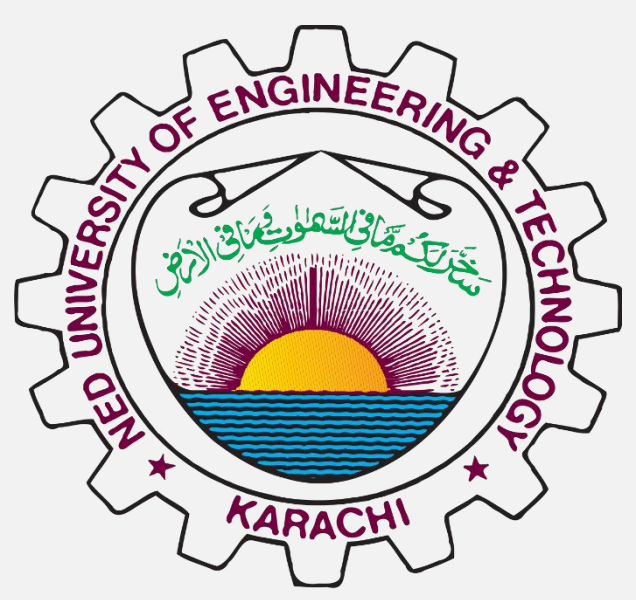


LLVM Miner: Text Analytics based Static Knowledge Extractor



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Introduction

- LLVM miner simplifies static IR level analysis in LLVM compiler tool
- Performs text analytics to extract related information from IR code
- IR is passed through the miner for extracting hidden features

Testing Environment

- Bfs, Connected Components, Grep, & Histogram applications
- RStudio tool (R Scripts)
- Instruction frequency & application trend metrics

