

Lab 2: Introduction to Remix

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Ejercicio 1

Transaction cost: 22812 gas

Execution cost: 1748 gas

Logs:

```
[
  {
    "from": "0xd9145CCE52D386f254917e481eB44e9943F39138",
    "topic":
"0x241ba3bafc919fb4308284ce03a8f4867a8ec2f0401445d3cf41a468e7db4ae0",
    "event": "Print",
    "args": {
      "0": "Hello, World!",
      "message": "Hello, World!"
    }
  }
]
```

Value: 0 wei

Ejercicio 2

Resultado del cálculo de 50! :

30414093201713378043612608166064768844377641568960512000000000000

Si calculamos el log en base 2 del resultado, podemos observar que nos sale 214, que es menor que 256 (que son los máximos bits permitidos)

Ejercicio 3

Saldos finales de las cuentas:

```
0x5B3...eddC4 (96.999999999999561055 ether)
0xA8b...35cb2 (99.99999999999976843 ether)
0x4B2...C02db (100.00000099999969954 ether)
```

Constructor

```
[vm] from: 0x5B3...eddC4 to: PiggyBank0.(constructor) value: 0 wei data: 0x608...60033 logs: 0 hash: 0x378...9e3b9
status true Transaction mined and execution succeed
transaction hash 0x378d9bca8a7b19cf993a37482f5ed76685c8993477c2c54213f2c798d139e3b9
from 0x5B380a6a701c568545dcfc803fc8875f56beddC4
to PiggyBank0.(constructor)
gas 193533 gas
transaction cost 168289 gas
execution cost 106953 gas
input 0x608...60033
decoded input {}
decoded output -
logs []
val 0 wei
transact to PiggyBank0.deposit pending ...
```

Paso 1: Depositar 3 ETH en el contrato desde la primera cuenta

Primero llama a PiggyBank0.deposit()

```
[vm] from: 0x5B3...eddC4 to: PiggyBank0.deposit() 0xD7A...F771B value: 3000000000000000000 wei data: 0xd0e...30db0 logs: 0 hash: 0xd19...09977
status true Transaction mined and execution succeed
transaction hash 0xd1919ad3ca8a8c20f3eeaacd1c5a60af7a8b90ca52f9d9755f865ed05da09977
from 0x5B380a6a701c568545dcfc803fc8875f56beddC4
to PiggyBank0.deposit() 0xD7ACd2a9FD159E698b102A1ca21C9a3e3A5F771B
gas 24387 gas
transaction cost 21206 gas
execution cost 142 gas
input 0xd0e...30db0
decoded input {}
decoded output {}
logs []
val 3000000000000000000 wei
call to PiggyBank0.getBalance
```

Luego llama a PiggyBank0.getBalance() para ver el balance

```
✓ [vm] from: 0x5B3...eddC4 to: PiggyBank0.deposit() 0xD7A...F771B value: 3000000000000000000 wei data: 0xd0e...
call to PiggyBank0.getBalance

CALL [call] from: 0x5B38Da6a701c568545dCfcB03FcB875f56beddC4 to: PiggyBank0.getBalance() data: 0x120...65fe0

from 0x5B38Da6a701c568545dCfcB03FcB875f56beddC4

to PiggyBank0.getBalance() 0xD7ACd2a9FD159E698b102A1ca21C9a3e3A5F771B

execution cost 193 gas (Cost only applies when called by a contract)

input 0x120...65fe0

decoded input {}

decoded output {
  "0": "uint256: 3000000000000000000"
}

logs []
```

Paso 2: Retirar 5 ETH desde la segunda cuenta (Saldo insuficiente)

Como podemos observar ,no se ha realizado la operación debido a que no tenemos saldo insuficiente,pero sí se ha llevado a cabo el pago de la transacción

```
✓ [vm] from: 0xAb8...35cb2 to: PiggyBank0.withdraw(uint256) 0xD7A...F771B value: 0 wei data: 0x2e1...40000 logs: 1 hash: 0x86b...aeb1f Debug
status true Transaction mined and execution succeed
transaction hash 0x86b9b26b9e6a6055b76fdd6f39d8820b2d9e98ebc0bcca4443968de4aeb1f

from 0xAb8483f649C6d1EcF9b849Ae677d03315835cb2
to PiggyBank0.withdraw(uint256) 0xD7ACd2a9FD159E698b102A1ca21C9a3e3A5F771B

gas 26631 gas
transaction cost 23157 gas
execution cost 1893 gas

input 0x2e1...40000
decoded input {
  "uint256 amountInWei": "5000000000000000000"
}
decoded output {}
logs [
  {
    "from": "0xD7ACd2a9FD159E698b102A1ca21C9a3e3A5F771B",
    "topic": "0x241ba3bafc919fb4308284ce03a8f4867a8ec2f0401445d3cf41a468e7db4ae0",
    "event": "Print",
    "args": {
      "0": "Saldo insuficiente",
      "message": "Saldo insuficiente"
    }
  }
]
val 0 wei
transact to PiggyBank0.withdraw pending ...
```

Paso 3: Retirar 10^12 wei del contrato desde la tercera cuenta:

[vm] from: 0x4B2...C02db to: PiggyBank0.withdraw(uint256) 0xD7A...F771B value: 0 wei data: 0x2e1...51000 logs: 1 hash: 0x104...b0b63
Debug ^

status	true Transaction mined and execution succeed
transaction hash	0x1049af0c6f05bdc247bab240ffb4815b8c0e10069309798fb718fdac2eb0b63
from	0x4B20993Bc481177ec7E8f571ceCaE8A9e22C02db
to	PiggyBank0.withdraw(uint256) 0xD7ACd2a9FD159E698b102A1ca21C9a3e3A5F771B
gas	34553 gas
transaction cost	30046 gas
execution cost	8806 gas
input	0x2e1...51000
decoded input	{ "uint256 amountInWei": "1000000000000" }
decoded output	{}
logs	[{ "from": "0xD7ACd2a9FD159E698b102A1ca21C9a3e3A5F771B", "topic": "0x241ba3bafc919fb4308284ce03a8f4867a8ec2f0401445d3cf41a468e7db4ae0", "event": "Print", "args": { "0": "Retiro completado", "message": "Retiro completado" } }]
val	0 wei

call to PiggyBank0.getBalance

Paso 4: Comprobación del saldo final con getBalance()

call to PiggyBank0.getBalance

CALL [call] from: 0x4B20993Bc481177ec7E8f571ceCaE8A9e22C02db to: PiggyBank0.getBalance() data: 0x120...65fe0

from	0x4B20993Bc481177ec7E8f571ceCaE8A9e22C02db
to	PiggyBank0.getBalance() 0xD7ACd2a9FD159E698b102A1ca21C9a3e3A5F771B
execution cost	193 gas (Cost only applies when called by a contract)
input	0x120...65fe0
decoded input	{}
decoded output	{ "0": "uint256: 2999999000000000000" }
logs	[]