Blockchain Assignment 2

Network Setup

./geth --identity "Node 1" --datadir node1 --nat "extip:127.0.0.1" --port 50001 -nodiscover --networkid 1000 --http --http.port 51001 --http.api "eth,net,web3,miner,admin,personal" --http.corsdomain "*" --allow-insecure-unlock

./geth attach http://localhost:51001

Create and Unlock Accounts

web3.personal.unlockAccount(eth.accounts[0],"0000",1000000)

personal.newAccount()

web3.personal.unlockAccount(eth.accounts[1],"1234",1000000)

personal.newAccount()

web3.personal.unlockAccount(eth.accounts[2],"1234",1000000)

Compile Contract

solc --abi Auction.sol

>[{"inputs":[],"stateMutability":"nonpayable","type":"constructor"},{"inputs":[],"name":"auction_finished","outputs":[{"internalType":"uint256","name":"","type":"uint256"}],"stateMutability":"view","type":"function"},{"inputs":[],"name":"bid","outputs":[],"stateMutability":"payable","type":"function"},{"inputs":[],"name":"canWithdraw","outputs":[{"internalType":"bool","name":"","type":"bool","stateMutability":"nonpayable","type":"function"},{"inputs":[],"name":"finish_auction","outputs":[],"stateMutability":"nonpayable","type":"function"},{"inputs":[{"internalType":"address","name":"_bidder","type":"address"}],"name":"getBidderBalance","outputs":[{"internalType":"uint256","name":","type":"uint256","name":","type":"function"},{"inputs":[],"name":"getContractBalance","outputs":[{"internalType":"uint256","name":","type":"uint256",],"stateMutability":"view","type":"function"},{"inputs":[],"name":"highestBid","outputs":[{"internalType":"uint256","name":"","type":"uint256",],"stateMutability":"view","type":"function"},{"inputs":[],"name":"highestBidder","outputs":[{"internalType":"address","name":"","type":"dadress","name":"","type":"function"},{"inputs":["internalType":"dadress","name":"","type":"function"},{"inputs":["internalType":"function"},{"inputs":["internalType":"function"},{"inputs":["internalType":"function"},{"inputs":["internalType":"function"},{"inputs":["internalType":"function"},{"inputs":["internalType":"function"},{"inputs":["internalType":"function"},{"inputs":["internalType":"function"},{"inputs":["internalType":"function"},{"inputs":["internalType":"function"},{"inputs":["internalType":"function"},{"inputs":["internalType":"function"},{"inputs":["internalType":"function"},{"inputs":["internalType":"function","type":"function","type":"function","type":"function","type":"function","type":"function","type":"function","type":"function","type":"function","type":"function","type":"function","type":"function","type":"function","type":"function","type":"function","type":"function","type":"function","type

solc --bin Auction.sol

0396000f3fe6080604052600436106100745760003560e01c806391f901571161004e57806391f90157146100d1578063990f6e1c146100fc578063b51459fe14610127578063d57bde79146101525761007b565b80631998aeef1461008057806326224c641461008a5780633ccfd60b1 46100c75761007b565b3661007b57005b600080fd5b61008861017d565b005b34801561009657600080fd5b506100b160048036038101906100 ac 919061060 a 565 b 61036 c 565 b 6040516100 be 919061071 c 565 b 60405180910390 f 35 b 6100 c f 610384565 b 005 b 3480156100 d 57600005180910390f35b34801561015e57600080fd5b506101676105ef565b604051610174919061071c565b60405180910390f35b60015434116

fffffffff1681565b60045481565b60008060015411156105e757600190506105ec565b600090505b90565b60015481565b600081359050612019050919050565b6000610681602983610737565b915061068c826107df565b604082019050919050565b6106a081610786565b825250 321f8a764736f6c63430008030033

Deploy Contract

var abi = eth.contract(

[{"inputs":[],"stateMutability":"nonpayable","type":"constructor"},{"inputs":[],"name":"auction_finis hed","outputs":[{"internalType":"uint256","name":"","type":"uint256"}],"stateMutability":"view","ty pe":"function"},{"inputs":[],"name":"bid","outputs":[],"stateMutability":"payable","type":"function", "payable":true},{"inputs":[],"name":"canWithdraw","outputs":[{"internalType":"bool","name":"","ty pe":"bool"}],"stateMutability":"view","type":"function"},{"inputs":[],"name":"finish_auction","outpu ":"_bidder","type":"address"}],"name":"getBidderBalance","outputs":[{"internalType":"uint256","na me":"","type":"uint256"}],"stateMutability":"view","type":"function"},{"inputs":[],"name":"getContr actBalance", "outputs": [{"internalType": "uint256", "name": "", "type": "uint256"}], "stateMutability": "vi ew","type":"function"},{"inputs":[],"name":"highestBid","outputs":[{"internalType":"uint256","name ":"","type":"uint256"}],"stateMutability":"view","type":"function"},{"inputs":[],"name":"highestBidd er","outputs":[{"internalType":"address","name":"","type":"address"}],"stateMutability":"view","typ e":"function"},{"inputs":[{"internalType":"address","name":"","type":"address"}],"name":"userBalan ces","outputs":[{"internalType":"uint256","name":"","type":"uint256"}],"stateMutability":"view","ty pe":"function"},{"inputs":[],"name":"withdraw","outputs":[],"stateMutability":"payable","type":"fun ction","payable":true},{"stateMutability":"payable","type":"receive"}]

