NFT NYC

# Reduce NFT gas cost with these 10 Solidity tricks

FrankNFT.eth

# DON’T use ERC721Enumerable

Use: https://github.com/FrankNFT-labs/ERC721F 

# State Variables

```
uint256 bar;

function foo(uint256 someNum) external {
    someMapping[bar] = someNum;
    someArray[bar] = someNum;
}
```

```
uint256 bar;

function foo(uint256 someNum) external {
    uint256 tempBar = bar; // tempBar is in memory and cheaper to read from
    someMapping[tempBar] = someNum;
    someArray[tempBar] = someNum;
}
```

# Cache your array length

```
for (uint i = 0; i < arr.length; i++) {
    // do something that doesn't change arr.length
}
```

```
uint length = arr.length;
for (uint i = 0; i < length; i++) {
    // do something that doesn't change arr.length
}
```

# More For Loops

```
uint length = arr.length;
for (uint i = 0; i < length; i++) {
    // do something that doesn't change arr.length
}
```

```
uint length = arr.length;
for (uint256 i = 0; i < length; ) {
    // do something that doesn't change the value of i and arr.length
    unchecked {
        i++;
    }
}
```

# Calldata

```
function add(uint[] memory arr) external returns (uint sum) {
    uint length = arr.length;
    for (uint i = 0; i < length;) {
        sum += arr[i];
        unchecked {
            i++;
        }
    }
    return sum;
}
```

```
function add(uint[] calldata arr) external returns (uint sum) {
    uint length = arr.length;
    for (uint i = 0; i < length;) {
        sum += arr[i];
        unchecked {
            i++;
        }
    }
    return sum;
}
```

# Use != 0 instead of > 0 for unsigned integers

```
require(tokens>0,"tokens can't be 0");
```

```
require(tokens!=0,"tokens can't be 0");
```

# Swap Magic

```
uint256 a = 1;
uint256 b = 2;

// swap a and b
uint256 tmp = a;
a = b;
b = tmp;
```

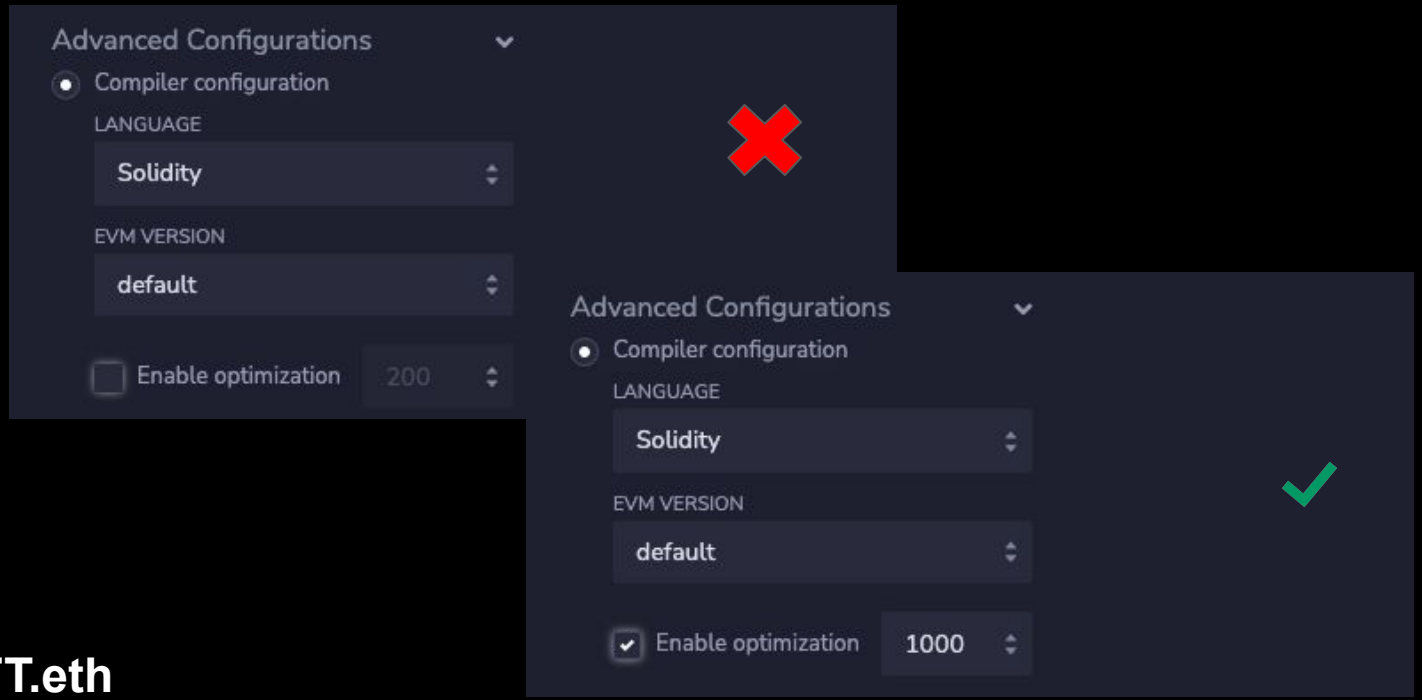
```
uint256 a = 1;
uint256 b = 2;

(a, b) = (b, a);
```

# Use external when possible

```
function mint(uint256 numberOfTokens) public payable{
    ....
}
```

```
function mint(uint256 numberOfTokens) external payable{
    ....
}
```

# Solidity Gas Optimizer



# Pack Variables

```
uint256 a = 1;
mapping(address => bool) private myMap;
uint256 b = 2;
```

```
uint256 a = 1;
uint256 b = 2;
mapping(address => bool) private myMap;
```