GA Assignment: RBG-Strings + Wild Card

This assignment coniststs of two substantial parts: (1) The RBG-String part, and (2) the Wild Card part. The idea is that you are expected to complete Part 1 prior to commencing Part 2.

The first part of this assignment requires that you meticulously, according to specification, re-create the RBG-string GA that I presented in class.

The second part of this assignment affords you the opportunity to do something creative! You are asked to engage in problem finding (a creative act), to write some Lisp code for a GA (a creative act), and to instantiate the population parameters in such a manner that running your program produces some interesting results (a creative act).

RBG-String GA

Establish a solution document in which to place the work pertaining to your re-creation of my RBG-string GA. Start your document with a title followed by a short learning abstract. Beyond that, structure your document in terms of 11 sections, one for each of the specified tasks. As you complete each task, add the code/demo(s) associated with the task to the corresponding reserved section of your solution document. Once you have finished all 11 tasks and completed your solutin document, please post it to your web work site.

Complete each of the 11 tasks provided for re-creating the GA for evolving RBG-strings. Considerable guidance is given for each task, and you are encouraged to be mindfull of your work in each task, in anticipation doing your own GA by analogy with the completed RBG-string GA.

Wild Card GA

Identify a problem to solve using the evolutionary approach, and write a GA to do so in CLOS by faithfully mimicking the eleven step process that was established for development of the the RBG-string GA. Do your best to select a problem that (1) will appear substantially different from the RBG-string GA (i.e., is not a thinly disguised variant of it), and (2) is simple enough that you can do it in the remaining weeks of the semester. Then:

1. Establish a solution document in which to place your work for the GA. Give the document a title, and follow that with a short learning abstract.
2. In a section titled “About the GA”, provide a relatively short description of your problem and the essential elements of your GA.

3. In a section titled "The Tasks" present code and demos for each of the eleven tasks that you are required to do in close analogy to the RBG-string GA development, placing the work associated with each task in its own subsection of this lengthy section.
4. In a section titled "Behavior of the GA", provide a relatively short text that describes the behavior of your program. Do your best to highlight its successes! Furthermore, say something, in hindsight, about how you might done things differently for one reason or another.
5. Post your solution document to your web work site.

Demo / Due Date

Embedded in the tasks for both parts of this assignment (RBG-String GA and Wild Card GA) is the requirement that you post your work in a particular way. Beyond this, you are expected to:

1. Demo your GA programs for me!
   (a) I will ask you first to run your implemntation of the RBG-string GA.
   (b) After, I will ask you to:
      i. Walk me through the document that you were asked to post on the problem you determined to solve with your GA.
      ii. Demo each of the tasks 1 through 11 that you are being asked to faithfully mimic, in order, 1 then 2 then ... then 11. Only if you satisfactorily demo task i will you have an opportunity to demo task i+1!
      iii. Walk me through the document that you were asked to post on the behavior of your GA.
2. You will need to demo this assignment for me during one of my final exam week office hour slots, so you should consider it to be due before you do your demo.