

The function `BinQueue_Insert` is to insert `X` into a binomial queue `H`, and return `H` as the result.

```
BinQueue BinQueue_Insert( ElementType X, BinQueue H )
{
    BinTree Carry;
    int i;

    H->CurrentSize++;
    Carry = malloc( sizeof( struct BinNode ) );
    Carry->Element = X;
    Carry->LeftChild = Carry->NextSibling = NULL;

    i = 0;
    while ( H->TheTrees[i] ) {
        Carry = CombineTrees( Carry, H->TheTrees[i] ); //combine two equal-sized trees
        H->TheTrees[i++] = NULL;
    }
    H->TheTrees[i]=Carry;
    return H;
}
```

答案正确: 2 分

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To implement a binomial queue, the subtrees of a binomial tree are linked in increasing sizes.

☐ T ☒ F

答案正确: 1 分

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For a binomial queue, delete-min takes a constant time on average.

F

Inserting a number into a binomial heap with 15 nodes costs less time than inserting a number into a binomial heap with 19 nodes.

F

Making  $N$  insertions into an initially empty binomial queue takes  $O(N)$  time in the worst case.

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答案正确: 1 分

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For a binomial queue, merging takes a constant time on average.

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答案正确: 1 分

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