HW5: Static Fields for EOPL3 CLASSES

Fall 2011

EOPL3 Exercise 9.15: Introduce static fields into the interpreter for OOPL CLASSES of EOPL3. All the instances of a class share this state; changes made in one object are seen by all objects of that class. Initialize each static field to 0, by default. For example, one might write the following program and obtain as the result, the list `(0 1)`:

```
class c1 extends object
  static next_serial_number
  field my_serial_number
  method get_serial_number() my_serial_number
  method initialize()
     begin
      set my_serial_number = next_serial_number;
      set next_serial_number = add1(next_serial_number);
     end
let o1 = new c1()
    o2 = new c1()
in list (send o1 get_serial_number(),
         send o2 get_serial_number())
```

Explain all the modifications to the EOPL3 interpreter code to incorporate the static fields as Scheme comments preceding the code lines. Submit all modified as well as unmodified files of the interpreter so that we can readily test your modified interpreter.

Include the above program as a test case. Add, at least 5 other tests that use static fields.

What to hand-in?

Use the code of EOPL3, `chapter9/classes`, as the base for HW5. Modify these files as needed. Submit the revised files, keeping the file names as they were in `chapter9/classes`, namely `classes.scm` `drscheme-init.scm` `interp.scm` `store.scm` `top.scm` `data-structures.scm` `environments.scm` `lang.scm`

`tests.scm`. Include a `ReadMe.txt`.

Also, in order for me to better grasp the changes you made, comment appropriately. Comment out the code you are modifying, rather than deleting it. Include test calls and outcomes in your turned in solution.

Submit on `gandalf.cs.wright.edu` as follows:

```
% ~pmateti/CS784/turnin HW5 ReadMe.txt \
    classes.scm drscheme-init.scm interp.scm store.scm\
    top.scm data-structures.scm environments.scm lang.scm tests.scm
```

Should the turnin fail for some reason, make a tar-ball or zip of all these files, and email to `pmateti@wright.edu` with a subject line of "CS784/HW5".

Prabhaker Mateti • (937) 775-5114