Homework 1: Tactics for Programming in New Languages

See Webcourses2 and the syllabus for due dates.
In this homework you will note techniques that you found were helpful for learning new programming languages [Concepts] [UseModels] [MapToLanguages].

General Directions

This homework can be done either individually or in groups. See the instructor if you are having trouble forming a group on Webcourses2.
Answers to English questions should be in your own words; don't just quote from articles or books.

What to turn in

For problems that require an English answer, upload your answer to Webcourses2 for the assignment corresponding to that problem.

Problems

1. (10 points) [Concepts] [UseModels] [MapToLanguages]. During the semester, participate in the discussion on Webcourses2 named "HW1, problem 1: Tactics for Programming in New Languages."

   The *tactics* we are concerned with in this problem are programming techniques that are useful for accomplishing small-scale goals in a program. For example, in an imperative language like Java or C, a standard tactic is to use a for-loop to code a sequential search through an indexed data structure. This problem is asking you to reflect on what you are learning in class about tactics for the new programming languages we study: what they are and how they are different than what you learned in other languages such as C and Java. The reason for this is that inappropriate application of tactics, by using tactical plans that are wrong for the new language they are learning [SW90].

   What you are to do is to post to the discussion thread "HW1, problem 1: Tactics for Programming in New Languages" is:

   1. A tactic, which describes both: (i) the tactic's goal and (ii) how the tactic is carried out (implemented). Your post should give a concrete example to illustrate the tactic. Also your post must say what language or class of languages the tactic applies to.
   2. A brief but clear explanation of either (i) why the tactic is important for the new language or (ii) how the tactic is different from what you might use to accomplish the same goal in a language like C or Java that you are familiar with.

   (You can also post replies to other, but that is not necessary, and replies about other people's tactic posts will not be graded.)

   These posts will be graded based on the quality and originality of your tactic and the reason you give for why it is important or different.

2. (10 points) [Concepts] [UseModels] [MapToLanguages]. Gather the tactics you found helpful for programming in the new programming languages we learned during the semester together in a list, and order the list so that the ones you found the most helpful are at the beginning of your list.

   If you include items in your list from other people, give them credit in your list.

Points

This homework's total points: 20.

References

[SW90] Jean Scholtz and Susan Wiedenbeck. Learning second and subsequent programming languages: A problem of transfer. *International Journal of Human-Computer Interaction*, 2(1):51–72, 1990.