

Accept Cases:

1. String: 0011

```
$ python3 traceNTM_ekoran.py test-files/check_a_plus_ekoran.csv aaaa 100
Nondeterministic Turing Machine Info:
Machine Name: a+
States: q1, q2, q3
Sigma: a
Gamma: a, _
Start State: q1
Accept State: q3
Reject State: qreject
Input String: aaaa
Transitions Simulated: 12
String accepted in 5 steps:
q1 aaaa_
a q1 aaa_
aa q1 aa_
aaa q1 a_
aaaa q2 _
aaa q3 a_
Degree of Nondeterminism: 2.1666666666666665
Nondeterminism Summary:


| Level | # Configs | # Outgoing Transitions | # NonLeaves | Transitions/NonLeaves |
|-------|-----------|------------------------|-------------|-----------------------|
| 0     | 1         | 2                      | 1           | 2.0                   |
| 1     | 2         | 3                      | 2           | 1.5                   |
| 2     | 3         | 3                      | 2           | 1.5                   |
| 3     | 3         | 3                      | 2           | 1.5                   |
| 4     | 3         | 1                      | 1           | 1.0                   |
| 5     | 1         | 0                      | 0           | 0                     |


```

2. String: 0101

```
$ python3 traceNTM_ekoran.py test-files/check_equal_01s_ekoran.csv 0101 100
Nondeterministic Turing Machine Info:
Machine Name: {w | w has the same number of 0's and 1's} Nondeterministic
States: q0, q1, q2, q3, q4, q5, qacc, qrej
Sigma: 0, 1
Gamma: 0, 1, _
Start State: q0
Accept State: qacc
Reject State: qrej
Input String: 0101
Transitions Simulated: 20
String accepted in 13 steps:
q0 0101_
_ q1 101_
q3 _x01_
_ q4 x01_
_x q4 01_
_xx q1 1_
_x q3 xx_
_ q3 xxx_
q3 _xxx_
_ q5 xxx_
_x q5 xx_
_xx q5 x_
_xxx q5 _
_xxx_ qacc
Degree of Nondeterminism: 1.5
Nondeterminism Summary:


| Level | # Configs | # Outgoing Transitions | # NonLeaves | Transitions/NonLeaves |
|-------|-----------|------------------------|-------------|-----------------------|
| 0     | 1         | 1                      | 1           | 1.0                   |
| 1     | 1         | 1                      | 1           | 1.0                   |
| 2     | 1         | 2                      | 1           | 2.0                   |
| 3     | 2         | 2                      | 2           | 1.0                   |
| 4     | 2         | 1                      | 1           | 1.0                   |
| 5     | 1         | 1                      | 1           | 1.0                   |
| 6     | 1         | 1                      | 1           | 1.0                   |
| 7     | 1         | 1                      | 1           | 1.0                   |
| 8     | 1         | 2                      | 1           | 2.0                   |
| 9     | 2         | 2                      | 2           | 1.0                   |
| 10    | 2         | 2                      | 2           | 1.0                   |
| 11    | 2         | 2                      | 2           | 1.0                   |
| 12    | 2         | 2                      | 2           | 1.0                   |
| 13    | 2         | 0                      | 1           | 0.0                   |


```

Reject Cases:

1. String: 00011

```
$ python3 traceNTM_ekoran.py test-files/check_equal_01s_ekoran.csv 00011 100
Nondeterministic Turing Machine Info:
  Machine Name: {w | w has the same number of 0's and 1's} Nondeterministic
    States: q0, q1, q2, q3, q4, q5, qacc, qrej
      Sigma: 0, 1
      Gamma: 0, 1, _
    Start State: q0
    Accept State: qacc
    Reject State: qrej
Input String: 00011
Transitions Simulated: 23
String rejected in 20 steps
Degree of Nondeterminism: 1.15
```

2. String: 101

```
$ python3 traceNTM_ekoran.py test-files/check_equal_01s_ekoran.csv 101 100
Nondeterministic Turing Machine Info:
  Machine Name: {w | w has the same number of 0's and 1's} Nondeterministic
    States: q0, q1, q2, q3, q4, q5, qacc, qrej
      Sigma: 0, 1
      Gamma: 0, 1, _
    Start State: q0
    Accept State: qacc
    Reject State: qrej
Input String: 101
Transitions Simulated: 8
String rejected in 6 steps
Degree of Nondeterminism: 1.3333333333333333
```