var bytecode =

0516100f391906106a6565b60405180910390f35b34801561010857600080fd5b506101116105cc565 d2565b60405161014991906106c1565b60405180910390f35b34801561015e57600080fd5b5061016 76105ef565b604051610174919061071c565b60405180910390f35b60015434116101c1576040517f0 1600060405180830381858888f19350505050501580156104c5573d6000803e3d6000fd5b506105a656 001600020549081150290604051600060405180830381858888f193505050501580156105a3573d60 b60045481565b60008060015411156105e757600190506105ec565b600090505b90565b600154815 65b6000813590506106048161082e565b92915050565b60006020828403121561061c57600080fd5b 600061062a848285016105f5565b91505092915050565b61063c81610748565b82525050565b61064 b8161075a565b82525050565b600061065e602783610737565b915061066982610790565b6040820 19050919050565b6000610681602983610737565b915061068c826107df565b604082019050919050 565b6106a081610786565b82525050565b60006020820190506106bb6000830184610633565b9291 5050565b60006020820190506106d66000830184610642565b92915050565b600060208201905081 810360008301526106f581610651565b9050919050565b60006020820190508181036000830152610 71581610674565b9050919050565b60006020820190506107316000830184610697565b929150505 65b600082825260208201905092915050565b600061075382610766565b9050919050565b6000811 5159050919050565b600073ffffffffffffffffffffffffffff82169050919050565b600081905091905 0565b7f596f7572206f66666572206973206c657373207468616e20746865206869676860008201527 7f42696420697320657175616c20746f207a65726f2c206e6f7468696e6720746f60008201527f20776 781610748565b811461084257600080fd5b5056fea26469706673582212206282d17425fc93ce6fb14 a8b1e116e9b71f7d97f1db2ff0845f0503e9321f8a764736f6c63430008030033'

var AuctionDeployed = abi.new({from:eth.accounts[0], data:bytecode,gas:2000000})

```
miner setup to confirm transactions
miner.setEtherbase(eth.accounts[0])
miner.start(1)
miner.stop()
var AuctionInst = abi.at(AuctionDeployed.address)
Auction Process
Step 4
eth.getBalance(eth.accounts[0])
78000000000000000000
eth.getBalance(eth.accounts[1])
58000000000000000000
AuctionInst.highestBid.call()
0
AuctionInst.highestBidder.call()
"0x6877165eb812c4ca167fb5b53f2d20493748f46d"
Step 5
AuctionInst.bid({from:eth.accounts[1],value:50000000000000000000})
"0x526acc971d5ba5a35e3cbab72fc769f4b4241175fa87b03b1f06420bd6c7678d"
Step 6
eth.getBalance(AuctionDeployed.address)
50000000000000000000
eth.getBalance(eth.accounts[1])
52999931069000000000
eth.getBalance(eth.accounts[2])
64000687001000000000
AuctionInst.highestBidder.call()
"0x56158fffacb76842f597d4dcc78b10a5e4627c85"
AuctionInst.highestBid.call()
50000000000000000000
```

Step 7

AuctionInst.bid({from:eth.accounts[2],value:10000000000000000000})

"0xaa1d9124711f07e2cdc72a5f4ac27c0b4f53cb93831ef10cc5035af5f76d1ed6"

Step 8

eth.getBalance(AuctionDeployed.address)

150000000000000000000

AuctionInst.highestBid.call()

AuctionInst.highestBidder.call()

"0x32dcd192c541a1adcd9f7e229ef77e2b4eb8eb56"

eth.getBalance(eth.accounts[2])

54000687001000000000

Step 9

AuctionInst.withdraw({from:eth.accounts[1]})

"0x5376f1bfd84ed365e38cc5034bb0af8d025642dd213dd12279db24aa2ffec4f1"

Step 10

eth.getBalance(AuctionDeployed.address)

10000000000000000000

eth.getBalance(eth.accounts[1])

58000000000000000000