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# CISC3130 Assignment #4 output  M. Lowenthal
# Robert Wagner
# 03/25/2016
robert@C720:~/courses/CISC3130/04-trees$ g++ -std=c++11 trees.cpp -Wall -Werror -o trees
robert@C720:~/courses/CISC3130/04-trees$ ./trees input.txt
(Set #1) Initial state:
(Set #1) InOrder:   {1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20}
(Set #1) PreOrder:  {1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20}
(Set #1) PostOrder: {20, 19, 18, 17, 16, 15, 14, 13, 12, 11, 10, 9, 8, 7, 6, 5, 4, 3, 2, 1}
(Set #1) Tree Size: 20
(Set #1) Preorder w/ Children:  {1[1], 2[1], 3[1], 4[1], 5[1], 6[1], 7[1], 8[1], 9[1], 10[1], 11[1],
12[1], 13[1], 14[1], 15[1], 16[1], 17[1], 18[1], 19[1], 20[0]}

(Set #1) After 4 operations:
(Set #1) InOrder:   {0, 2, 3, 4, 5, 6, 7, 8, 9, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21}
(Set #1) PreOrder:  {2, 0, 3, 4, 5, 6, 7, 8, 9, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21}
(Set #1) PostOrder: {0, 21, 20, 19, 18, 17, 16, 15, 14, 13, 12, 11, 9, 8, 7, 6, 5, 4, 3, 2}
(Set #1) Tree Size: 20
(Set #1) Preorder w/ Children:  {2[2], 0[0], 3[1], 4[1], 5[1], 6[1], 7[1], 8[1], 9[1], 11[1], 12[1],
13[1], 14[1], 15[1], 16[1], 17[1], 18[1], 19[1], 20[1], 21[0]}

(Set #1) After 4 operations:
(Set #1) InOrder:   {0, 3, 4, 6, 7, 8, 9, 10, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21}
(Set #1) PreOrder:  {3, 0, 4, 6, 7, 8, 9, 12, 10, 13, 14, 15, 16, 17, 18, 19, 20, 21}
(Set #1) PostOrder: {0, 10, 21, 20, 19, 18, 17, 16, 15, 14, 13, 12, 9, 8, 7, 6, 4, 3}
(Set #1) Tree Size: 18
(Set #1) Preorder w/ Children:  {3[2], 0[0], 4[1], 6[1], 7[1], 8[1], 9[1], 12[2], 10[0], 13[1],
14[1], 15[1], 16[1], 17[1], 18[1], 19[1], 20[1], 21[0]}

(Set #1) No further operations performed.

(Set #2) Initial state:
(Set #2) InOrder:   {1, 3, 5}
(Set #2) PreOrder:  {3, 1, 5}
(Set #2) PostOrder: {1, 5, 3}
(Set #2) Tree Size: 3
(Set #2) Preorder w/ Children:  {3[2], 1[0], 5[0]}

(Set #2) After 2 operations:
(Set #2) InOrder:   {5}
(Set #2) PreOrder:  {5}
(Set #2) PostOrder: {5}
(Set #2) Tree Size: 1
(Set #2) Preorder w/ Children:  {5[0]}

(Set #2) No further operations performed.

(Set #3) Initial state:
(Set #3) InOrder:   {}
(Set #3) PreOrder:  {}
(Set #3) PostOrder: {}
(Set #3) Tree Size: 0
(Set #3) Preorder w/ Children:  {}

(Set #3) After 5 operations:
(Set #3) InOrder:   {5, 10, 20, 30}
(Set #3) PreOrder:  {30, 5, 10, 20}
(Set #3) PostOrder: {20, 10, 5, 30}
(Set #3) Tree Size: 4
(Set #3) Preorder w/ Children:  {30[1], 5[1], 10[1], 20[0]}

(Set #3) After 5 operations:
(Set #3) InOrder:   {}
(Set #3) PreOrder:  {}
(Set #3) PostOrder: {}
(Set #3) Tree Size: 0
(Set #3) Preorder w/ Children:  {}

(Set #3) No further operations performed.
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(Set #4) Initial state:
(Set #4) InOrder:   {2}
(Set #4) PreOrder:  {2}
(Set #4) PostOrder: {2}
(Set #4) Tree Size: 1
(Set #4) Preorder w/ Children:  {2[0]}

(Set #4) After 1 operations:
(Set #4) InOrder:   {}
(Set #4) PreOrder:  {}
(Set #4) PostOrder: {}
(Set #4) Tree Size: 0
(Set #4) Preorder w/ Children:  {}

(Set #4) No further operations performed.

(Set #5) Initial state:
(Set #5) InOrder:   {8, 11, 12, 15, 25, 32, 37, 45, 50, 60, 67, 75, 90, 95, 97}
(Set #5) PreOrder:  {11, 8, 25, 12, 15, 75, 37, 32, 60, 45, 50, 67, 90, 97, 95}
(Set #5) PostOrder: {8, 15, 12, 32, 50, 45, 67, 60, 37, 95, 97, 90, 75, 25, 11}
(Set #5) Tree Size: 15
(Set #5) Preorder w/ Children:  {11[2], 8[0], 25[2], 12[1], 15[0], 75[2], 37[2], 32[0], 60[2],
45[1], 50[0], 67[0], 90[1], 97[1], 95[0]}

(Set #5) After 4 operations:
(Set #5) InOrder:   {8, 11, 12, 25, 32, 40, 45, 50, 60, 67, 75, 90, 95, 97, 99}
(Set #5) PreOrder:  {11, 8, 25, 12, 75, 45, 32, 40, 60, 50, 67, 90, 97, 95, 99}
(Set #5) PostOrder: {8, 12, 40, 32, 50, 67, 60, 45, 95, 99, 97, 90, 75, 25, 11}
(Set #5) Tree Size: 15
(Set #5) Preorder w/ Children:  {11[2], 8[0], 25[2], 12[0], 75[2], 45[2], 32[1], 40[0], 60[2],
50[0], 67[0], 90[1], 97[2], 95[0], 99[0]}

(Set #5) No further operations performed.

(Set #6) Initial state:
(Set #6) InOrder:   {10, 20, 30, 40, 50, 60, 70, 80, 90}
(Set #6) PreOrder:  {50, 40, 30, 20, 10, 60, 70, 80, 90}
(Set #6) PostOrder: {10, 20, 30, 40, 90, 80, 70, 60, 50}
(Set #6) Tree Size: 9
(Set #6) Preorder w/ Children:  {50[2], 40[1], 30[1], 20[1], 10[0], 60[1], 70[1], 80[1], 90[0]}

(Set #6) No further operations performed.

(Set #7) Initial state:
(Set #7) InOrder:   {10, 20, 30, 40, 50}
(Set #7) PreOrder:  {30, 20, 10, 40, 50}
(Set #7) PostOrder: {10, 20, 50, 40, 30}
(Set #7) Tree Size: 5
(Set #7) Preorder w/ Children:  {30[2], 20[1], 10[0], 40[1], 50[0]}

(Set #7) No further operations performed.

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