Membuat Smart Contract

- mkdir MySmartContract
- cd MySmartContract
- truffle init
  - Buat contract Solidity dalam folder contracts
  - Buat deploy_contract.js dalam folder migrations
  - Buat truffle-config.js
- truffle compile
- truffle migrate --network development

SimpleStorage.sol

```
// contracts/SimpleStorage.sol
pragma solidity ^0.8.0;

contract SimpleStorage {
    uint256 public storedData;

    // Constructor requires an initial value
    constructor(uint256 initialValue) {
        storedData = initialValue;
    }

    function set(uint256 x) public {
        storedData = x;
    }

    function get() public view returns (uint256) {
        return storedData;
    }
}
```

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2_deploy_contracts.js

```
// migrations/2_deploy_contracts.js
const SimpleStorage = artifacts.require("SimpleStorage");

module.exports = function(deployer) {
  // Deploy contract with a constructor argument, e.g., initial value 100
  deployer.deploy(SimpleStorage, 100);  // Replace '100' with the appropriate value
};
```

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truffle-config.js

```
module.exports = {
  networks: {
    development: {
      host: "127.0.0.1",     // Localhost (default: none)
      port: 8545,            // Ganache's default port
      network_id: "*"        // Match any network id (for Ganache, use "*" to accept any id)
    }
  },

  compilers: {
    solc: {
      version: "0.8.0",      // Fetch exact version from solc-bin (default: truffle's version)
    }
  }
};
```

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truffle compile

C:\WINDOWS\system32\cmd.exe

```
D:\xampp\htdocs\php-blockchain\MySmartContract>truffle compile

Compiling your contracts...
===========================
> Compiling .\contracts\SimpleStorage.sol
> Compilation warnings encountered:

    Warning: SPDX license identifier not provided in source file. Before publishing, consider adding a comment containing "SPDX-License-Identifier: <SPDX-License>" to each
source file. Use "SPDX-License-Identifier: UNLICENSED" for non-open-source code. Please see https://spdx.org for more information.
--> project:/contracts/SimpleStorage.sol


> Artifacts written to D:\xampp\htdocs\php-blockchain\MySmartContract\build\contracts
> Compiled successfully using:
   - solc: 0.8.0+commit.c7dfd78e.Emscripten.clang
```

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truffle migrate

- truffle migrate --network development

C:\WINDOWS\system32\cmd.exe

```
   - solc: 0.8.0+commit.c7dfd78e.Emscripten.clang

D:\xampp\htdocs\php-blockchain\MySmartContract>truffle migrate --network development

Compiling your contracts...
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> Compiling .\contracts\SimpleStorage.sol
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--> project:/contracts/SimpleStorage.sol


> Artifacts written to D:\xampp\htdocs\php-blockchain\MySmartContract\build\contracts
> Compiled successfully using:
   - solc: 0.8.0+commit.c7dfd78e.Emscripten.clang


Starting migrations...
======================
> Network name:    'development'
> Network id:      1725521590705
> Block gas limit: 30000000 (0x1c9c380)


2_deploy_contracts.js
=====================

   Deploying 'SimpleStorage'
   -------------------------
   > transaction hash:    0xbaf7878746b5844ed6dbbbaa971ee65b9696ce508e334e77703a4263cb165e09
   > Blocks: 0            Seconds: 0
   > contract address:    0x2f881c9F70228f2c7A5e56637C6B7f402a8a3785
   > block number:        1
   > block timestamp:     1725525349
   > account:             0x7ED7dE0F5F85BA2a9f736c755208505470f6A258
   > balance:             999.99946496125
   > gas used:            158530 (0x26b42)
   > gas price:           3.375 gwei
   > value sent:          0 ETH
```

truffle migrate (2)

