**PART 1.1**

**Flowchart**diyagram içeren bir resim

Açıklama otomatik olarak oluşturuldu

**Pseudo Code**

**BEGIN**

**//** Event object has properties as time, type, owner id

nurses **=** 4

beds **=** 6

p\_1 **=** 0.25

termination\_limit // maximum number of healed people that stops simulation

**//** generating arrival times

arrivals[1] = 0

**FOR** i=2 **TO** arrivals.size

arrivals[i] = arrivals[i-1] + exp(1)

**END FOR**

**FOR** starting\_condition **IN** (empty, half, full)

futureEventList // sorts events according to their times in ascending order

waitingQueue // objects in waiting queue has properties entrance time and id

simulation\_time **=** 0

event\_type **=** 'A'

pid **=** 1

healed\_patients **=** 0

**IF** starting\_condition == empty

busy\_nurses = initially\_busy\_nurses **=** 0

occupied\_beds = initially\_occupied\_beds = 0

already\_in\_hospital **=** 0

**ELSEIF** starting\_condition == half

busy\_nurses = initially\_busy\_nurses **=** nurses/2

occupied\_beds = initially\_occupied\_beds = beds/2

already\_in\_hospital **=** nurses/2 + beds/2

**ELSEIF** starting\_condition == full

busy\_nurse = initially\_busy\_nurses **=** nurses

occupied\_beds = initially\_occupied\_beds = beds

already\_in\_hospital **=** nurses + beds

**FOR** i=0 **TO** busy\_nurses

futureEventList.push(Event(exp(1**/**0.3125), 'DN', pid))

pid **++**

**END FOR**

**FOR** i=0 **TO** occupied\_beds

futureEventList.push(Event(exp(1**/**0.1666666667), 'DB', pid))

pid **++**

**END FOR**

**WHILE** healed\_patients **<** termination\_limit

**IF** event\_type **==** 'A'

futureEventList**.**push(Event(arrivals[pid**-**already\_in\_hospital**+**1], 'A', pid**+**1))

**IF** busy\_nurses **<** nurses

futureEventList**.**push(Event(simulation\_time **+** exp(1**/**0.3125), 'DN', pid))

busy\_nurses **++**

**ELSE**

waitingQueue**.**put((simulation\_time, pid))

**ELSEIF** event\_type **==** 'DN'

**IF** Uniform(0, 1) <= p\_1 //stable

futureEventList**.**push(Event(simulation\_time **+** exp(1**/**0.16), 'H', pid))

**ELSE** // critical

**IF** occupied\_beds **<** beds

futureEventList**.**push(Event(simulation\_time **+** exp(1**/**0.1666666667),'DB', pid))

occupied\_beds **++**

**ELSE**

futureEventList**.**push(Event(simulation\_time **+** exp(Uniform(1.25, 1.75)**/** 0.1666666667),'H', pid))

**IF** waitingQueue**.**empty()

busy\_nurses **--**

**ELSE**

waitingPatient = waitingQueue**.**pop()

futureEventList**.**push(Event(simulation\_time **+** exp(1**/**0.3125), 'DN', waitingPatient.id))

**ELSEIF** event\_type **==** 'DB'

occupied\_beds **--**

healed\_patients **++**

**ELSEIF** event\_type **==** 'H'

healed\_patients **++**

simulation\_time, event\_type, pid **=** futureEventList**.**pop()

**ENF FOR**

**END**