

lock duration is possible to set below minimum lock duration limit

Lines of code

<https://github.com/code-423n4/2024-05-munchables/blob/57dff486c3cd905f21b330c2157fe23da2a4807d/src/managers/LockManager.sol#L256-L261>

Impact

The way lock duration is set by calling `LockManager::setLockDuration()` it is possible to set a lock duration which is less than minimum lock duration.

Proof of Concept

Suppose minimum lock duration is 60 seconds. A lock was created at timestamp X which is the `lastLockTime` of the lock. So `unlockTime` will be $(X + 60)$ seconds.

```
lastLockTime (X)
unlockTime (X+60)
|-----|
<----- duration = minDuration = 60 secs ----->
```

Now, at the time of $(X + 40)$ secs player called the `setLockDuration()` with 30 secs as argument. As $(X + 40) + 30 = (X + 70)$ is greater than the `unlockTime` i.e $(X + 60)$ so the call will not revert by `LockDurationReducedError`. Finally $unlockTime = lastLockTime + duration = X + 30$. As of the new `unlockTime` the lock is already unlocked. So we can see that actually $(X + 30)$ is far less than minimum duration, still the player managed to unlock 20 seconds before [because he called the `setLockDuration()` at $(X + 40)$]. The problem is in the process of checking the condition for whether the duration is reduced or not i.e `LockDurationReducedError`. The `if` condition looks like:

```
if (
    uint32(block.timestamp) + uint32(_duration) <
    lockedTokens[msg.sender][tokenContract].unlockTime
) {
    revert LockDurationReducedError();
}
```

You can see that `uint32 (_duration)` is added with `block.timestamp` but it should not, it should be added with `lastLockTime`. The new duration looks like:

```
lastLockTime (X)                                X + 40 secs
unlockTime (X+60)                               setLockDuration()

|-----|-----|
|----- duration = minDuration = 60 secs ----->

X           X+30
|-----|-----|
<----- new duration = 30 ----->
```

Tools Used

Manual review

Recommended Mitigation Steps

Change the `if` block from present to this:

```
if (
    lockedTokens[msg.sender][tokenContract].lastLockTime +
uint32(_duration) <
    lockedTokens[msg.sender][tokenContract].unlockTime
) {
    revert LockDurationReducedError();
}
```