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Bike Rental Shop

# OVERVIEW

The city of Qatar is characterized by long roads and crowded streets where people are constantly in a hustle and bustle. A company has commissioned you to create a system to loan their bikes in an efficient manner. Being someone obsessed with blockchain technologies and cryptocurrencies the only weapons at your disposal are your knowledge of solidity smart contracts.

# GOALS

1. Create a well documented and basic smart contract system to loan out bikes.
2. The loan rate should work on a function of time but the task is generally open ended to see how you conceive of a smart contract system.
3. You can use either native ETH or an external ERC20 token as your “medium of exchange”.
4. Provide some basic deployments and a few basic unit tests with it. You can write in any tool suite you like. This is not expected to be impervious out of the gate.

# Bonus Goals

There are 3 bonus goals with this task. You are not required to put them in there, these are just if you happen to have extra time and get through the first set of tasks quickly.   
1. Make the contract system upgradeable.   
2. Make the contract system gas efficient.

3. Build a neat collateralization feature that reduces the rental rate.

**Deadlines**

The task is intended to be completed with about 20-30 hours of work. For this reason we will give a week to