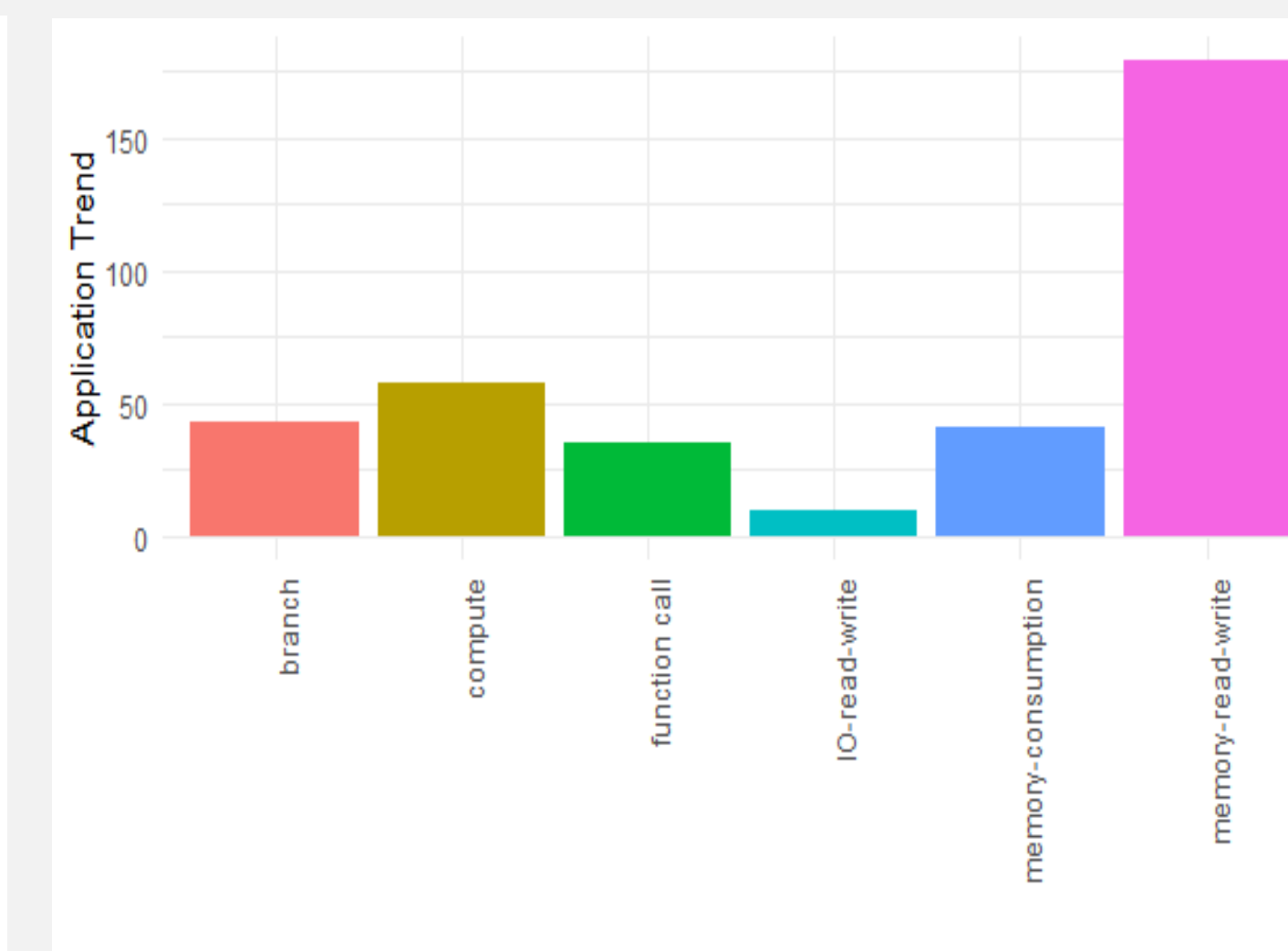
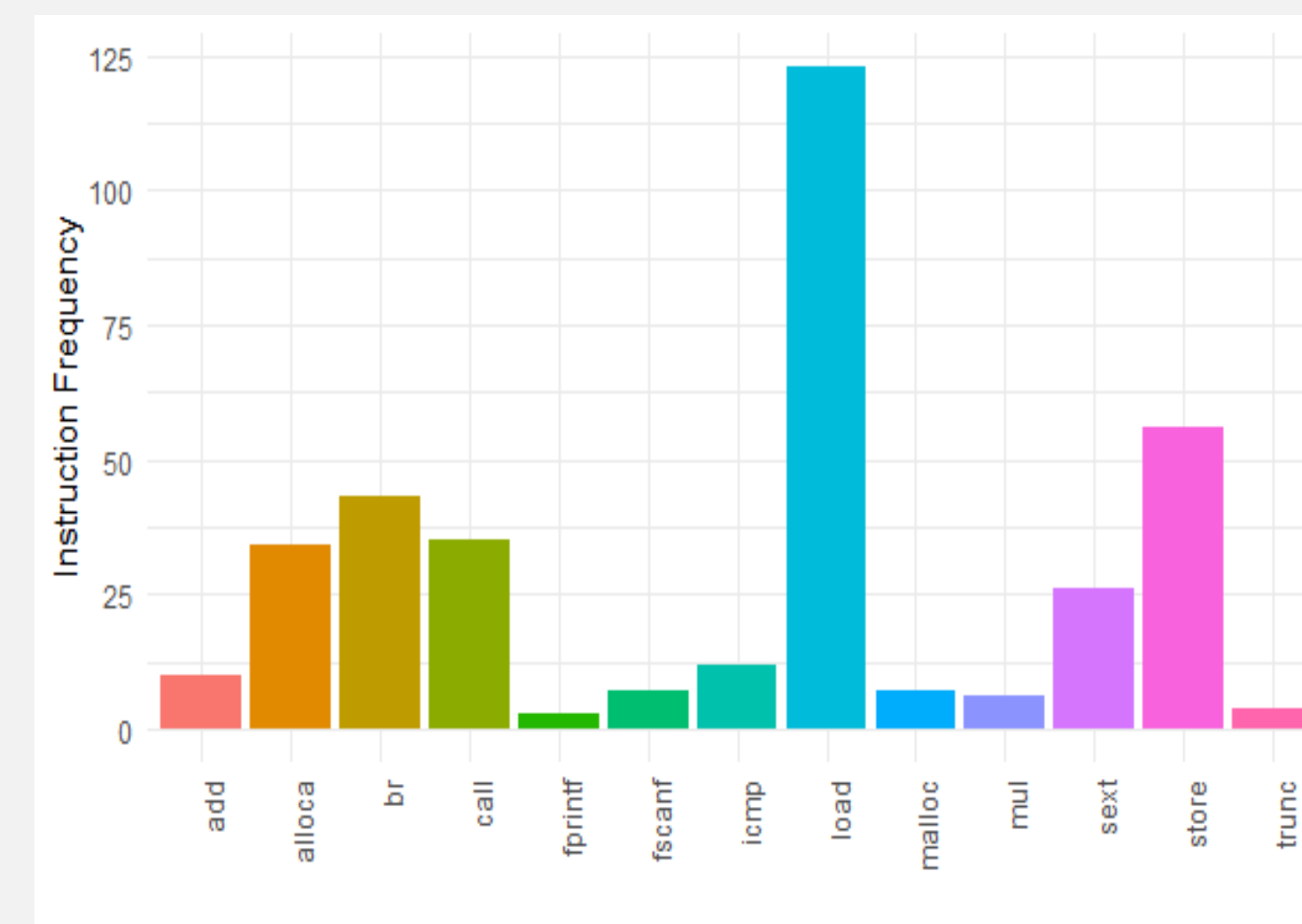
Results

