An Exploration of Finite State Automata

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1 Task 1 — Traffic Light

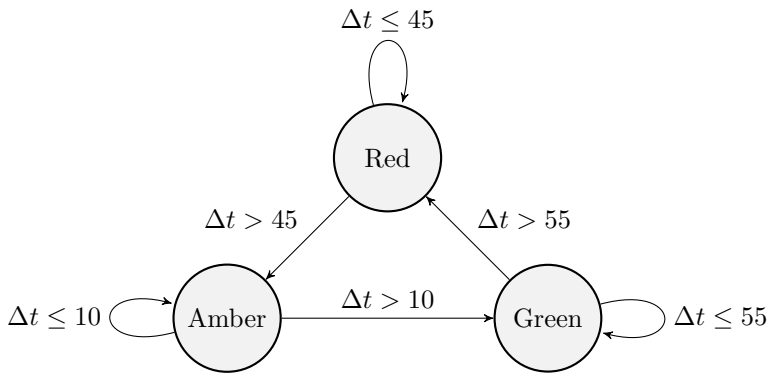

Figure 1: Graph showing the finite state automata where Δt represents the number of ticks, or seconds, since the last state change.

2 Task 2 — Decimal Parser

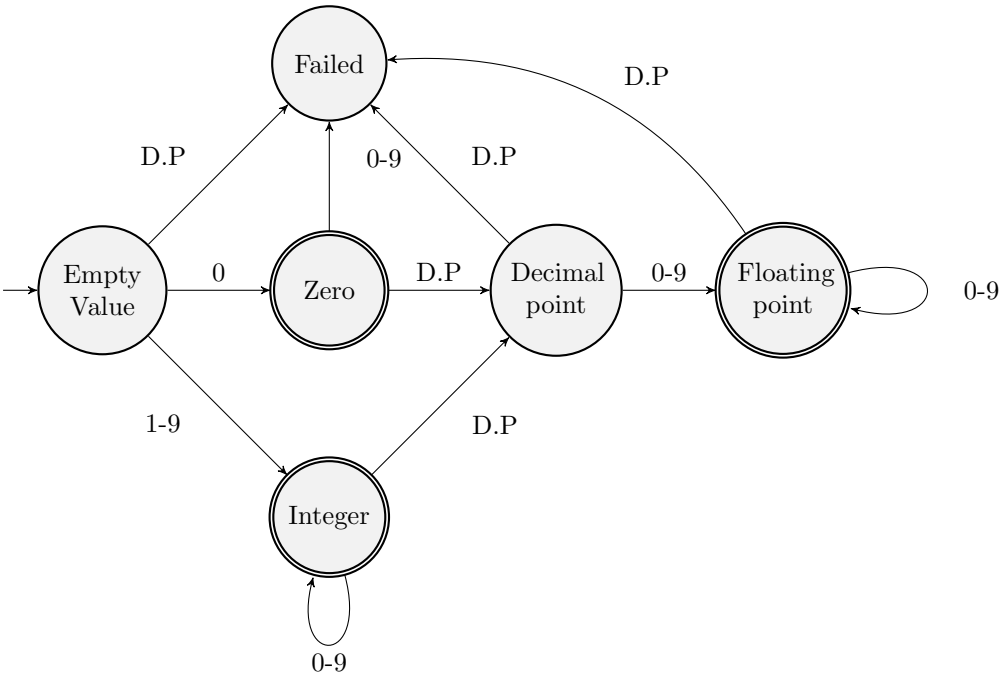

Figure 2: A finite state machine that parses a number from a string one character at a time. The state machine ends when the final character is reached. The parse is considered a success if the ending position is on an accepting node. Any undefined behaviour, such as encountering a character not in {‘0’, ‘1’, ‘2’, ‘3’, ‘4’, ‘5’, ‘6’, ‘7’, ‘8’, ‘9’,‘.’}, is automatically assumed to be a fail.