DIMITRA PANAGIOTOU AEM:2595

Blockchain Assignment 2

# Network Setup

geth --rinkeby --syncmode "light"

geth attach /home/dimi/.ethereum/rinkeby/geth.ipc

# Create and Unlock Accounts

web3.personal.unlockAccount(eth.accounts[0],"1234",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":"ui

nt256","name":"","type":"uint256"}],"stateMutability":"view","type":"function"},{"inputs":[],"name":"bid","outputs":[],"stateMutability":"

payable","type":"function","payable":true},{"inputs":[],"name":"canWithdraw","outputs":[{"internalType":"bool","name":"","type":"bool"

}],"stateMutability":"view","type":"function"},{"inputs":[],"name":"finish\_auction","outputs":[],"stateMutability":"nonpayable","type":"fu

nction"},{"inputs":[{"internalType":"address","name":"\_bidder","type":"address"}],"name":"getBidderBalance","outputs":[{"internalType":

"uint256","name":"","type":"uint256"}],"stateMutability":"view","type":"function"},{"inputs":[],"name":"getContractBalance","outputs":[{

"internalType":"uint256","name":"","type":"uint256"}],"stateMutability":"view","type":"function"},{"inputs":[],"name":"highestBid","outp

uts":[{"internalType":"uint256","name":"","type":"uint256"}],"stateMutability":"view","type":"function"},{"inputs":[],"name":"highestBidd

er","outputs":[{"internalType":"address","name":"","type":"address"}],"stateMutability":"view","type":"function"},{"inputs":[{"internalTyp

e":"address","name":"","type":"address"}],"name":"userBalances","outputs":[{"internalType":"uint256","name":"","type":"uint256"}],"sta

teMutability":"view","type":"function"},{"inputs":[],"name":"withdraw","outputs":[],"stateMutability":"payable","type":"function","payab le":true},{"stateMutability":"payable","type":"receive"}]

solc --bin Auction.sol

>608060405234801561001057600080fd5b5033600360006101000a81548173ffffffffffffffffffffffffffffffffffffffff021916908373ffffffffffffffffffff ffffffffffffffffffff160217905550600360009054906101000a900473ffffffffffffffffffffffffffffffffffffffff166000806101000a81548173ffffffffffffffffff ffffffffffffffffffffff021916908373ffffffffffffffffffffffffffffffffffffffff1602179055506000600181905550600060048190555061087b806100d3600 0396000f3fe6080604052600436106100745760003560e01c806391f901571161004e57806391f90157146100d1578063990f6e1c146100fc5

78063b51459fe14610127578063d57bde79146101525761007b565b80631998aeef1461008057806326224c641461008a5780633ccfd60b1

46100c75761007b565b3661007b57005b600080fd5b61008861017d565b005b34801561009657600080fd5b506100b16004803603810190

6100ac919061060a565b61036c565b6040516100be919061071c565b60405180910390f35b6100cf610384565b005b3480156100dd576000

80fd5b506100e66105a8565b6040516100f391906106a6565b60405180910390f35b34801561010857600080fd5b506101116105cc565b604

05161011e919061071c565b60405180910390f35b34801561013357600080fd5b5061013c6105d2565b60405161014991906106c1565b604

05180910390f35b34801561015e57600080fd5b506101676105ef565b604051610174919061071c565b60405180910390f35b60015434116

101c1576040517f08c379a00000000000000000000000000000000000000000000000000000000081526004016101b8906106dc565b60405

180910390fd5b600260003373ffffffffffffffffffffffffffffffffffffffff1673ffffffffffffffffffffffffffffffffffffffff1681526020019081526020016000205434 111561028f573373ffffffffffffffffffffffffffffffffffffffff166108fc600260003373ffffffffffffffffffffffffffffffffffffffff1673ffffffffffffffffffffffffffffffffffffffff 168152602001908152602001600020549081150290604051600060405180830381858888f1935050505015801561028d573d6000803e3d6

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fffffff1602179055505b50565b60026020528060005260406000206000915090505481565b6000600154116103c9576040517f08c379a0000 0000000000000000000000000000000000000000000000000000081526004016103c0906106fc565b60405180910390fd5b6003600090549