- Instruction frequency shows count of each instruction by bar graph & word cloud
- Application trend shows proportion of classes of operations using bar graphs
- Determines if application is compute bound, or memory bound or I/O bound
- Clusters instructions in categories like branch, compute, function calls, IO read write, memory consumption, & memory read write operations

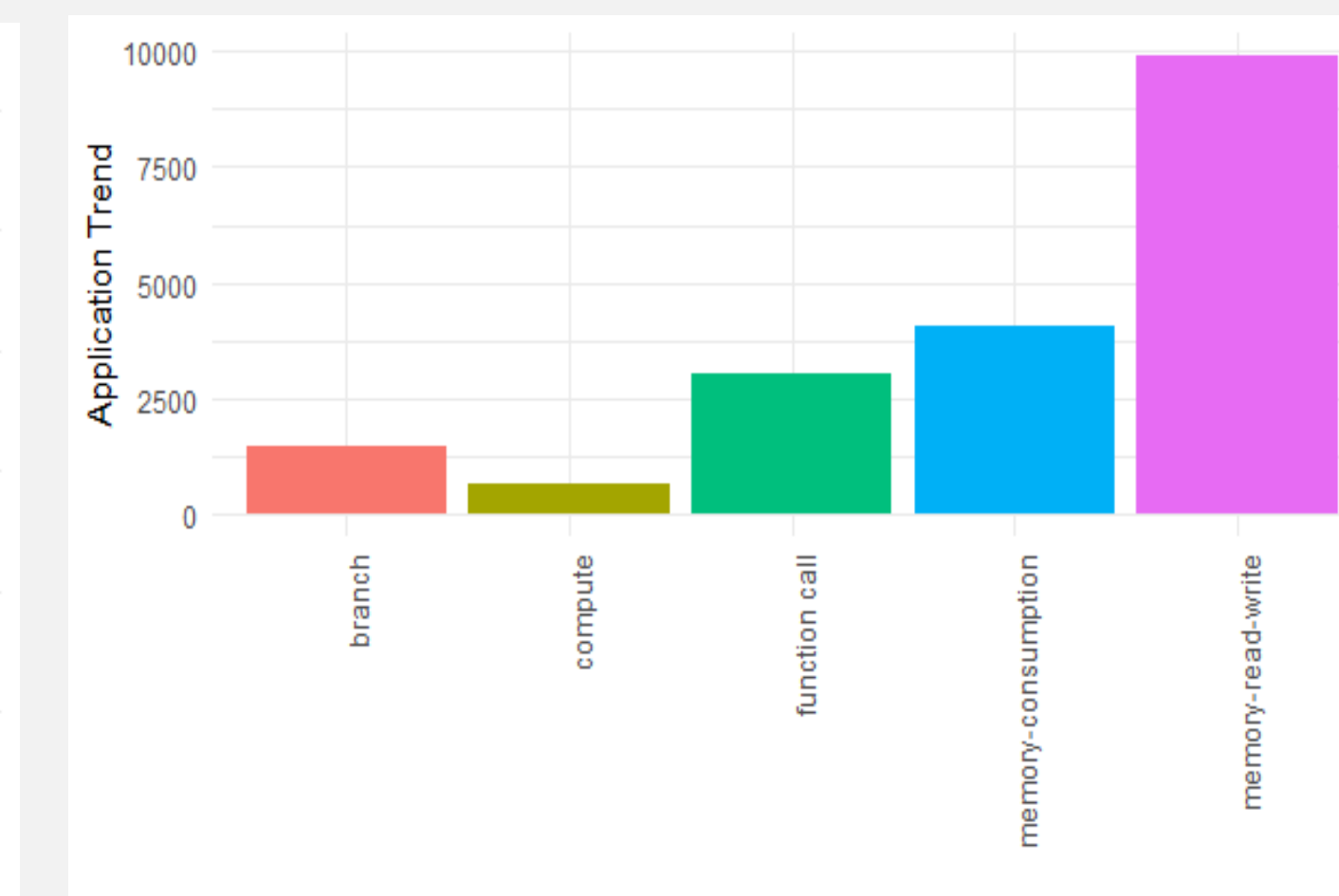
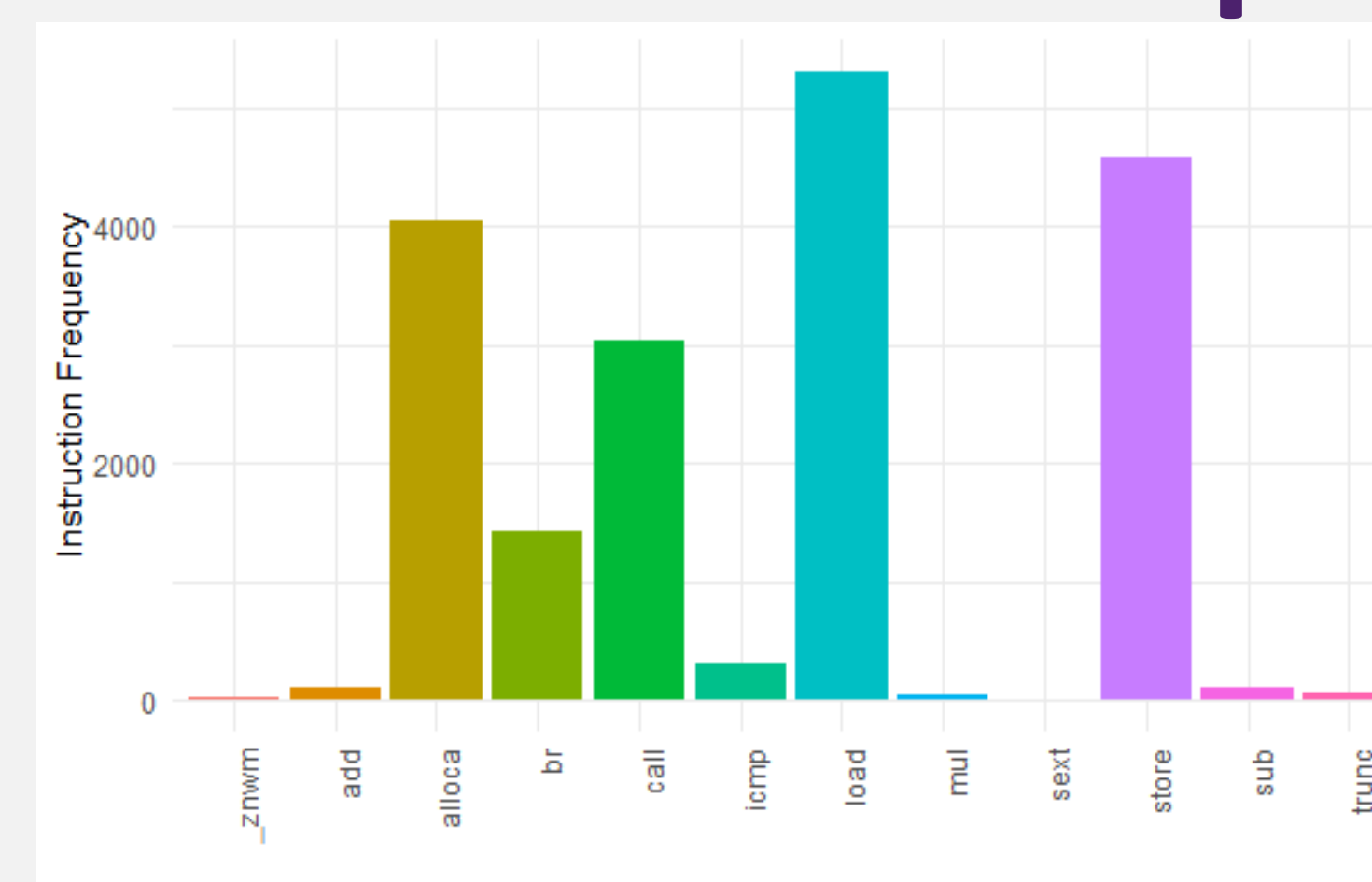
Benefits

