[CORRECTED 10/27] **A4 Worksheet for calculating PriorityValues for each customer**

`name,employeeStatus,vipStatus,loyaltyCard,haveChild,age <CR><LF>`

where
- name — will always be present (and may have embedded space(s))
- employeeStatus — may be empty OR say `employee` OR `owner`
- vipStatus — may be empty OR say `vip` OR `superVip`
- loyaltyCard — may be empty OR say `loyalty`
- haveChild — may be empty OR say `child`
- age — will always be present (and be a positive integer)

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- **nextInLine** number given out, starting with 101 → **initialPriorityValue**
  - Initialize nextInLine counter with constant START_VALUE = **101**.
  - NOTE: use the SAME " nextNumberGenerator" for BOTH
    - initial store opening (handling customers in LineAt6am file)
    - AND for each new customer arriving later (in CustomerEvents file)

  [i.e., do NOT RE-SET counter for new people in Events file – just keep incrementing]
- **points SUBTRACTED** from initialPriorityValue using these rules → **actualPriorityValue**
  - employee → 10 points
  - owner → 50 points *(yes, owner gets OWNER points PLUS EMPLOYEE points)*
  - VIP card → 5 points
  - super VIP card → 8 points *(yes, super VIP gets BOTH VIP points PLUS SUPER VIP points)*
  - loyalty card → 4 points
  - brought 1+ child along → 2 points
  - senior status (age >= 65) → 5 points
  - elderly status (age >= 80) → 5 points *(yes, 80+ year old people get BOTH the SENIOR & ELDERLY points)*

Data from LineAt6Am.csv	**Initial PV**	**Actual PV**
Mary Smith,,vip,,,80	101	
John Doe,,,,child,25	102	
Maria Garcia,employee,,,,64	103	
Rajesh Patel,,superVip,,,57	104	
Malia AlFaleh,,,,,30	105	
Li Sung,,,loyalty,child,42	106	
Jamal Brown,,,loyalty,,50	107	
Latisha Ford,,,,,18	108	
Su Chan,,,,child,25	109	
Bob O'Leary,owner,superVip,loyalty,,40	110	
Aziz Gupta,,superVIP,,,81	111	
Roman Zwykowicz,employee,vip,,,25	112	
Roberto Miguel Rodriguez,,,,child,20	113	
Josh Miller,,,,,82	114	
Rosie O'Brien,owner,,,,65	115	
Stan Anderson,employee,vip,,,68	116	
Bob O'Leary Sr.,owner,,,,80	117	
Lynn VanderCook,,,loyalty,,66	118	
Mohsin Waleed,,,,child,20	119	
Abdalla AlSaid,,,,,25	120	
Ling Yin,,vip,loyalty,,65	121	
Jim O'Leary sr.,owner,superVip,,,90	122	
CustomerEvents.csv – just the new arrivals	**Initial PV**	**Actual PV**
Lottie Zipnowski-O'Leary,owner,vip,loyalty,,41	123	
Jack Larson,,superVip,,child,25	124	
Fallah Ola,employee,superVip,,,65	125	
Jun Sung,,,loyalty,child,35	126	
Anushka T. Walloon,,,loyalty,,85	127	
Betsy Oz,employee,superVip,loyalty,,55	128	
Jim Oz,employee,superVip,loyalty,,54	129	
Mrs. VanDooran,,superVip,loyalty,,85	130	

RULE FOR TIES (on priorityValue)

- *During walkup: if parent = child then do NOT swap*
- *During walkDown, if parent = child then DO swap*
  AND when swapping, if leftChild = rightChild then swap with leftChild

1 – For 1st 10 customers, grow heap (using repeated inserts) from LineAt6Am (i.e., StoreOpens event) as BOTH a TREE picture AND as an ARRAY (keeping track of N).

2 –Once you're sure you know how the ARRAY version works (since that's what's actually happening in your program), continue to grow the heap as a TREE for the rest of the LineAt6Am customers.

3 - When done, show the completed heap as an ARRAY, including N (which should be 22).

4 – For the 1st 6 events in CustomerEvents, CustomerServed, do 6 deletes from heap, BOTH as a TREE picture AND as an ARRAY (keeping track of N) – and keeping a list of the customers served. (Make sure you know how the ARRAY version works, since that's what's actually happening in your program).

CustomerServed
CustomerServed
CustomerServed
CustomerServed
CustomerServed
CustomerServed

5 – Continue with the rest of the CustomerEvents, deleting/inserting from heap as a TREE picture (8 more deletes, 2 inserts, 3 deletes, 6 inserts, 3 deletes). Keep a list of the customers served and added to the PQ.

CustomerServed
CustomerServed
CustomerServed
CustomerServed
CustomerServed
CustomerServed
CustomerServed
CustomerServed
CustomerArrives: Lottie Zipnowski-O'Leary,owner,vip,loyalty,,41
CustomerArrives: Jack Larson,,superVip,,child,25
CustomerServed
CustomerServed
CustomerServed
CustomerArrives: Fallah Ola,employee,superVip,,,65
CustomerArrives: Jun Sung,,,loyalty,child,35
CustomerArrives: Anushka T. Walloon,,,loyalty,,85
CustomerArrives: Betsy Oz,employee,superVip,loyalty,,55
CustomerArrives: Jim Oz,employee,superVip,loyalty,,54
CustomerArrives: Mrs. VanDooran,,superVip,loyalty,,85
CustomerServed
CustomerServed
CustomerServed

6 - When done, show completed heap as an ARRAY, including N (which should NOW be:

22 – 6 – 8 + 2 – 3 + 6 – 3 = 10).

7 – Show what happens at StoreCloses event – i.e., empty out the heap using repeated deletes. Keep a list of the customers served.