

SNS COLLEGE OF ENGINEERING



Kurumbapalayam (Po), Coimbatore – 641 107

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DEPARTMENT OF COMPUTER SCIENCE AND TECHNOLOGY

COURSE NAME: 190E201-Blockchain Technology

IV YEAR /VII SEMESTER

Unit 3- ETHEREUM

Topic: Solidity Programming Language



Solidity



Ethereum Solidity is a contract-oriented, high-level language with syntax like that of JavaScript.

A solidity is a tool used to generate a machine-level code to execute on EVM.

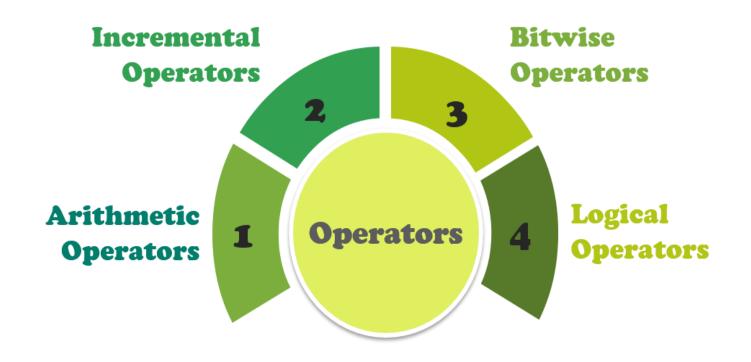
The solidity compiler takes the high-level code and breaks it down into simpler instructions.

Solidity code is encapsulated in **Contracts**



Operators in Solidity







Operators in Solidity - Arithmetic Operators



Solidity has pretty straightforward Math operations.

Addition: x + y

Subtraction: x - y

Multiplication: x * y

Division: x / y

Modulus / remainder: x % y



Operators in Solidity -Incremental Operators



Incremental operators in solidity: a++, a-, ++a, -a, a+=1, a=a+1

Rules applicable to other programming languages are similar in solidity also.



Operators in Solidity - Bitwise Operators



Following are the operators:

(Bitwise OR) '|', (Bitwise XOR), (Bitwise negation) '~', (Bitwise right shift) '>>', (Bitwise left shift) '<<'



Operators in Solidity –Logical Operators



Logical operators in Solidity: ! (logical negation), && (logical and), || (logical or), ==(equality), != (not equal)



Operators in Solidity – Operators example



```
contract operators
// Arithmetic Operators
// +,-,*,/, %, **
// Incremental Operators
// a++, a--, a+=1, a=a+1,++a,--a;
a=10;
a= a++; //here, output will be 10, because the value is first returned and then then increment is done
a=++a;
//Logical Operators !, &&, ||, ==, !=
isOwner = true && false;
var orValue= 0x02 \mid 0x01; // output would be 0x03
//Bitwise Operators~,>>, <<;
function Operators() {
// Initialize state variables here
```

References





TEXT BOOKS

- 1. Mastering Bitcoin: Unlocking Digital Cryptocurrencies, by Andreas M Antonopoulos 2018
- 2. Imran Bashir, "Mastering Blockchain: Distributed Ledger Technology, Decentralization and Smart Contracts Explained", Second Edition, Packt Publishing, 2018.
- 3. https://101blockchains.com/blockchain-vs-database-the-difference/

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- 1. William Mougayar, "Business Blockchain Promise, Practice and Application of the Next Internet Technology, John Wiley & Sons 2016.
- 2. Josh Thompson, 'Blockchain: The Blockchain for Beginnings, Guild to Blockchain Technology and Blockchain Programming', Create Space Independent Publishing Platform, 2017.
- 3. Arvind Narayanan, "Bitcoin and Cryptocurrency Technologies: A Comprehensive Introduction", Princeton University Press, July 19, 2016.
- 4. Henning Diedrich, Ethereum: Block chains, Digital Assets, Smart Contracts, Decentralized Autonomous Organizations-2016

Thank You