

```

1  pragma solidity =0.5.16;
2
3  import './interfaces/IUniswapV2Factory.sol';
4  import './UniswapV2Pair.sol';
5
6  contract UniswapV2Factory is IUniswapV2Factory {
7      address public feeTo;
8      address public feeToSetter;
9
10     mapping(address => mapping(address => address)) public getPair;
11     address[] public allPairs;
12
13     event PairCreated(address indexed token0, address indexed token1, address pair,
        uint);
14
15     constructor(address _feeToSetter) public {
16         feeToSetter = _feeToSetter;
17     }
18
19     function allPairsLength() external view returns (uint) {
20         return allPairs.length;
21     }
22
23     function createPair(address tokenA, address tokenB) external returns (address
        pair) {
24         require(tokenA != tokenB, 'UniswapV2: IDENTICAL_ADDRESSES');
25         (address token0, address token1) = tokenA < tokenB ? (tokenA, tokenB) :
            (tokenB, tokenA);
26         require(token0 != address(0), 'UniswapV2: ZERO_ADDRESS');
27         require(getPair[token0][token1] == address(0), 'UniswapV2: PAIR_EXISTS'); //
            single check is sufficient
28         bytes memory bytecode = type(UniswapV2Pair).creationCode;
29         bytes32 salt = keccak256(abi.encodePacked(token0, token1));
30         assembly {
31             pair := create2(0, add(bytecode, 32), mload(bytecode), salt)
32         }
33         IUniswapV2Pair(pair).initialize(token0, token1);
34         getPair[token0][token1] = pair;
35         getPair[token1][token0] = pair; // populate mapping in the reverse direction
36         allPairs.push(pair);
37         emit PairCreated(token0, token1, pair, allPairs.length);
38     }
39
40     function setFeeTo(address _feeTo) external {
41         require(msg.sender == feeToSetter, 'UniswapV2: FORBIDDEN');
42         feeTo = _feeTo;
43     }
44
45     function setFeeToSetter(address _feeToSetter) external {
46         require(msg.sender == feeToSetter, 'UniswapV2: FORBIDDEN');
47         feeToSetter = _feeToSetter;
48     }
49 }
50

```