LENTOKENTTÄ SIMULAATIO

PAULI MÄNTY

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TAVOITTELEN PISTEMÄÄRÄÄ 2

**Ohjelman käyttöohje:**

Aja ohjelma kääntämällä projekti Visual Studiossa, tai mene debug kansioon ja aja siellä AirportSimulation.exe

Ajan käyttö:

22.11.2018 //Lähes koko päivä meni tämän kanssa. Koitin teippipatentoida tabula koodia kasaan semmoisen 10h.

23.11.2018 //Koko päivä tappelua koodin kanssa, että saan kääntäjän kääntämään sen. Motivaatio meni mutta ilmeisesti kahden pisteen työ tästä tuli. +6h duunia, yhteensä 16h harkkatyön tekoon.

**1 pisteen työn testiajo**

Jonon koko 20.

Aikayksikköä 60.

Saapuvat: 1

Lähtevät: 2

Simulation has concluded after 60 time units.

Total number of planes processed 194

Total number of planes asking to land 65

Total number of planes asking to take off 129

Total number of planes accepted for landing 65

Total number of planes accepted for takeoff 21

Total number of planes refused for landing 0

Total number of planes refused for takeoff 108

Total number of planes that landed 58

Total number of planes that took off 1

Total number of planes left in landing queue 7

Total number of planes left in takeoff queue 20

Percentage of time runway idle 1.66667%

Average wait in landing queue 3.05172 time units

Average wait in takeoff queue 28 time units

Average observed rate of planes wanting to land 1.08333 per time unit

Average observed rate of planes wanting to take off 2.15 per time unit

Tämä tapaus täyttää yhdenpisteen tehtävän annon. Joutokäynti aste on 1.6% eli alle 5%. Yhtään konetta ei käännytetty, kaikki koneet pääsivät laskeutumaan. Toisaalta vain yksi kone pääsi lähtemään lentokentältä. Voi olla täyttä. Ohjelma selkeästi priorisoi saapuvia koneita lähtevien yli.

Jonon koko 10.

Aikayksikköä 60.

Saapuvat: 1

Lähtevät: 2

Simulation has concluded after 60 time units.

Total number of planes processed 194

Total number of planes asking to land 65

Total number of planes asking to take off 129

Total number of planes accepted for landing 65

Total number of planes accepted for takeoff 11

Total number of planes refused for landing 0

Total number of planes refused for takeoff 118

Total number of planes that landed 58

Total number of planes that took off 1

Total number of planes left in landing queue 7

Total number of planes left in takeoff queue 10

Percentage of time runway idle 1.66667%

Average wait in landing queue 3.05172 time units

Average wait in takeoff queue 28 time units

Average observed rate of planes wanting to land 1.08333 per time unit

Average observed rate of planes wanting to take off 2.15 per time unit

Jonon koko 40.

Aikayksikköä 60.

Saapuvat: 1

Lähtevät: 2

Simulation has concluded after 60 time units.

Total number of planes processed 194

Total number of planes asking to land 65

Total number of planes asking to take off 129

Total number of planes accepted for landing 65

Total number of planes accepted for takeoff 41

Total number of planes refused for landing 0

Total number of planes refused for takeoff 88

Total number of planes that landed 58

Total number of planes that took off 1

Total number of planes left in landing queue 7

Total number of planes left in takeoff queue 40

Percentage of time runway idle 1.66667%

Average wait in landing queue 3.05172 time units

Average wait in takeoff queue 28 time units

Average observed rate of planes wanting to land 1.08333 per time unit

Average observed rate of planes wanting to take off 2.15 per time unit

Pienemmällä tai suuremmalla jonon koolla ei ollut väliä näissä skenaarioissa.

**KAHDEN PISTEEN TEHTÄVÄ**

Kaksi kiitorataa

Jonon koko 20.

Aikayksikköä 60.

