Practical- 13 BCT

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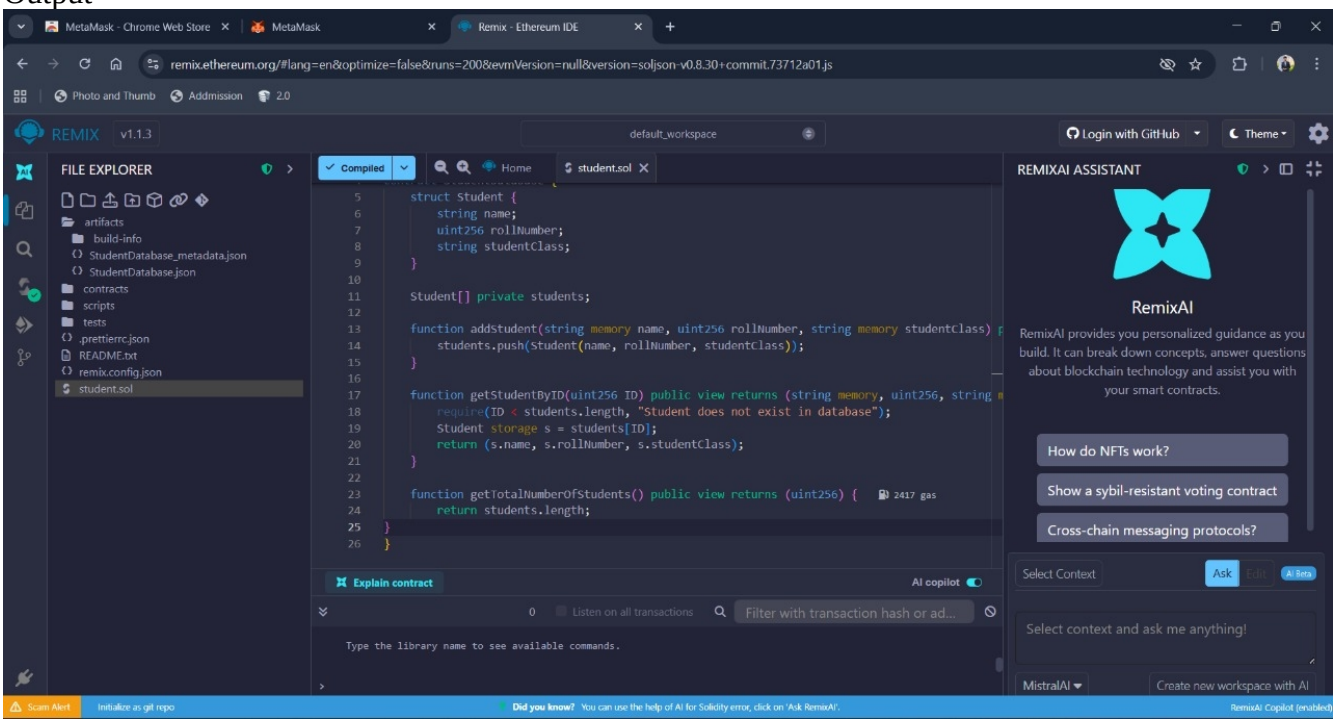
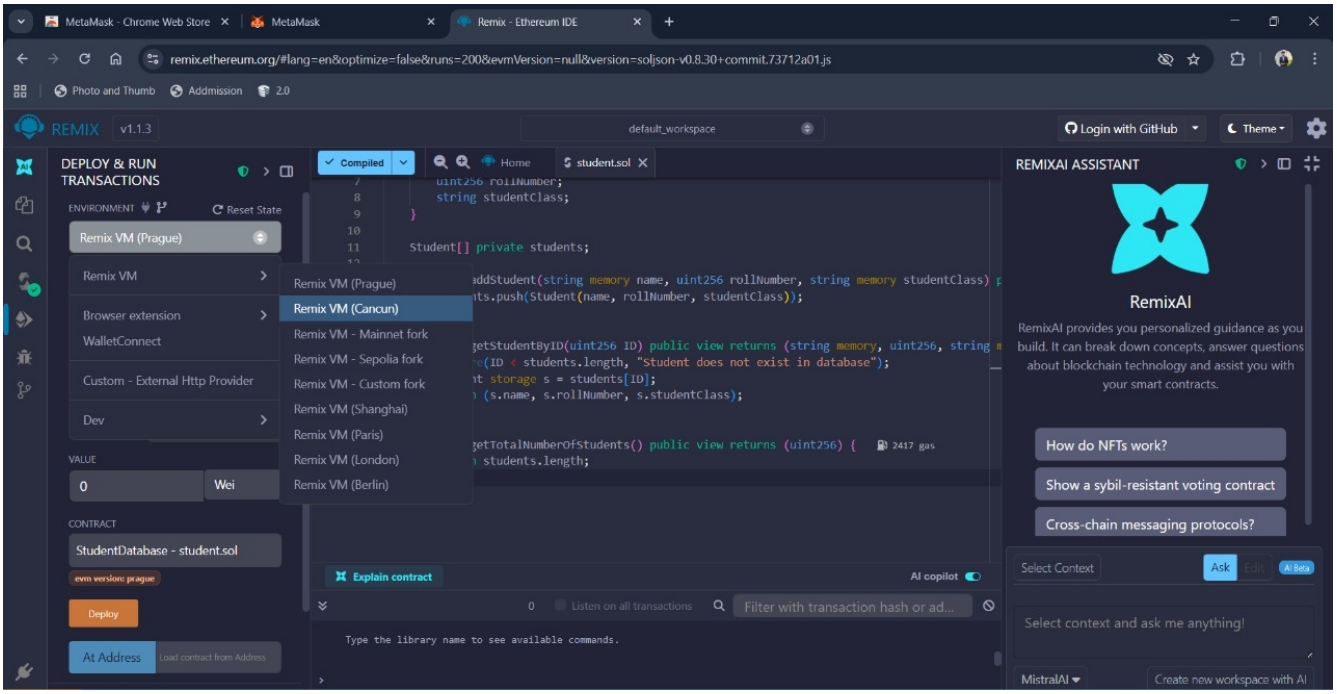
Roll No.- 39

Code-

```
// SPDX-License-Identifier: MIT
pragma solidity ^0.8.0;

contract StudentDatabase {
    struct Student {
        string name;
        uint256 rollNumber;
        string studentClass;
    }

    Student[] private students;

    function addStudent(string memory name, uint256 rollNumber, string memory studentClass) public
{
        students.push(Student(name, rollNumber, studentClass));
    }

    function getStudentByID(uint256 ID) public view returns (string memory, uint256, string memory) {
        require(ID < students.length, "Student does not exist in database");
        Student storage s = students[ID];
        return (s.name, s.rollNumber, s.studentClass);
    }

    function getTotalNumberOfStudents() public view returns (uint256) {
        return students.length;
}
}
```

Output-


MetaMask - Chrome Web Store
MetaMask
Remix - Ethereum IDE
remix.ethereum.org/#lang=en&optimize=false&runs=200&evmVersion=null&version=soljson-v0.8.30+commit.73712a01.js
REMIX v1.1.3
default_workspace
Login with GitHub
Theme
FILE EXPLORER
artifacts
build-info
StudentDatabase_metadata.json
StudentDatabase.json
contracts
scripts
tests
.prettierrc.json
README.txt
remix.config.json
student.sol
Compiled
Home
student.sol
struct Student {
string name;
uint256 rollNumber;
string studentClass;
}
Student[] private students;
function addStudent(string memory name, uint256 rollNumber, string memory studentClass)
students.push(Student(name, rollNumber, studentClass));
function getStudentByID(uint256 ID) public view returns (string memory, uint256, string
require(ID < students.length, "Student does not exist in database");
Student storage s = students[ID];
return (s.name, s.rollNumber, s.studentClass);
function getTotalNumberOfStudents() public view returns (uint256) {
2417 gas
return students.length;
Explain contract
AI copilot
Listen on all transactions
Filter with transaction hash or ad...
Type the library name to see available commands.
REMIXAI ASSISTANT
RemixAI
RemixAI provides you personalized guidance as you build. It can break down concepts, answer questions about blockchain technology and assist you with your smart contracts.
How do NFTs work?
Show a sybil-resistant voting contract
Cross-chain messaging protocols?
Select Context
Ask
Edit
AI Beta
Select context and ask me anything!
MistralAI
Create new workspace with AI
Scam Alert
Initialize as git repo
Did you know? You can use the help of AI for Solidity error, click on 'Ask RemixAI'.
