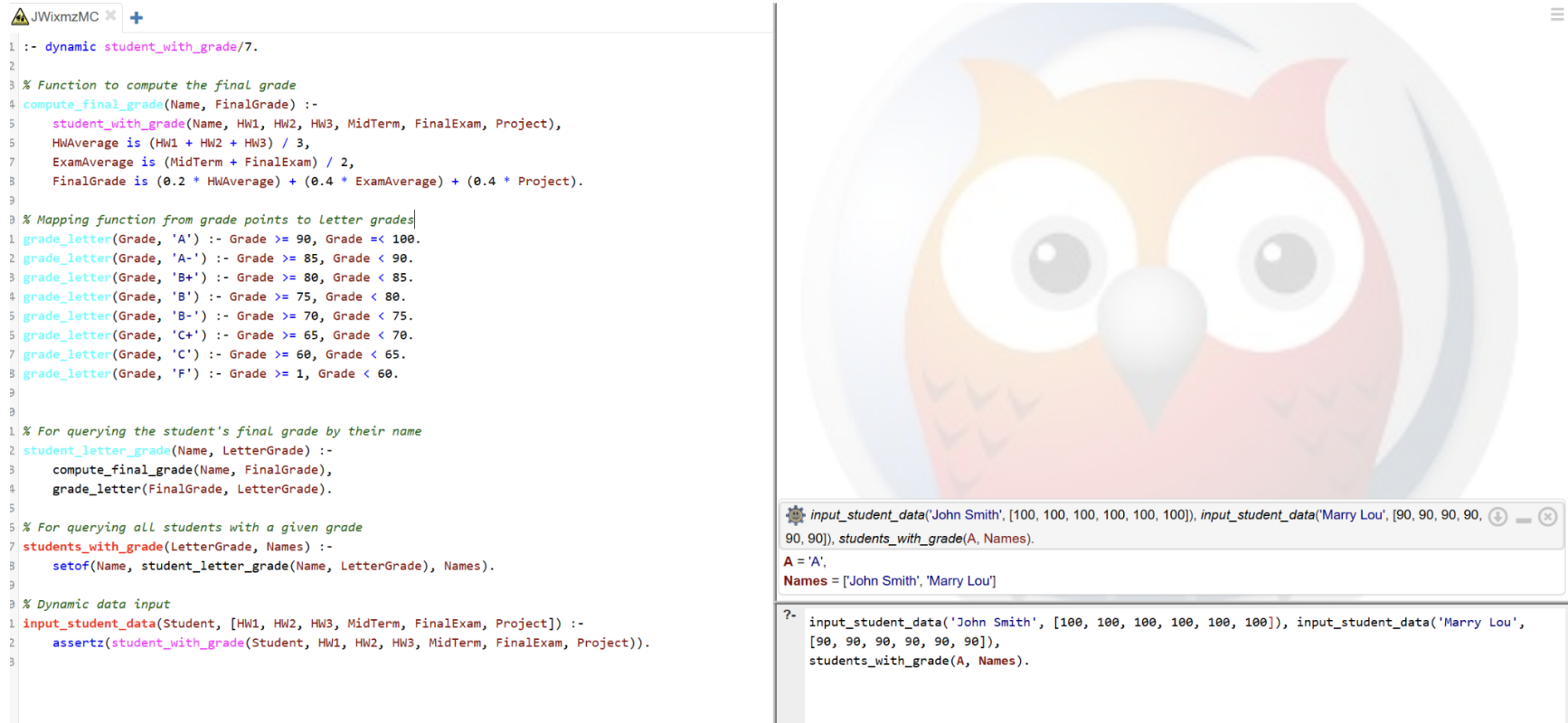


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Screenshot:



```
1 :- dynamic student_with_grade/7.
2
3 % Function to compute the final grade
4 compute_final_grade(Name, FinalGrade) :-
5     student_with_grade(Name, HW1, HW2, HW3, MidTerm, FinalExam, Project),
6     HWAverage is (HW1 + HW2 + HW3) / 3,
7     ExamAverage is (MidTerm + FinalExam) / 2,
8     FinalGrade is (0.2 * HWAverage) + (0.4 * ExamAverage) + (0.4 * Project).
9
10 % Mapping function from grade points to Letter grades
11 grade_letter(Grade, 'A') :- Grade >= 90, Grade <= 100.
12 grade_letter(Grade, 'A-') :- Grade >= 85, Grade < 90.
13 grade_letter(Grade, 'B+') :- Grade >= 80, Grade < 85.
14 grade_letter(Grade, 'B') :- Grade >= 75, Grade < 80.
15 grade_letter(Grade, 'B-') :- Grade >= 70, Grade < 75.
16 grade_letter(Grade, 'C+') :- Grade >= 65, Grade < 70.
17 grade_letter(Grade, 'C') :- Grade >= 60, Grade < 65.
18 grade_letter(Grade, 'F') :- Grade >= 1, Grade < 60.
19
20 % For querying the student's final grade by their name
21 student_letter_grade(Name, LetterGrade) :-
22     compute_final_grade(Name, FinalGrade),
23     grade_letter(FinalGrade, LetterGrade).
24
25 % For querying all students with a given grade
26 students_with_grade(LetterGrade, Names) :-
27     setof(Name, student_letter_grade(Name, LetterGrade), Names).
28
29 % Dynamic data input
30 input_student_data(Student, [HW1, HW2, HW3, MidTerm, FinalExam, Project]) :-
31     assertz(student_with_grade(Student, HW1, HW2, HW3, MidTerm, FinalExam, Project)).
32
33
```

input_student_data('John Smith', [100, 100, 100, 100, 100, 100]), input_student_data('Marry Lou', [90, 90, 90, 90, 90, 90]), students_with_grade(A, Names).

A = 'A',
Names = ['John Smith', 'Marry Lou']

?- input_student_data('John Smith', [100, 100, 100, 100, 100, 100]), input_student_data('Marry Lou', [90, 90, 90, 90, 90, 90]), students_with_grade(A, Names).

Compiler:

[SWISH -- JWixmzMC.pl \(swi-prolog.org\)](http://swi-prolog.org)

Language Used: Prolog

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1. How to load your source code to Prolog runtime/compiler

Save the provided code to a file named grades.pl (or any other name you prefer with a .pl extension).

Open your Prolog compiler (e.g., SWI-Prolog).

2. How to load students' grades to Prolog runtime/compiler

To add students' grades, use the input_student_data/2 predicate. For example, to add the student "John Smith" with grades [100, 100, 100, 100, 100], use:

```
input_student_data('John Smith', [100, 100, 100, 100, 100, 100]), input_student_data('Marry Lou', [90, 90, 90, 90, 90]).
```

3. How to query a student's letter grade

Once you have added students' grades, to query a particular student's final letter grade, use the student_letter_grade/2 predicate. For example, to find out John Smith's grade:

```
student_letter_grade('John Smith', Grade).
```

4. How to query student(s) whose letter grade matches an input letter grade

If you want to get a list of students with a particular grade, say 'A', you use the students_with_grade/2 predicate:

```
students_with_grade('A', Names).
```