Autor - Michał Kuśmidrowicz 244021  
Zadanie 3 - Program na ocenę dobrą

∑ = {0, 1}  
q0 = q0  
Q = {q0, q1, q2, q3, q4}  
A = {q1}   
δ = Γ x Q -> Q x Γ x {L, R}

Tablica przejść (symbole są analizowane od prawej do lewej):

|  |  |  |  |
| --- | --- | --- | --- |
|  | 0 | 1 | θ |
| q0 | q3, 1, L | q2, 0, L | -, -, - |
| q1 | q1, 0, L | q1, 1, L | -, -, - |
| q2 | q4, 0, L | q4, 1, L | -, -, - |
| q3 | q1, 1, L | q4, 0, L | -, -, - |
| q4 | q1, 1, L | q4, 0, L | q1, 1, - |

Sprawdzenie poprawności działania (rezultaty drukowane przez program w języku angielskim):

**1. 1111111 -> 10000010**

Input binary number (without θ): 1111111

Starting tape value: θ1111111

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Current state: 0, alphabet value: 1, next state: 2, value to write: 0, tape movement: L

Current state: 2, alphabet value: 1, next state: 4, value to write: 1, tape movement: L

Current state: 4, alphabet value: 1, next state: 4, value to write: 0, tape movement: L

Current state: 4, alphabet value: 1, next state: 4, value to write: 0, tape movement: L

Current state: 4, alphabet value: 1, next state: 4, value to write: 0, tape movement: L

Current state: 4, alphabet value: 1, next state: 4, value to write: 0, tape movement: L

Current state: 4, alphabet value: 1, next state: 4, value to write: 0, tape movement: L

Current state: 4, alphabet value: θ, next state: 1, value to write: 1, tape movement: -

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Resulting tape value: 10000010

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Traversed path consists of the following states: q0, q2, q4, q4, q4, q4, q4, q4, **q1**

Last state is in accepting state - a program is **successfully finished**

**2. 10000 -> 10011**

Input binary number (without θ): 10000

Starting tape value: θ10000

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Current state: 0, alphabet value: 0, next state: 3, value to write: 1, tape movement: L

Current state: 3, alphabet value: 0, next state: 1, value to write: 1, tape movement: L

Current state: 1, alphabet value: 0, next state: 1, value to write: 0, tape movement: L

Current state: 1, alphabet value: 0, next state: 1, value to write: 0, tape movement: L

Current state: 1, alphabet value: 1, next state: 1, value to write: 1, tape movement: L

Current state: 1, alphabet value: θ, next state: 1, value to write: -, tape movement: -

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Resulting tape value: 10011

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Traversed path consists of the following states: q0, q3, q1, q1, q1, q1, **q1**

Last state is in accepting state - a program is **successfully finished**  
**3. 1001 -> 1100**

Input binary number (without θ): 1001

Starting tape value: θ1001

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Current state: 0, alphabet value: 1, next state: 2, value to write: 0, tape movement: L

Current state: 2, alphabet value: 0, next state: 4, value to write: 0, tape movement: L

Current state: 4, alphabet value: 0, next state: 1, value to write: 1, tape movement: L

Current state: 1, alphabet value: 1, next state: 1, value to write: 1, tape movement: L

Current state: 1, alphabet value: θ, next state: 1, value to write: -, tape movement: -

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Resulting tape value: 1100

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Traversed path consists of the following states: q0, q2, q4, q1, q1, **q1**

Last state is in accepting state - a program is **successfully finished**

**3. 1**

Input binary number (without θ): 1

Starting tape value: θ1

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Current state: 0, alphabet value: 1, next state: 2, value to write: 0, tape movement: L

Current state: 2, alphabet value: θ, next state: 2, value to write: -, tape movement: -

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Resulting tape value: 0

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Traversed path consists of the following states: q0, q2, q2

Last state is not in accepting state - a program is **not successfully finished**

**4. 0**

Input binary number (without θ): 0

Starting tape value: θ0

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Current state: 0, alphabet value: 0, next state: 3, value to write: 1, tape movement: L

Current state: 3, alphabet value: θ, next state: 3, value to write: -, tape movement: -

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Resulting tape value: 1

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Traversed path consists of the following states: q0, q3, q3

Last state is not in accepting state - a program is **not successfully finished**

**5. 10 -> 101**

Input binary number (without θ): 10

Starting tape value: θ10

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Current state: 0, alphabet value: 0, next state: 3, value to write: 1, tape movement: L

Current state: 3, alphabet value: 1, next state: 4, value to write: 0, tape movement: L

Current state: 4, alphabet value: θ, next state: 1, value to write: 1, tape movement: -

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Resulting tape value: 101

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Traversed path consists of the following states: q0, q3, q4, **q1**

Last state is in accepting state - a program is **successfully finished**

**6. 11 -> 110**

Input binary number (without θ): 11

Starting tape value: θ11

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Current state: 0, alphabet value: 1, next state: 2, value to write: 0, tape movement: L

Current state: 2, alphabet value: 1, next state: 4, value to write: 1, tape movement: L

Current state: 4, alphabet value: θ, next state: 1, value to write: 1, tape movement: -

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Resulting tape value: 110

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Traversed path consists of the following states: q0, q2, q4, **q1**

Last state is in accepting state - a program is **successfully finished**