RemixAI Copilot (enabled)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REMIX v1.1.3
default_workspace
Login with GitHub
Theme
DEPLOY & RUN TRANSACTIONS
ENVIRONMENT
Reset State
Remix VM (Prague)
Remix VM
Browser extension
WalletConnect
Custom - External Http Provider
Dev
Remix VM (Prague)
Remix VM (Cancun)
Remix VM - Mainnet fork
Remix VM - Sepolia fork
Remix VM - Custom fork
Remix VM (Shanghai)
Remix VM (Paris)
Remix VM (London)
Remix VM (Berlin)
VALUE
0
Wei
CONTRACT
StudentDatabase - student.sol
evm version: prague
Deploy
At Address
Load contract from Address
Compiled
Home
student.sol
string studentClass;
}
Student[] private students;
students.push(Student(name, rollNumber, studentClass));
getStudentByID(uint256 ID) public view returns (string memory, uint256, string
(ID < students.length, "Student does not exist in database");
storage s = students[ID];
(s.name, s.rollNumber, s.studentClass);
getTotalNumberOfStudents() public view returns (uint256) {
2417 gas
students.length;
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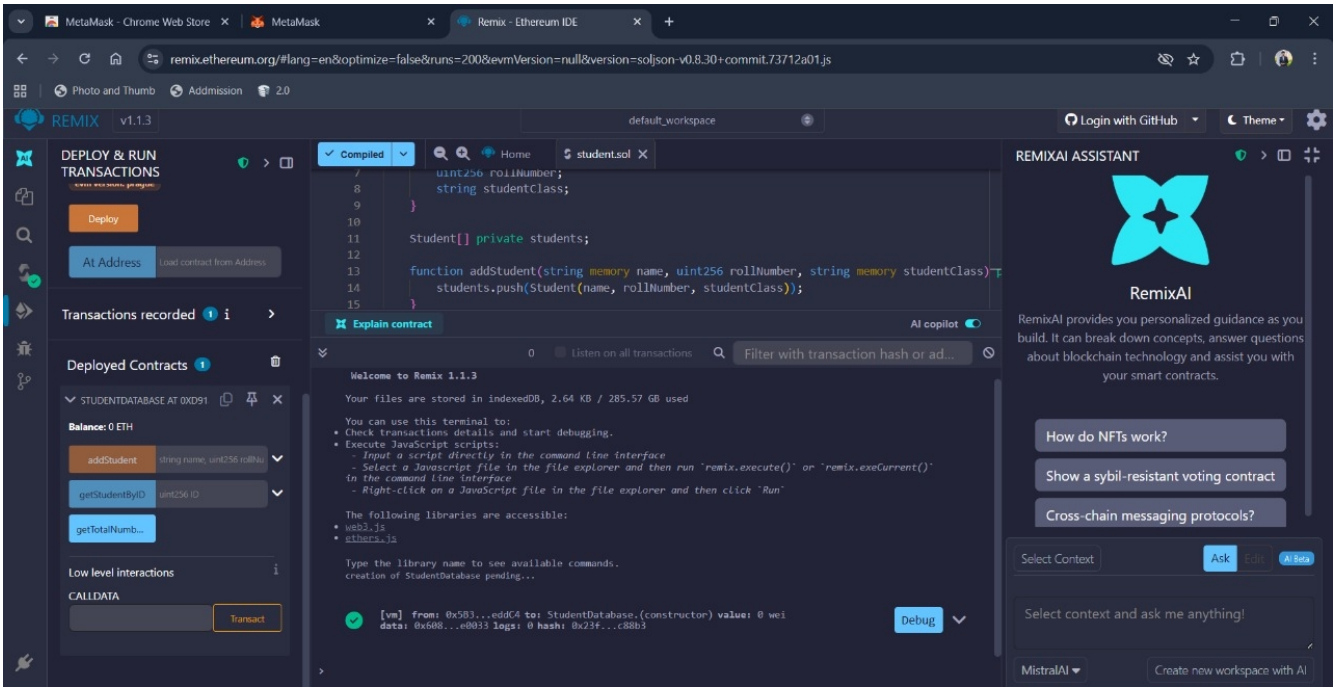
Create new workspace with AI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REMIX v1.1.3
default_workspace
Login with GitHub
Theme
DEPLOY & RUN TRANSACTIONS
Deploy
At Address
Load contract from Address
Transactions recorded
Deployed Contracts
STUDENTDATABASE AT 0XD91
Balance: 0 ETH
addStudent
getStudentByID
getTotalNumb...
Low level interactions
CALLDATA
Transact
Compiled
Home
student.sol
uint256 rollNumber;
string studentClass;
}
Student[] private students;
function addStudent(string memory name, uint256 rollNumber, string memory studentClass)
students.push(Student(name, rollNumber, studentClass));
Explain contract
AI copilot
Listen on all transactions
Filter with transaction hash or ad...
Welcome to Remix 1.1.3
Your files are stored in indexedDB, 2.64 KB / 285.57 GB used
You can use this terminal to:
Check transactions details and start debugging.
Execute JavaScript scripts:
Input a script directly in the command line interface
Select a Javascript file in the file explorer and then run `remix.execute()` or `remix.exeCurrent()` in the command line interface
Right-click on a JavaScript file in the file explorer and then click `Run`
The following libraries are accessible:
web3.js
ethers.js
Type the library name to see available commands.
creation of StudentDatabase pending...
