Improving Run Length Encoding through preprocessing

Sven Fiergolla

14. Januar 2020

Introduction

Basics

Design

Analysis

Implementation

Evaluation and Discussion

Introduction - A Bit of History

- rise of multimedia
- rise of the World Wide Web
- ever increasing data transfer

- compress to save storage space & to handle new types and volumes of data

Introduction - A Bit of History

- rise of multimedia
- rise of the World Wide Web
- ever increasing data transfer

- compress to save storage space & to handle new types and volumes of data

Introduction - The Situation Today

- burst of sensors and IoT
- massive and rapid increasing data transfer

- compress to lower transmission cost / time
- compress to handle increasing resolution, fidelity, dynamic range
- compression for cold archiving

Introduction - The Situation Today

- burst of sensors and IoT
- massive and rapid increasing data transfer

- compress to lower transmission cost / time
- compress to handle increasing resolution, fidelity, dynamic range
- compression for cold archiving

Basics of Compression

- Non random data contains redundant information
- Compression is about pattern or structure identification and exploitation
- No algorithm can compress all possible data of a given length, even by one byte (Kolmogorov Complexity)

Basics of Compression

- Non random data contains redundant information
- Compression is about pattern or structure identification and exploitation
- No algorithm can compress all possible data of a given length, even by one byte (Kolmogorov Complexity)

Huffman Encoding

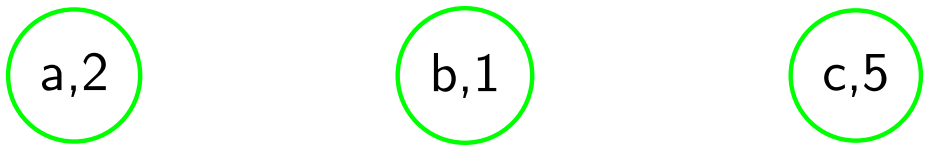

Figure: Example Huffman tree with 3 leaf nodes.

Huffman Encoding

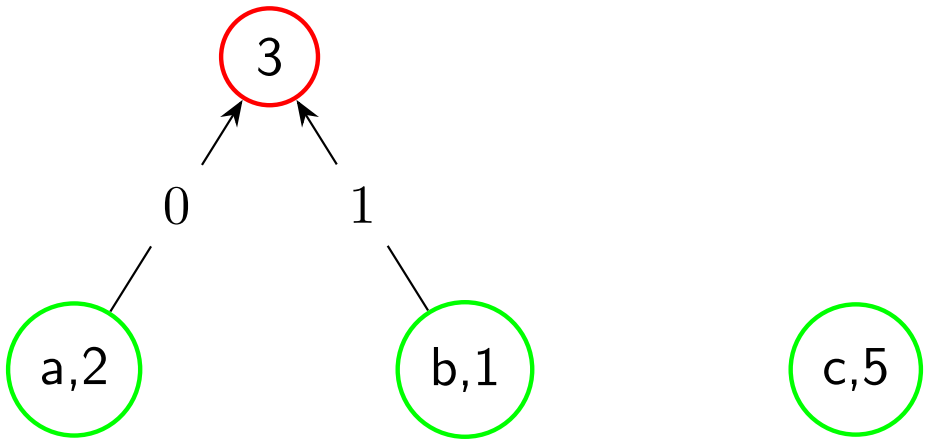

Figure: Example Huffman tree with 3 leaf nodes.

Huffman Encoding

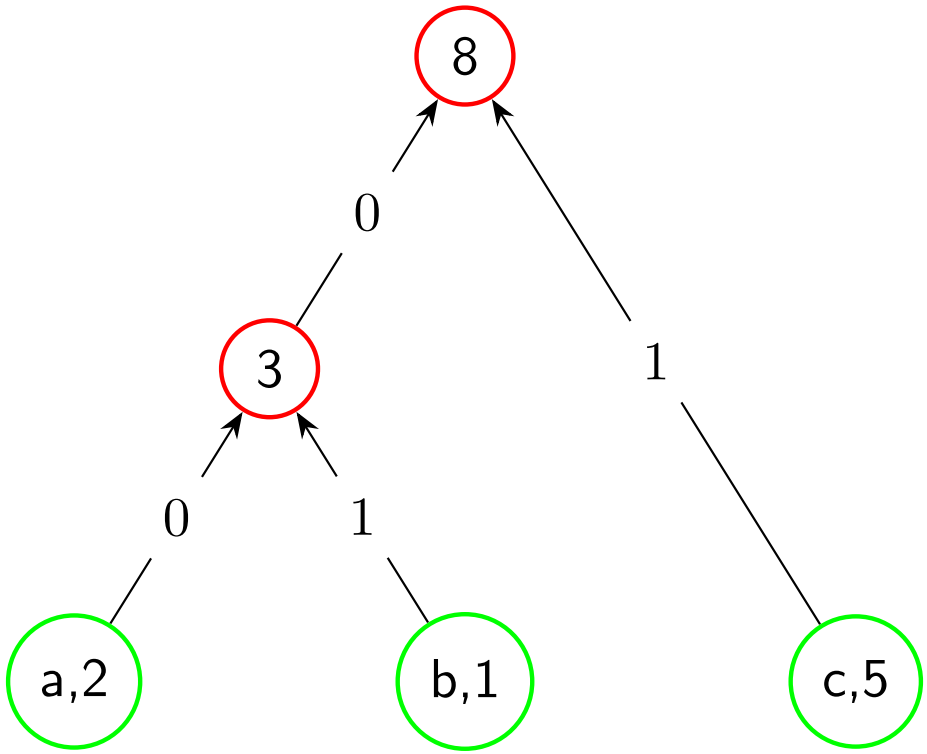

Figure: Example Huffman tree with 3 leaf nodes.

Design

Analysis

Implementation

Evaluation and Discussion