Saapuvat: 1

Lähtevät: 2

* Runway number 1.Simulation has concluded after 60 time units.
* Total number of planes processed 65
* Total number of planes asking to land 65
* Total number of planes asking to take off 0
* Total number of planes accepted for landing 65
* Total number of planes accepted for takeoff 0
* Total number of planes refused for landing 0
* Total number of planes refused for takeoff 0
* Total number of planes that landed 58
* Total number of planes that took off 0
* Total number of planes left in landing queue 7
* Total number of planes left in takeoff queue 0
* Percentage of time runway idle 3.33333%
* Average wait in landing queue 3.05172 time units
* Average wait in takeoff queue -nan(ind) time units
* Average observed rate of planes wanting to land 1.08333 per time unit
* Average observed rate of planes wanting to take off 0 per time unit
* Runway number 2.Simulation has concluded after 60 time units.
* Total number of planes processed 129
* Total number of planes asking to land 0
* Total number of planes asking to take off 129
* Total number of planes accepted for landing 0
* Total number of planes accepted for takeoff 78
* Total number of planes refused for landing 0
* Total number of planes refused for takeoff 51
* Total number of planes that landed 0
* Total number of planes that took off 59
* Total number of planes left in landing queue 0
* Total number of planes left in takeoff queue 19
* Percentage of time runway idle 1.66667%
* Average wait in landing queue -nan(ind) time units
* Average wait in takeoff queue 12.1017 time units
* Average observed rate of planes wanting to land 0 per time unit
* Average observed rate of planes wanting to take off 2.15 per time unit

Saapuvista melkein kaikki pääsee laskeutumaan, lähtevät pääsivät kans lähtemään. Sanoisin että lentokentän tehokkuus nousi exponentiaalisesti, enemmän kuin kaksin kerroin.

Tehdään ajot samoilla jonopitkuuksilla kuin yhden pisteen työssä ja kokeillaan vaikutusta.

Jonon koko 10.

Aikayksikköä 60.

Saapuvat: 1

Lähtevät: 2

* Runway number 1.Simulation has concluded after 60 time units.
* Total number of planes processed 65
* Total number of planes asking to land 65
* Total number of planes asking to take off 0
* Total number of planes accepted for landing 65
* Total number of planes accepted for takeoff 0
* Total number of planes refused for landing 0
* Total number of planes refused for takeoff 0
* Total number of planes that landed 58
* Total number of planes that took off 0
* Total number of planes left in landing queue 7
* Total number of planes left in takeoff queue 0
* Percentage of time runway idle 3.33333%
* Average wait in landing queue 3.05172 time units
* Average wait in takeoff queue -nan(ind) time units
* Average observed rate of planes wanting to land 1.08333 per time unit
* Average observed rate of planes wanting to take off 0 per time unit
* Runway number 2.Simulation has concluded after 60 time units.
* Total number of planes processed 129
* Total number of planes asking to land 0
* Total number of planes asking to take off 129
* Total number of planes accepted for landing 0
* Total number of planes accepted for takeoff 68
* Total number of planes refused for landing 0
* Total number of planes refused for takeoff 61
* Total number of planes that landed 0
* Total number of planes that took off 59
* Total number of planes left in landing queue 0
* Total number of planes left in takeoff queue 9
* Percentage of time runway idle 1.66667%
* Average wait in landing queue -nan(ind) time units
* Average wait in takeoff queue 7.27119 time units
* Average observed rate of planes wanting to land 0 per time unit
* Average observed rate of planes wanting to take off 2.15 per time unit
* Jonon koko 40.
* Aikayksikköä 60.
* Saapuvat: 1
* Lähtevät: 2
* Total number of planes processed 65
* Total number of planes asking to land 65
* Total number of planes asking to take off 0
* Total number of planes accepted for landing 65
* Total number of planes accepted for takeoff 0
* Total number of planes refused for landing 0
* Total number of planes refused for takeoff 0
* Total number of planes that landed 58
* Total number of planes that took off 0
* Total number of planes left in landing queue 7
* Total number of planes left in takeoff queue 0
* Percentage of time runway idle 3.33333%
* Average wait in landing queue 3.05172 time units
* Average wait in takeoff queue -nan(ind) time units
* Average observed rate of planes wanting to land 1.08333 per time unit
* Average observed rate of planes wanting to take off 0 per time unit
* Runway number 2.Simulation has concluded after 60 time units.
* Total number of planes processed 129
* Total number of planes asking to land 0
* Total number of planes asking to take off 129
* Total number of planes accepted for landing 0
* Total number of planes accepted for takeoff 98
* Total number of planes refused for landing 0
* Total number of planes refused for takeoff 31
* Total number of planes that landed 0
* Total number of planes that took off 59
* Total number of planes left in landing queue 0
* Total number of planes left in takeoff queue 39
* Percentage of time runway idle 1.66667%
* Average wait in landing queue -nan(ind) time units
* Average wait in takeoff queue 14.1864 time units
* Average observed rate of planes wanting to land 0 per time unit
* Average observed rate of planes wanting to take off 2.15 per time unit

Simulaation ei juurikaan vaikuta jonon koko, jonotus ajat ovat pienempiä pienemmällä jonolla.