Μικροεπεξεργαστές

Άσκηση 2η
Προσομοίωση λογικών κυκλωμάτων – Δυναμική κατανάλωση ισχύος

Άσκηση 2.1

```
>> circuit(1,0,0)
---AND Gate for input probabilities (1.000000 0.000000):
signal probability is 0.000000 and switching activity is 0.000000
---NOT Gate for input probabilities (0.000000):
signal probability is 1.000000 and switching activity is 0.000000
---AND Gate for input probabilities (0.000000 1.000000):
signal probability is 0.000000 and switching activity is 0.000000
>>
```

Άσκηση 2.2

```
>> circuit(0.5,0.5,0.5)
---AND Gate for input probabilities (0.500000 0.500000):
signal probability is 0.250000 and switching activity is 0.375000
---NOT Gate for input probabilities (0.500000):
signal probability is 0.500000 and switching activity is 0.500000
---AND Gate for input probabilities (0.250000 0.500000):
signal probability is 0.125000 and switching activity is 0.218750
>>
```

Άσκηση 2.3

```
>> MCcircuit(10)
MonteCarloSize = 10
vectorsNumber =10
AND 2 input gate switching activity is =0.400000
NOT gate switching activity is =0.500000
>> MCcircuit(100)
MonteCarloSize = 100
vectorsNumber =100
AND 2 input gate switching activity is =0.340000
NOT gate switching activity is =0.490000
>> MCcircuit(4178)
MonteCarloSize = 4178
vectorsNumber =4178
AND 2 input gate switching activity is =0.382480
NOT gate switching activity is =0.492101
```

Παρατηρώ ότι πάντα η πιθανότητα της πύλης NOT είναι μεγαλύτερη ή ίση της AND και αυτό είναι λογικό καθώς η πύλη NOT εξαρτάται αποκλειστικά και μόνο από την τιμή ενός σήματος. Η τιμή του switching activity της NOT τείνει προς το 0.5 όσο μεγαλώνει το workload.