06101000a900473ffffffffffffffffffffffffffffffffffffffff1673ffffffffffffffffffffffffffffffffffffffff163373ffffffffffffffffffffffffffffffffffffffff1614156104cb57 3373ffffffffffffffffffffffffffffffffffffffff166108fc600260008060009054906101000a900473ffffffffffffffffffffffffffffffffffffffff1673ffffffffffffffffffffff ffffffffffffffffff1673ffffffffffffffffffffffffffffffffffffffff168152602001908152602001600020549081150290604051600060405180830381858888 f193505050501580156104c5573d6000803e3d6000fd5b506105a6565b60008054906101000a900473ffffffffffffffffffffffffffffffffffffffff1673fff fffffffffffffffffffffffffffffffffffff163373ffffffffffffffffffffffffffffffffffffffff16146105a5573373ffffffffffffffffffffffffffffffffffffffff166108fc60026000337 3ffffffffffffffffffffffffffffffffffffffff1673ffffffffffffffffffffffffffffffffffffffff1681526020019081526020016000205490811502906040516000604051 80830381858888f193505050501580156105a3573d6000803e3d6000fd5b505b5b565b60008054906101000a900473fffffffffffffffffffffffffffff fffffffffff1681565b60045481565b60008060015411156105e757600190506105ec565b600090505b90565b60015481565b60008135905061 06048161082e565b92915050565b60006020828403121561061c57600080fd5b600061062a848285016105f5565b91505092915050565b61

063c81610748565b82525050565b61064b8161075a565b82525050565b600061065e602783610737565b915061066982610790565b60408

2019050919050565b6000610681602983610737565b915061068c826107df565b604082019050919050565b6106a081610786565b825250

50565b60006020820190506106bb6000830184610633565b92915050565b60006020820190506106d66000830184610642565b929150505

65b600060208201905081810360008301526106f581610651565b9050919050565b60006020820190508181036000830152610715816106

74565b9050919050565b60006020820190506107316000830184610697565b92915050565b600082825260208201905092915050565b600

061075382610766565b9050919050565b60008115159050919050565b600073ffffffffffffffffffffffffffffffffffffffff82169050919050565b600081 9050919050565b7f596f7572206f66666572206973206c657373207468616e20746865206869676860008201527f657374206269640000000

0000000000000000000000000000000000000000000602082015250565b7f42696420697320657175616c20746f207a65726f2c206e6f7468

696e6720746f60008201527f2077697468647261770000000000000000000000000000000000000000000000602082015250565b61083781

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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

ts":[],"stateMutability":"nonpayable","type":"function"},{"inputs":[{"internalType":"address","name

":"\_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 =

‘0x0x608060405234801561001057600080fd5b5033600360006101000a81548173fffffffffffffffffffffffff fffffffffffffff021916908373ffffffffffffffffffffffffffffffffffffffff160217905550600360009054906101000a9 00473ffffffffffffffffffffffffffffffffffffffff166000806101000a81548173ffffffffffffffffffffffffffffffffffffffff021 916908373ffffffffffffffffffffffffffffffffffffffff16021790555060006001819055506000600481905550610 87b806100d36000396000f3fe6080604052600436106100745760003560e01c806391f901571161004 e57806391f90157146100d1578063990f6e1c146100fc578063b51459fe14610127578063d57bde791 46101525761007b565b80631998aeef1461008057806326224c641461008a5780633ccfd60b146100c

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506100b160048036038101906100ac919061060a565b61036c565b6040516100be919061071c565b6

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8c379a00000000000000000000000000000000000000000000000000000000081526004016101b890

6106dc565b60405180910390fd5b600260003373ffffffffffffffffffffffffffffffffffffffff1673ffffffffffffffffffffff ffffffffffffffffff1681526020019081526020016000205434111561028f573373ffffffffffffffffffffffffffffffffff ffffff166108fc600260003373ffffffffffffffffffffffffffffffffffffffff1673ffffffffffffffffffffffffffffffffffffffff16815 2602001908152602001600020549081150290604051600060405180830381858888f1935050505015

801561028d573d6000803e3d6000fd5b505b34600260003373ffffffffffffffffffffffffffffffffffffffff1673fffff fffffffffffffffffffffffffffffffffff168152602001908152602001600020819055506000600260003373fffffffff fffffffffffffffffffffffffffffff1673ffffffffffffffffffffffffffffffffffffffff1681526020019081526020016000205490 506001548111156103695780600181905550336000806101000a81548173ffffffffffffffffffffffffffffffffff ffffff021916908373ffffffffffffffffffffffffffffffffffffffff1602179055505b50565b600260205280600052604 06000206000915090505481565b6000600154116103c9576040517f08c379a0000000000000000000

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5b600360009054906101000a900473ffffffffffffffffffffffffffffffffffffffff1673ffffffffffffffffffffffffffffffffffffff ff163373ffffffffffffffffffffffffffffffffffffffff1614156104cb573373ffffffffffffffffffffffffffffffffffffffff166108fc 600260008060009054906101000a900473ffffffffffffffffffffffffffffffffffffffff1673fffffffffffffffffffffffffffffff fffffffff1673ffffffffffffffffffffffffffffffffffffffff16815260200190815260200160002054908115029060405 1600060405180830381858888f193505050501580156104c5573d6000803e3d6000fd5b506105a656