- Promising direction for studying code hidden features
- Easier & less costly solution in terms of time & efforts as compared to analysis passes

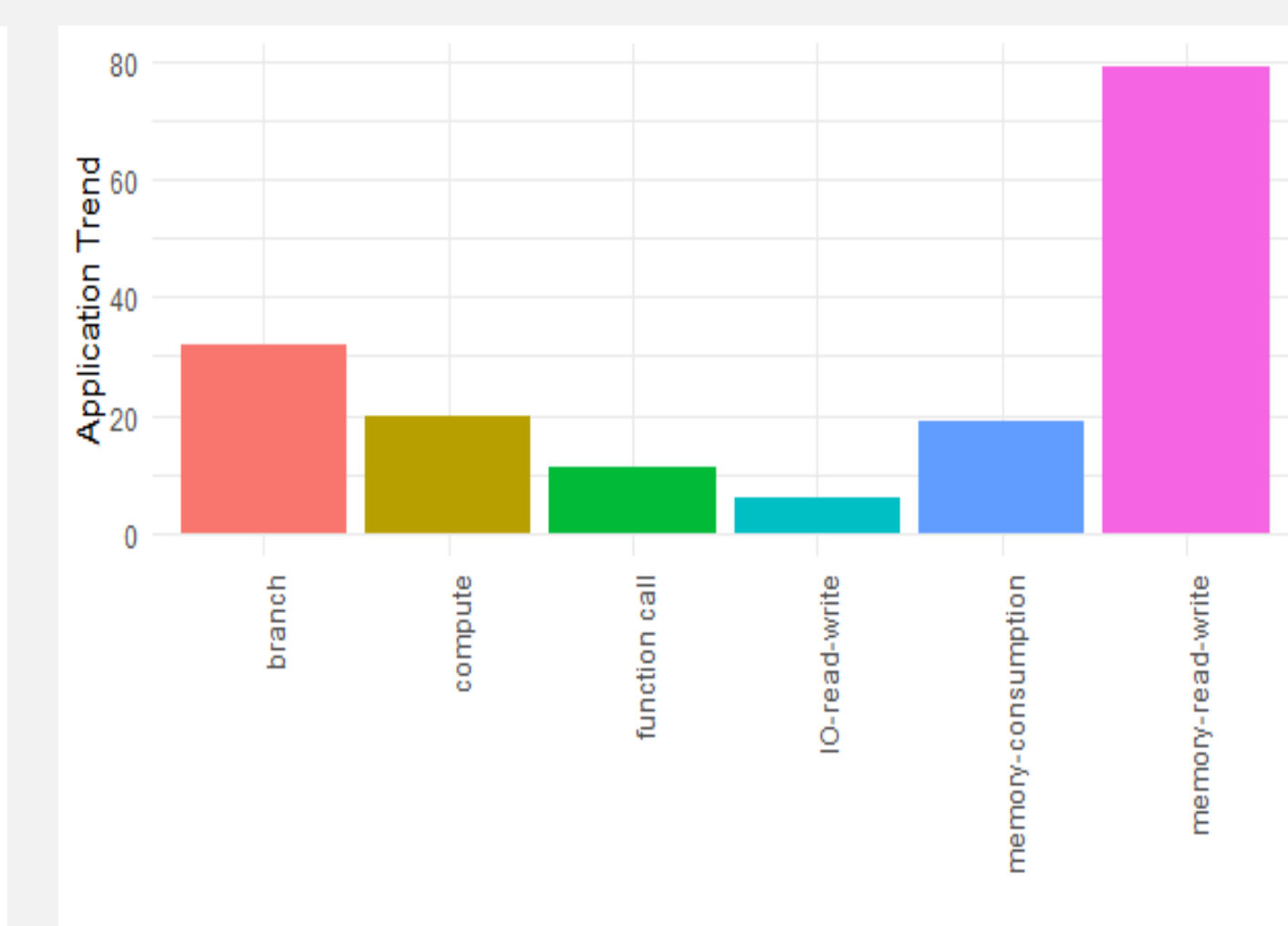
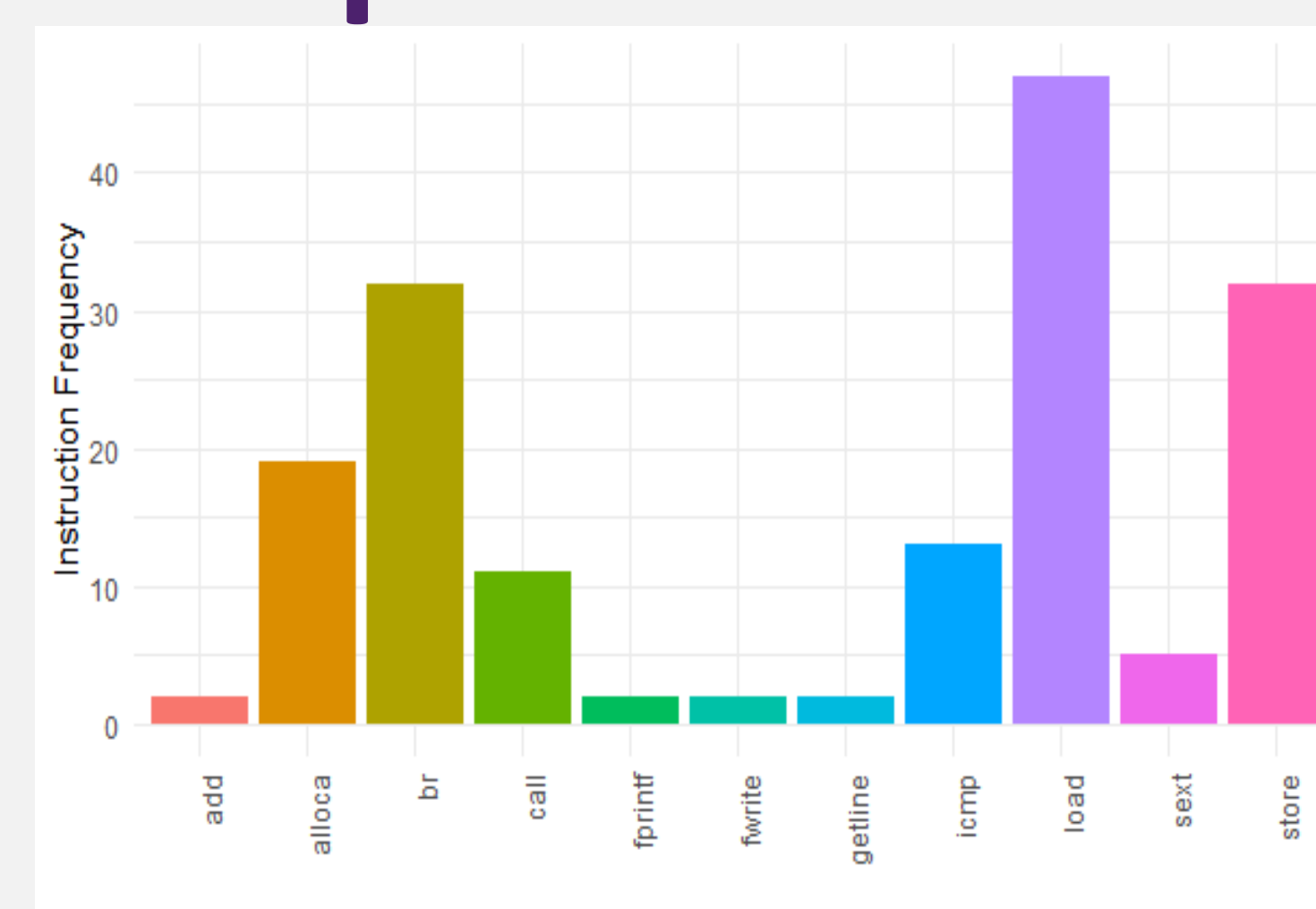
Bfs



Connected Component



Grep



Histogram

