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Machine Learning
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Genetic Algorithm

As usual for mine, just run the JAR file and follow the instructions.

As usual I just followed the algorithm exactly. I start by making 100 random knapsacks. Then I use tournament selection to generate and mutate 100 children, then save the 10 best, then use proportional fitness to save 90 more, rinse and repeat.

My biggest method is called Generation( ), as the name suggests this runs the population through one generation, it uses a MakeChild( ) method, which uses a Mutate( ) method. Beyond that it's pretty much just simple methods for calculating weight and fitness, and getting the maximum and average fitness for each generation.

Results:(Each is run for 500 generations before stopping)

Tourney Size	**Mutation Rate**	**Achieved Fitness**	**Weight**	**Generation**
1	1/L	1068	194	54
2	2/L	1068	194	181
10	1/L	1068	194	11
30	1/L	1061	200	7
30	3/L	1068	194	126

(It should be noted that some configurations were able to find a solution with value 1068 and weight of 192 in further generations.)

Graph of results for the 10 : 1/L configuration.