BNB_Week3_Replies

What is the use of bytecode?

Solidity is compiled to bytecode which is executed by EVM. Advanced developers can check the bytecode to get some insights into how their contract works.

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what is the use of interface?

Solidity allows you to interact with other contracts without having their code by using their interface. For example, if you want to interact with another contract from your own contract, you provide your calls with an interface wrapper.

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what is the usecase for using older version of solidiy?

use older version only if you have work with some code written in older versions. Also using like 0.8.15 when 0.8.19 is the newest might be more secure, as newest version might have some not discovered yet bugs.

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What makes Anvil superior to Ganache?

Main thing is it's faster.

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What property of the contract make it a token?

see Lesson 5 and 6 notes

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what RPC provider is used for testnet ? its someone like alchemy providing RPC Api for testnet ?

BNB Chain provides RPCs but Alchemy and others also

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What token is used for staking validators and what much amount ?

it is BNB on BNB Chain, I'm not sure how much

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What were the recommended minimal plugins for Remix?

compile and deploy, the rest is per your requirements

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what´s the differnece between calldata and memory?

calldata is method parameters, they are immutable. memory can be modified but will last only till the end of your transaction

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what´s the function of _; on line 10?

'_' means 'execute method that this modifier is applied to'. so it is like modifier is wrapping around the function is modfies.

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what's `require(msg.sender == owner, "must be owner");

it means: if sender of the transaction is not the owner, revert the transaction with an error 'must be owner'

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what's the difference between coins & tokens?

No difference really. I suppose tokens can be many things such as NTF token etc where as coin is specifically used for money

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what's the difference between storage, memory and calldata area?

memory = limited scope to function + deleted after function executed
Storage = long term storage in contract
calldata = passed with function call but cannot be changed because has no memory slot.

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Whats the difference between fuzz tests and invariant tests

A fuzz test is a single test condition with random inputs. An invariant is a condition that should never change. So an invariant can be tested against all tests and contract calls.

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whats the difference between side chains and Layer 2s and in what category is the BNB chain

BNB is none. While layer 2 inherits the security of the main network, sidechains rely on their own security.

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when calling a view function how can we be sure that it is from the latest block?

You would need to run your own node and then make sure your node is connected and up to date.

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when dev a dapp is highly probable or suggested to create our own contract or are there cases in which we can just rely on existing contracts already deployed?

No ideally you want to use libs as much as possible as they have been well tested

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when i use string variable or argument we normally use memory that´s a way to save gas? or it has to be always memory? can it be stored too?

yes saves gas. But no you can store strings in storage too.

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When i want to deploy child contract that inherits from parent contract, parent contract has to be deplyed first?

No when you deploy the child the compiler would essentially combine the code. Although this is a bit of a simplification.

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when not specifying visibility to variable is it public by default?

public

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when to specify memory and when calldata in the input params of a function?

calldata if you do not need to alter the value. memory if you want to do some calculation on the value.

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When we create our own BEP20 tokens by saying . We basically inherent all of the functions you are explaining right now?

yes you can inherit or override the function by writing your own but you have to make sure you adhere to the standard.

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when we have a public variable the getter is created automatically?

yeap

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When we want to test and deploy multiple contracts do we need to create multiple deploy files?

You can deploy/test more than one contract in a single deploy file so it depends how you want structure. It's sometimes seen as more secure to have separate files

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when you declare function like `testFunction(uint256 number)` -> is memory location here automatically set to memory, or calldata?

If it's not a type that requires a memory or storage declaration such as an array type then the variable just goes onto the stack.

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Where can we see the Emit / Event logs ?

it goes into the logs for the contract. Nodes use bloom filters internally to surface events you listen to.

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https://blog.chain.link/events-and-logging-in-solidity/

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where do ppl usually use these events? I imagine mostly on testing.. but what are common use cases?

mostly monitoring the protocol once deployed. For example if the contract owner was changed you would want an event to be triggered. You would likely want to listen to transaction, withdraws and use monitoring software and alerts in case of any anomalies.

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where is the URI stored in an NFT Contract? if I go to interact with the contract, where can I see the URI?

There is a function that returns it:

function _baseURI() internal view virtual override returns (string memory) {
return _baseTokenURI;
}

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Which is best the Hardhat or Foundry?

For me personally Foundry but it is really personal preference. Hard to say which is better.

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Which tool are we using to deploy our Smart contract?

Foundry, hardhat or remix but its up to you.

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We are going to cover many but mostly: Remix, Foundry & Hardhat.

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Which tooling is better hardhat or foundry ? Talking about dx

Personal preference I would say.

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Why do we focus so much on deployment costs? Usually code is going to be executed many more times than it is being deployed.

yes, its just a convenient figure for this game, and the optimisations will affect both areas

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why do we need to write 'memory' when we pass arrays, structs and strings into functions?

to differentiate between 2 options: calldata and memory

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Why do we see gas limit on deploy section and does it matter if we don't change that value?

gas limit is max amount of gas that you allow your deploy tx to use. change it to a higher value is provided gas limit is not sufficient for your deployment.

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why do we use block system

what is the benefit on the block system?
chaining the blocks together makes it hard to alter the data because you would need to recalculate the hashes for all blocks.

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why do we use child contract and what dies it do?

it's useful for inheritance. For example you want to use a contract but change it slightly. Your child can inherit the functionality. Library use is a good example.

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