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## Smart Contract of Adding Transaction Sparse Merkle Tree

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```
function verifyTransaction(uint position, string memory trans) public view returns (bool) {
    bytes32 hash = sha256(abi.encodePacked(trans));
    uint256 size = count;

    uint256 x1=1;
    uint256 t1=0;
    while(x1<size){
        x1=x1*2;
        t1++;
    }
    t1++;
    uint256 levels=t1;

    uint i = 2;
    while (i <= levels) {
        uint256 prevSz = hashes[i - 1].length;
        uint256 prevPos = position;
        if (prevPos % 2 == 0){
            bytes32 h1 = hashes[i - 1][prevPos - 2];
            bytes32 h2 = hash;
            hash = sha256(abi.encodePacked(h1, h2));
            position = prevPos / 2;
        }
        else
        {
            if (prevPos == prevSz)
                position = (prevPos / 2) + 1;
            else
            {
                bytes32 h1 = hash;
                bytes32 h2 = hashes[i - 1][prevPos];
                hash = sha256(abi.encodePacked(h1, h2));
                position = (prevPos + 1) / 2;
            }
        }
        i++;
    }
    if (hash == root)
        return true;
    return false;
}
```

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