Checkpoint 6 -- Population

Logistics

- Assignments
  - Checkpoint 1 -- Framework
  - Checkpoint 2 -- Problem statement
  - Checkpoint 3 -- Genotype / Phenotype
    - All done.
  - Checkpoint 4 -- Selection / Fitness
    - Started….still working on it
  - Checkpoint 5 -- Crossover / Mutation
    - Due Feb 6th
    - Hey, that's today!

Final exam date

- Final exam date has been announced:
  - Tuesday, February 27, 2007
  - 10:15am - 12:15pm
  - 70-1435

Project Presentation

- Approx
- Presentations:
  - Dates:
    - Week 9: Thurs, Feb 15
    - Week 10: Tues, Feb 20
    - Finals Week: Tues, Feb 27 (2:45-4:45)
  - 15 minutes / presentation
  - Schedule now on Web
  - Please send me choice of time/day
- PRESENTATIONS START NEXT WEEK!!!

Jobs, Jobs, Jobs

- Possible co-op position
- Possible part-time work
- Interactive Collaboration Environments Lab in CASCI
  - Collaboration Technology Specialists
  - Video / audio / communication over Internet 2.
- http://www.rit.edu/~rc/jobs.html

Jobs, Jobs, Jobs

- Upcoming company presentations:
  - IBM -- 5-6:30pm today (70-1400)
  - CIA -- Web, Feb 7th, 4-6pm (06-A201)
  - Microsoft -- Wed, Feb 7th, 7:30-8:30pm (70-2400)
  - Citrix -- Fri, Feb 9th, noon-1pm (09-atrium, RSVP)
  - Harris -- Mon, Feb 12, 10am-2pm (COE, Erdle)
  - Google -- Tues, Feb 13, 4-6pm (70-1400)
  - Paychex -- Thurs, Feb 15, 2-4pm (in Webster -- RSVP required)
  - Intel -- Fri, Feb 16, noon-3pm (COE, Erdle)
- See posting on my office BB for info

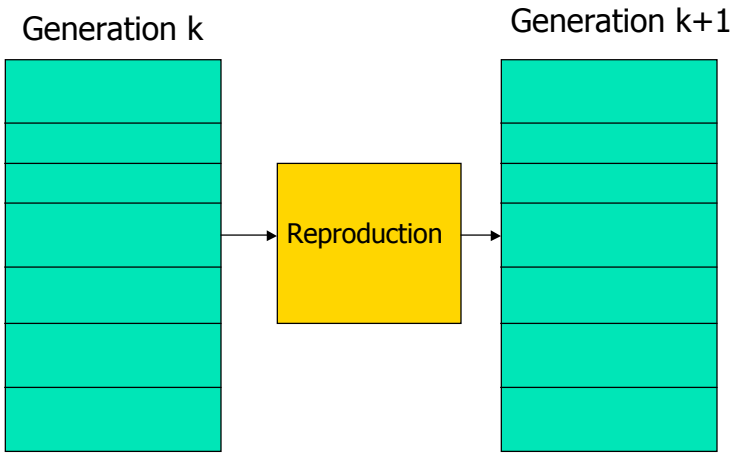
What you will be doing

- Goals:
  - Experiment with a variety of evolutionary strategies for controlling population
  - More statistics gathering.
- Reminder: all checkpoints to contribute to what eventually will be reported in your final report / presentation.

Deliverables

- Report and Code

Reproduction



Reproduction

- Tasks:
  - Choose 2 of the 3 evolutionary strategies
    - ES (μ + λ)
    - Steady State
    - Variable Population
  - Compare EA convergence of using each.

Comparisons

- Keep all other parameters constant
  - Crossover / mutation operators
  - Selection Mechanism
  - Crossover / mutation rate.
  - Genotype / Phenotype / Genetic Mapping
- Use values that showed most promise in previous checkpoints.

Report

- Be sure to include:
  - Which evolutionary strategies you chose (with descriptions)
- Include:
  - Summary of runs (best, worst, avg / generation)
  - Conclusions on which seems most promising.

Questions?

Ground rules

- To be done in your teams.
- Report submission in PDF, Word, or plain text.
- Code submission as zip, tar, etc.
  - Include instructions for building/running.
  - Include platform as mycourses comment when submitting.
- Electronic submission via mycourses.

Submission

- Due Tuesday, February 13.
- Any trouble, see me sooner rather than later.

The final report / presentation

- This is the final checkpoint.
- All checkpoints to contribute to what will be in your final report.

Course deliverables

- In this course you will:
  - Choose a hard, multidimensional problem to solve.
  - Define and code evolutionary methods to solve the problem.
  - Experiment with the parameters.
- Your report should describe your efforts and conclusions in solving your problem.

Evolutionary Algorithms

- To use evolutionary algorithms your must:
  - Define your problem
  - Define your genotype
  - Identify your phenotype
  - Define the genotype -> phenotype translation
  - Define crossover and mutation operators
  - Define fitness
  - Determine selection criteria
  - Set population parameters

Final report

- Your report should include:
  - Description of what problem you attempted to solve.
  - Description of your approach touching on each part of the process
  - Results (give examples)
  - Important observations / discoveries.
  - Conclusions
  - Future work.

Presentation

- Your presentation:
  - Should be a summary of your report:
    - Describe the problem
    - Summary of parameters of EA process
    - Results / demo
- Remember, you only have 15 minutes.
  - Leave details for the report.
- Example next week.

Presentation

- Please sign up for your presentation.
  - They start next week!!
  - All unassigned project will be assigned on Thursday.
- Questions.