C:\WINDOWS\system32\cmd.exe

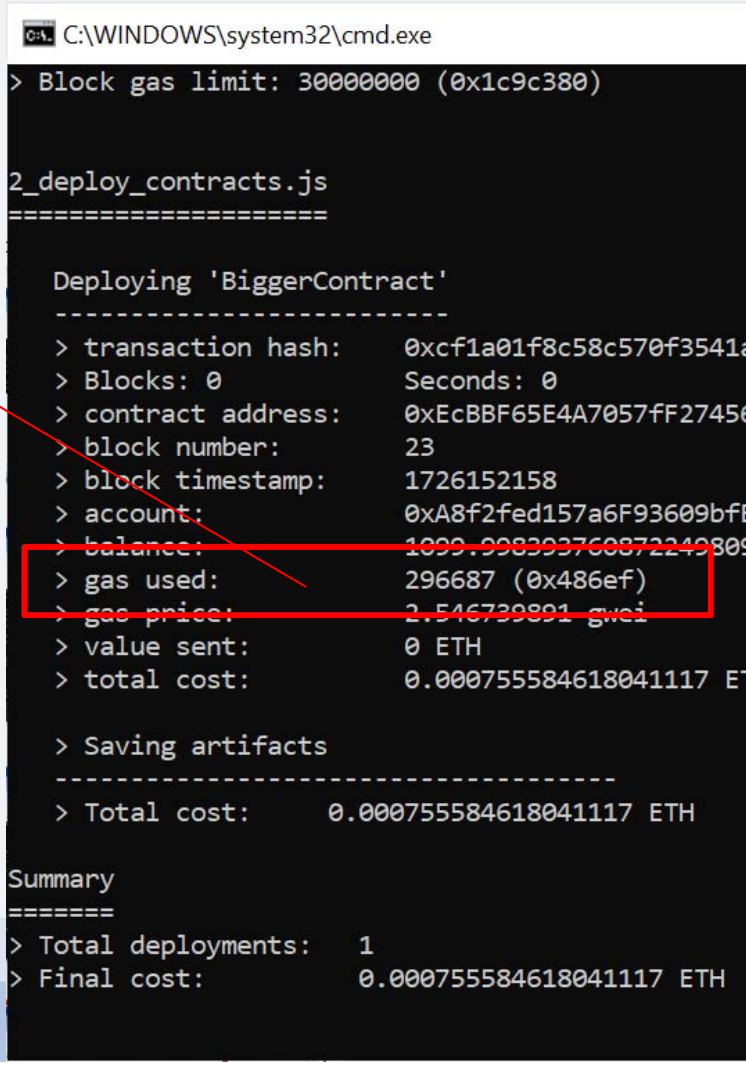
```
> Block gas limit: 30000000 (0x1c9c380)


2_deploy_contracts.js
=====================

   Deploying 'OtherStorage'
   ------------------------
   > transaction hash:    0x98c35fea6e6c8eedee1a865f12909e30b1129a0513a7204506fe337a577096f4
   > Blocks: 0            Seconds: 0
   > contract address:    0x2B482c88d616553E14fb112F77F6EfF8D47ebD06
   > block number:        24
   > block timestamp:     1725550977
   > account:             0x4D4bDcd39AB469b52Fde839F138be50a5d3a9aF2
   > balance:             997.030981868132320912
   > gas used:            168696 (0x292f8)
   > gas price:           2.540757785 gwei
   > value sent:          0 ETH
   > total cost:          0.00042861567529836 ETH

Contract deployed at address: 0x2B482c88d616553E14fb112F77F6EfF8D47ebD06
   > Saving artifacts
   -------------------------------------
   > Total cost:     0.00042861567529836 ETH

Summary
=======
> Total deployments:   1
> Final cost:          0.00042861567529836 ETH
```

Gas Limit = Gas Used

```
function setStoredData($contract, $contractAddress, $value) {
    $from = '0xF9712062e4Dcb304754C659b90D2669dDbAe4f33'; // akun Ganache
    $gas = '0x486ef'; // Gas limit

    $contract->at($contractAddress)->send('set', $value, [
        'from' => $from,
        'gas' => $gas
    ], function ($err, $transaction) {
        if ($err !== null) {
            echo 'Error: ' . $err->getMessage() . "\n";
            return;
        }
        echo "Transaction Hash: " . $transaction . "\n";
    });
}
```