Erwin Seguinte

November 28, 2015

CSC 130

Assignment 4 - A Simple Simulator for Priority Based CPU Scheduling

The property of a min heap is that the parent must always be smaller than its children. In the first array this rule is followed making the array not perfectly in order just following the heap property. In the final array we get a sorted array because remove always removed the smallest nice value in the array which was always the root. When this value is added to the second array we get a sorted array that still follows the binary heap property. The second page contains the printouts for the starting array and the final array.

Initial Heap:

Idx: 1 Nice = 0 : PID = 79  
Idx: 2 Nice = 1 : PID = 24  
Idx: 3 Nice = 1 : PID = 52  
Idx: 4 Nice = 1 : PID = 74  
Idx: 5 Nice = 3 : PID = 95  
Idx: 6 Nice = 3 : PID = 100  
Idx: 7 Nice = 3 : PID = 59  
Idx: 8 Nice = 9 : PID = 18  
Idx: 9 Nice = 6 : PID = 77  
Idx: 10 Nice = 11 : PID = 81  
Idx: 11 Nice = 8 : PID = 87  
Idx: 12 Nice = 4 : PID = 13  
Idx: 13 Nice = 8 : PID = 7  
Idx: 14 Nice = 8 : PID = 28  
Idx: 15 Nice = 18 : PID = 31  
Idx: 16 Nice = 13 : PID = 65  
Idx: 17 Nice = 9 : PID = 70  
Idx: 18 Nice = 10 : PID = 8  
Idx: 19 Nice = 7 : PID = 19  
Idx: 20 Nice = 18 : PID = 41  
Idx: 21 Nice = 13 : PID = 47  
Idx: 22 Nice = 15 : PID = 22  
Idx: 23 Nice = 8 : PID = 94  
Idx: 24 Nice = 12 : PID = 1  
Idx: 25 Nice = 9 : PID = 48  
Idx: 26 Nice = 16 : PID = 12  
Idx: 27 Nice = 19 : PID = 27  
Idx: 28 Nice = 24 : PID = 56  
Idx: 29 Nice = 17 : PID = 58  
Idx: 30 Nice = 24 : PID = 60  
Idx: 31 Nice = 19 : PID = 63  
Idx: 32 Nice = 21 : PID = 32  
Idx: 33 Nice = 22 : PID = 67  
Idx: 34 Nice = 24 : PID = 35  
Idx: 35 Nice = 10 : PID = 71  
Idx: 36 Nice = 22 : PID = 37  
Idx: 37 Nice = 10 : PID = 75  
Idx: 38 Nice = 13 : PID = 38  
Idx: 39 Nice = 7 : PID = 33  
Idx: 40 Nice = 23 : PID = 20  
Idx: 41 Nice = 21 : PID = 83  
Idx: 42 Nice = 24 : PID = 21  
Idx: 43 Nice = 13 : PID = 84  
Idx: 44 Nice = 23 : PID = 88  
Idx: 45 Nice = 22 : PID = 89  
Idx: 46 Nice = 24 : PID = 92  
Idx: 47 Nice = 12 : PID = 90  
Idx: 48 Nice = 17 : PID = 96  
Idx: 49 Nice = 14 : PID = 49  
Idx: 50 Nice = 19 : PID = 51  
Idx: 51 Nice = 22 : PID = 50  
Idx: 52 Nice = 29 : PID = 26  
Idx: 53 Nice = 27 : PID = 53  
Idx: 54 Nice = 35 : PID = 54  
Idx: 55 Nice = 37 : PID = 55  
Idx: 56 Nice = 33 : PID = 14  
Idx: 57 Nice = 29 : PID = 57  
Idx: 58 Nice = 21 : PID = 3  
Idx: 59 Nice = 20 : PID = 29  
Idx: 60 Nice = 38 : PID = 15  
Idx: 61 Nice = 29 : PID = 61  
Idx: 62 Nice = 30 : PID = 30  
Idx: 63 Nice = 23 : PID = 62  
Idx: 64 Nice = 36 : PID = 16  
Idx: 65 Nice = 33 : PID = 64  
Idx: 66 Nice = 39 : PID = 66  
Idx: 67 Nice = 30 : PID = 17  
Idx: 68 Nice = 33 : PID = 4  
Idx: 69 Nice = 25 : PID = 69  
Idx: 70 Nice = 32 : PID = 34  
Idx: 71 Nice = 19 : PID = 68  
Idx: 72 Nice = 37 : PID = 9  
Idx: 73 Nice = 35 : PID = 73  
Idx: 74 Nice = 30 : PID = 36  
Idx: 75 Nice = 21 : PID = 72  
Idx: 76 Nice = 31 : PID = 76  
Idx: 77 Nice = 25 : PID = 2  
Idx: 78 Nice = 23 : PID = 78  
Idx: 79 Nice = 14 : PID = 39  
Idx: 80 Nice = 28 : PID = 40  
Idx: 81 Nice = 24 : PID = 80  
Idx: 82 Nice = 28 : PID = 82  
Idx: 83 Nice = 26 : PID = 5  
Idx: 84 Nice = 37 : PID = 42  
Idx: 85 Nice = 39 : PID = 85  
Idx: 86 Nice = 35 : PID = 43  
Idx: 87 Nice = 20 : PID = 86  
Idx: 88 Nice = 26 : PID = 44  
Idx: 89 Nice = 24 : PID = 11  
Idx: 90 Nice = 37 : PID = 45  
Idx: 91 Nice = 26 : PID = 91  
Idx: 92 Nice = 33 : PID = 46  
Idx: 93 Nice = 32 : PID = 93  
Idx: 94 Nice = 33 : PID = 23  
Idx: 95 Nice = 20 : PID = 10  
Idx: 96 Nice = 27 : PID = 6  
Idx: 97 Nice = 17 : PID = 97  
Idx: 98 Nice = 33 : PID = 98  
Idx: 99 Nice = 21 : PID = 99  
Idx: 100 Nice = 35 : PID = 25