5b60008054906101000a900473ffffffffffffffffffffffffffffffffffffffff1673ffffffffffffffffffffffffffffffffffffffff16 3373ffffffffffffffffffffffffffffffffffffffff16146105a5573373ffffffffffffffffffffffffffffffffffffffff166108fc60026 0003373ffffffffffffffffffffffffffffffffffffffff1673ffffffffffffffffffffffffffffffffffffffff168152602001908152602 001600020549081150290604051600060405180830381858888f193505050501580156105a3573d60

00803e3d6000fd5b505b5b565b60008054906101000a900473ffffffffffffffffffffffffffffffffffffffff1681565 b60045481565b60008060015411156105e757600190506105ec565b600090505b90565b600154815 65b6000813590506106048161082e565b92915050565b60006020828403121561061c57600080fd5b

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5050565b60006020820190506106d66000830184610642565b92915050565b600060208201905081

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65b600082825260208201905092915050565b600061075382610766565b9050919050565b6000811

5159050919050565b600073ffffffffffffffffffffffffffffffffffffffff82169050919050565b600081905091905 0565b7f596f7572206f66666572206973206c657373207468616e20746865206869676860008201527 f6573742062696400000000000000000000000000000000000000000000000000602082015250565b 7f42696420697320657175616c20746f207a65726f2c206e6f7468696e6720746f60008201527f20776

97468647261770000000000000000000000000000000000000000000000602082015250565b61083

781610748565b811461084257600080fd5b5056fea26469706673582212206282d17425fc93ce6fb14

a8b1e116e9b71f7d97f1db2ff0845f0503e9321f8a764736f6c63430008030033’

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

var AuctionInst = abi.at(AuctionDeployed.address)

# Auction Process

## Step 4

eth.getBalance(eth.accounts[0])

2999427843000000000

eth.getBalance(eth.accounts[1])

6000000000000000000

AuctionInst.highestBid.call()

0

AuctionInst.highestBidder.call()

"0xee2f39e86367576b1622f9729393144fc9bee393”

## Step 5

AuctionInst.bid({from:eth.accounts[1],value:5000000000000000000})

"0xe48e3c474f28aa969c36c1b95634a6c37b24ba5fad63b289b0beab4d22890f9a"

## Step 6

eth.getBalance(AuctionDeployed.address)

5000000000000000000

eth.getBalance(eth.accounts[1])

999928577000000000

eth.getBalance(eth.accounts[2])

15749979000000000000

AuctionInst.highestBid.call()

5000000000000000000

AuctionInst.highestBidder.call()

"0x98f4cc88167d906c1d05ebad85013930830608a2"

## Step 7

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

"0xaafc17a61302cc93d4d0e3b5d85beca3f133195bb9d403c4ff48bf2c2e47ba80"

## Step 8

eth.getBalance(AuctionDeployed.address)

15000000000000000000

eth.getBalance(eth.accounts[2])

5749924677000000000

AuctionInst.highestBidder.call()

"0x4441937ef8cd1f7f2d314c669f477453d4b685fe"

AuctionInst.highestBid.call()

10000000000000000000

## Step 9

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

"0x63bbb49fc7439c0f4574ac2e0c90ed83d2dd295278afc8b6f12aa58f98070ec8""

## Step 10

eth.getBalance(AuctionDeployed.address)

10000000000000000000

eth.getBalance(eth.accounts[1])

5999891792000000000

# Transaction Links

## <https://rinkeby.etherscan.io/address/0xee2f39e86367576b1622f9729393144fc9bee393>

## <https://rinkeby.etherscan.io/address/0x98f4cc88167d906c1d05ebad85013930830608a2>

## <https://rinkeby.etherscan.io/address/0x4441937ef8cd1f7f2d314c669f477453d4b685fe>

## \*\*\*Για την μεταφορά ether στα accounts χρησιμποιήθηκε η παρακάτω οδηγία

«Rinkeby use Proof-of-Authority (clique) to grant ETH, you'll need to request some to get started. However, Rinkeby has a super-slick automated faucet, where you submit your address (copied from above) into a public tweet on Twitter. Go to the Crypto Faucet section of <https://rinkeby.io> and paste it into the blank.Choose an option from the dropdown which corresponds to how much Ether you need and how frequently (requesting more Ether will take longer between requests)»

Source:https://gist.github.com/cryptogoth/10a98e8078cfd69f7ca892ddbdcf26bc?fbclid=IwAR1ySUctLlqGOfLCA96qSWAOH0YyFVNX3yjpkQCdwUV-uuBVkbHKl47AjHo