LIST OF OPERATIONS

INITIAL PHASE

The first step is to import all the given ".sol" files in the Remix environment.

STRATEGY

To deploy a Dutch auction, we need first a Strategy, so open the file "Strategy.sol" and compile it. Then in the deploy view, select one strategy among:

1. FastStrategy
2. NormalStrategy
3. SlowStrategy

Now deploy it and copy the address of this contract.

DUTCH AUCTION

DEPLOY

Open the file called "DutchAuction.sol" and compile it. Then insert:

1. A string representing a short description of what is going to be sold.
2. The reserve price
3. The initial price
4. Paste the address of the chosen Strategy.

Now press "transact" to deploy the contract. Note that the contract now is in the "grace period".

ACTIVATE AUCTION

To activate the contract, with the same address used in the deploy, press "activateAuction". You will see that the transaction will fail. This is normal because the grace period in not finished yet. In Remix, every transaction updates the blockchain of one block. So, in order to proceed, press "activateAuction" until the green mark icon appears. This will simulate the 5 minutes (20 blocks) required. Now the grace period is finished, and the auction is active.

BID & GETACTUALPRICE

Once activated the auction, people can make their bids. Of course, we need first to know the actual price of the item. So, press the "getActualPrice" button to invoke the function. In the log you'll see an integer value corresponding to the actual price. Now we're ready to make a bid. Select a different account from the Remix list, then insert a value greater or equal the actual price, and finally press "bid".

FINALIZE

To close the auction, select the address used in deploy, and press "finalize". You'll see that the transaction will fail, this because I added a waiting period of 12 blocks (see report for more info).

GENERATEBID

This contract helps people in making bids. Insert a value and it will return all you need to make a bid, in other words, it generates a nonce and a hash.

VICKREY AUCTION

DEPLOY

Open the file called "VickreyAuction.sol" and compile it. Then insert:

1. A string representing a short description of what is going to be sold.
2. The reserve price
3. The minimum deposit
4. The commitment phase length
5. The withdrawal phase length
6. The opening phase length

ACTIVATE AUCTION

Now with the same address used in deploy, press "activateAuction" until the green mark icon appears. This will simulate the 5 minutes (20 blocks) required. Now the grace period is finished, and the auction is active.

BID

Using the “GenerateBid” contract, create a bid greater or equal to the reserve price. Now, save both the nonce and the hash. Select a different account from the one used in deploy and put in the value section a number greater or equal the minimum deposit. Now paste the hash of the bid alongside the “bid” button (where the *bytes32 _bidHash* is required), and press “bid”.

WITHDRAWAL

To start the withdrawal phase, chose the address used in deploy and press “startWithdrawal” until the green mark icon appears. This will simulate the length of the withdrawal phase. Now, to test the refund, chose an account who did a bid and press “withdrawal”.

OPENING

To start the opening phase, chose the address used in deploy and press “startOpening” until the green mark icon appears. This will simulate the length of the opening phase. To test the opening of the bids, select an account who did a bid, insert in the value section the amount of the bid, then paste the nonce of the bid alongside the “open” button (where the *bytes32 _nonce* is required), and press “open”.

FINALIZE

To close the auction, select the address used in deploy, and press “finalize”.