Final Array:

Idx: 1 Nice = 0 : PID = 79  
Idx: 2 Nice = 1 : PID = 24  
Idx: 3 Nice = 1 : PID = 74  
Idx: 4 Nice = 1 : PID = 52  
Idx: 5 Nice = 3 : PID = 95  
Idx: 6 Nice = 3 : PID = 100  
Idx: 7 Nice = 3 : PID = 59  
Idx: 8 Nice = 4 : PID = 13  
Idx: 9 Nice = 6 : PID = 77  
Idx: 10 Nice = 7 : PID = 19  
Idx: 11 Nice = 7 : PID = 33  
Idx: 12 Nice = 8 : PID = 87  
Idx: 13 Nice = 8 : PID = 94  
Idx: 14 Nice = 8 : PID = 7  
Idx: 15 Nice = 8 : PID = 28  
Idx: 16 Nice = 9 : PID = 18  
Idx: 17 Nice = 9 : PID = 70  
Idx: 18 Nice = 9 : PID = 48  
Idx: 19 Nice = 10 : PID = 71  
Idx: 20 Nice = 10 : PID = 8  
Idx: 21 Nice = 10 : PID = 75  
Idx: 22 Nice = 11 : PID = 81  
Idx: 23 Nice = 12 : PID = 90  
Idx: 24 Nice = 12 : PID = 1  
Idx: 25 Nice = 13 : PID = 65  
Idx: 26 Nice = 13 : PID = 38  
Idx: 27 Nice = 13 : PID = 47  
Idx: 28 Nice = 13 : PID = 84  
Idx: 29 Nice = 14 : PID = 39  
Idx: 30 Nice = 14 : PID = 49  
Idx: 31 Nice = 15 : PID = 22  
Idx: 32 Nice = 16 : PID = 12  
Idx: 33 Nice = 17 : PID = 97  
Idx: 34 Nice = 17 : PID = 96  
Idx: 35 Nice = 17 : PID = 97  
Idx: 36 Nice = 17 : PID = 58  
Idx: 37 Nice = 18 : PID = 41  
Idx: 38 Nice = 18 : PID = 31  
Idx: 39 Nice = 19 : PID = 68  
Idx: 40 Nice = 19 : PID = 51  
Idx: 41 Nice = 19 : PID = 27  
Idx: 42 Nice = 19 : PID = 63  
Idx: 43 Nice = 20 : PID = 86  
Idx: 44 Nice = 20 : PID = 10  
Idx: 45 Nice = 20 : PID = 29  
Idx: 46 Nice = 21 : PID = 32  
Idx: 47 Nice = 21 : PID = 72  
Idx: 48 Nice = 21 : PID = 83  
Idx: 49 Nice = 21 : PID = 99  
Idx: 50 Nice = 21 : PID = 99  
Idx: 51 Nice = 21 : PID = 99  
Idx: 52 Nice = 21 : PID = 3  
Idx: 53 Nice = 22 : PID = 67  
Idx: 54 Nice = 22 : PID = 37  
Idx: 55 Nice = 22 : PID = 89  
Idx: 56 Nice = 22 : PID = 50  
Idx: 57 Nice = 23 : PID = 78  
Idx: 58 Nice = 23 : PID = 20  
Idx: 59 Nice = 23 : PID = 88  
Idx: 60 Nice = 23 : PID = 62  
Idx: 61 Nice = 24 : PID = 35  
Idx: 62 Nice = 24 : PID = 11  
Idx: 63 Nice = 24 : PID = 80  
Idx: 64 Nice = 24 : PID = 21  
Idx: 65 Nice = 24 : PID = 80  
Idx: 66 Nice = 24 : PID = 11  
Idx: 67 Nice = 24 : PID = 80  
Idx: 68 Nice = 24 : PID = 92  
Idx: 69 Nice = 24 : PID = 56  
Idx: 70 Nice = 24 : PID = 60  
Idx: 71 Nice = 25 : PID = 69  
Idx: 72 Nice = 25 : PID = 2  
Idx: 73 Nice = 26 : PID = 91  
Idx: 74 Nice = 26 : PID = 5  
Idx: 75 Nice = 26 : PID = 5  
Idx: 76 Nice = 26 : PID = 44  
Idx: 77 Nice = 26 : PID = 44  
Idx: 78 Nice = 26 : PID = 91  
Idx: 79 Nice = 26 : PID = 91  
Idx: 80 Nice = 26 : PID = 5  
Idx: 81 Nice = 26 : PID = 44  
Idx: 82 Nice = 27 : PID = 6  
Idx: 83 Nice = 27 : PID = 6  
Idx: 84 Nice = 27 : PID = 6  
Idx: 85 Nice = 27 : PID = 53  
Idx: 86 Nice = 27 : PID = 6  
Idx: 87 Nice = 28 : PID = 82  
Idx: 88 Nice = 28 : PID = 40  
Idx: 89 Nice = 28 : PID = 82  
Idx: 90 Nice = 28 : PID = 40  
Idx: 91 Nice = 28 : PID = 82  
Idx: 92 Nice = 28 : PID = 82  
Idx: 93 Nice = 28 : PID = 40  
Idx: 94 Nice = 28 : PID = 82  
Idx: 95 Nice = 28 : PID = 82  
Idx: 96 Nice = 28 : PID = 40  
Idx: 97 Nice = 28 : PID = 40  
Idx: 98 Nice = 29 : PID = 61  
Idx: 99 Nice = 29 : PID = 61  
Idx: 100 Nice = 29 : PID = 26