

Evolutionary Computation Theory and Application (ECTA) – Assessment 1: 1/0 Knapsack

Alexander Asteroth, Adam Gaier, Alexander Hagg

Bonn Rhein Sieg University o.a.s., Department of Computer Science

Assignment 2.1: Traveling Salesman Problem

1/0 Knapsack

- Alter your one-max Genetic Algorithm to solve the 1/0 Knapsack problem
 - From a list of items decide for every item whether you will take it or not
 - Each item has a value and a weight
 - Maximize the value of items
 - The weight must be below 400
- Submit code, pdf, and solution to LEA

Assignment 2.1: Traveling Salesman Problem

1/0 Knapsack - Hints

- Think about the best way to implement the weight constraint
- How much do you need to change your representation and recombination operators?
- Start with a smaller set of items, which you know the correct answer to, make sure your algorithm works in this simple case before trying the full problem
- Matlab syntax examples for file reading and logical indexing also on LEA (and will be explained in class)