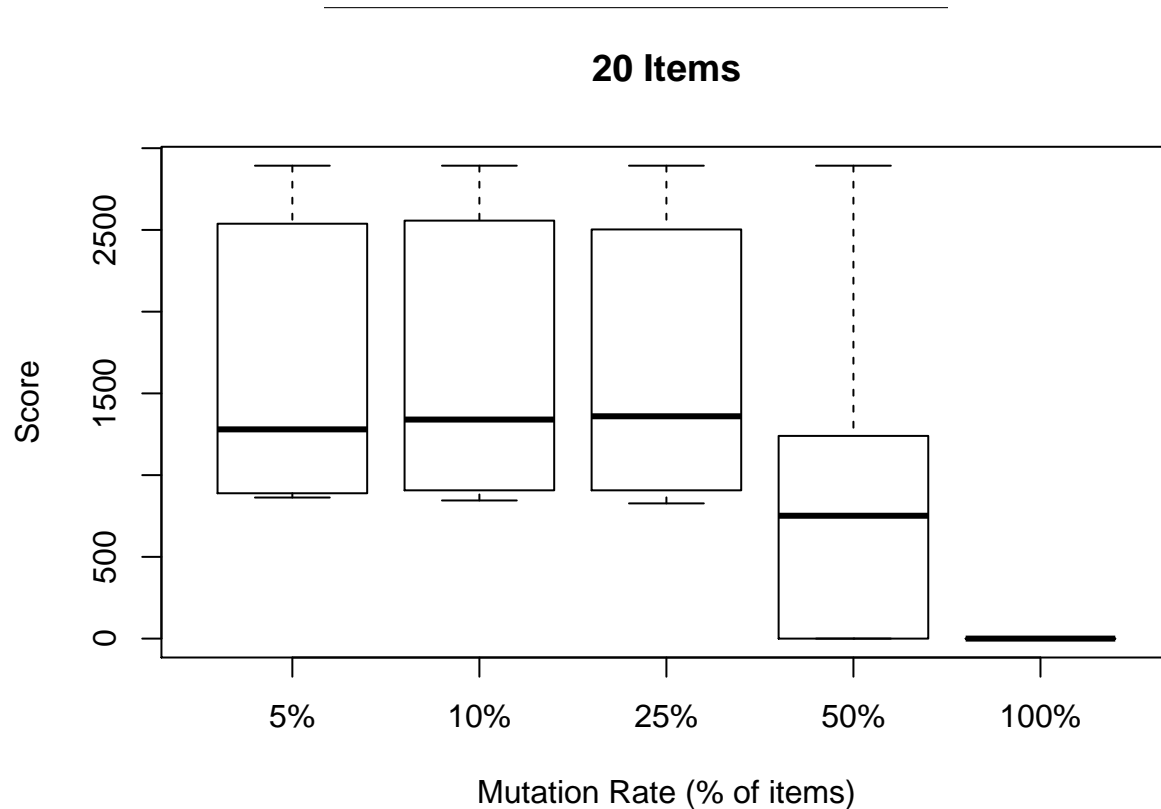# MutateRate

Skye Antinozzi and Mitchell Finzel

Setup

We chose to look at how mutation rate affects score by providing mutation rate as a commandline argument. This example uses knapsack item sets of 20 with percentages of the total item size 5,10,25,50 and 100 percents.

20 Items

Results

As can be seen in the boxplots the mutation rate didn't have much effect between 5% and 25%. At 50% however a large drop in mean score occurs with 100% mutation rate, essentially randomized, having no score above 0. At 50% of the item set size the score begins to approach 0, because this is penalized score the scores are becoming more negative.

Future Work

We would like to test a finer mutation rate gradient between 25% and 100% to see when the decline in score begins to slope more harshly. We would like to replicate our process with larger item set knapsack problems as well.