NFA that accepts even number of 1’s or even number of 0’s with the input binary string.

1 1

0 invalid

ε 0 0, 1, ε, invalid

invalid

0 0

1

ε invalid

1

invalid

Invalid

Source: Individual figures from the diagram are taken from lecture 2 : Finite Automata & Computability of Sir M Ashraful Amin, PhD and edited in Microsoft Word file

alphabet Σ = {0, 1}

states *Q* = {a, b, c, d, e, fdie}

initial state a

accepting states *F* = {b, d}

table of transition function δ:

Input

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | 0 | 1 | ε | invalid |
| a | **∅** | **∅** | {b, d} | fdie |
| b | {c} | {b} | **∅** | fdie |
| c | {b} | {c} | **∅** | fdie |
| d | {d} | {e} | **∅** | fdie |
| e | {e} | {d} | **∅** | fdie |
| fdie | fdie | fdie | fdie | fdie |

states