

Programming in Lisp  
Lecture #7: Class Activity

Name:

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1. Define a class Boat with 3 slots: position, heading and speed.
2. Give a new definition of Boat, with default values for all slots, appropriate initargs, and appropriate accessors. Note that heading should only have a reader. Add a new slot, windspeed, make it class allocated.
3. Write a method change-heading which given anything but a Boat prints "You can't change the heading of this!." For a boat, it should set the heading, converting as needed, to  $0 \leq h < 360$ . If the new heading is 'Dry-Dock, set the heading to 'nil.

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4a. Add a subclass "aircraft-carrier" with an additional slot, num-planes. Initialize num-planes to 16 and provide appropriate reader and initargs.

4b. Write methods launch (with one parameter on-orders-from) and land, which decrement and increment num-planes.

5a. Add another subclass, "military-aircraft-carrier."

5b. Add a method for military-aircraft-carriers which checks to see if on-orders-from is 'Admiral before launching the plane. Use call-next-method.

5c. Add a before method that lands planes until at least 5 are on the deck before launching a plane (the carrier must be protected, after all).

5d. Add an after method that prints "Plane launched, sir."