[vm] from: 0x5B3...eddC4 to: StudentDatabase.(constructor) value: 0 wei
data: 0x608...e0033 logs: 0 hash: 0x23f...c88b3
Debug
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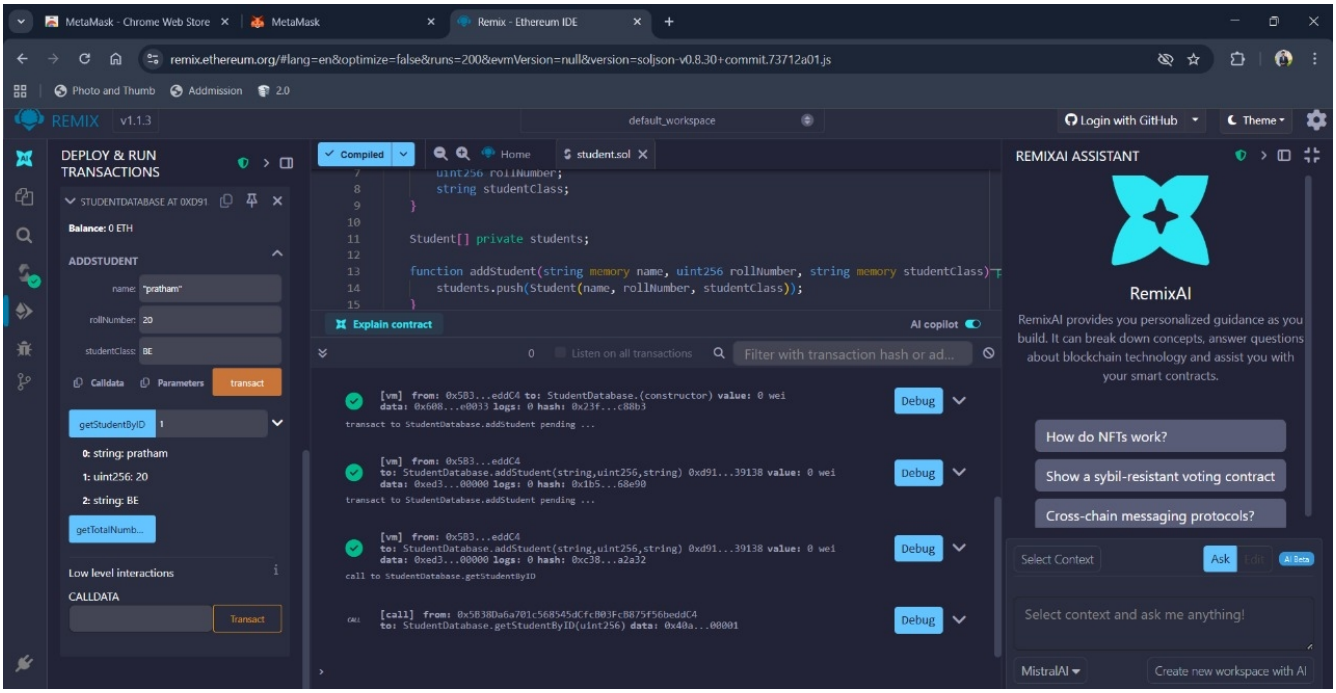
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REMIX v1.1.3
default_workspace
Login with GitHub
Theme
DEPLOY & RUN TRANSACTIONS
STUDENTDATABASE AT 0XD91
Balance: 0 ETH
ADDSTUDENT
name: "pratham"
rollNumber: 20
studentClass: BE
Calldata
Parameters
transact
getStudentByID 1
0: string: pratham
1: uint256: 20
2: string: BE
getTotalNumb...
Low level interactions
CALLDATA
Transact
Compiled
Home
student.sol
uint256 rollNumber;
string studentClass;
}
Student[] private students;
function addStudent(string memory name, uint256 rollNumber, string memory studentClass)
students.push(Student(name, rollNumber, studentClass));
Explain contract
AI copilot
Listen on all transactions
Filter with transaction hash or ad...
[vm] from: 0x5B3...eddC4 to: StudentDatabase.(constructor) value: 0 wei
data: 0x608...e0033 logs: 0 hash: 0x23f...c88b3
transact to StudentDatabase.addStudent pending ...
[vm] from: 0x5B3...eddC4
to: StudentDatabase.addStudent(string,uint256,string) 0xd91...39138 value: 0 wei
data: 0xed3...00000 logs: 0 hash: 0x1b5...68e90
transact to StudentDatabase.addStudent pending ...
[vm] from: 0x5B3...eddC4
to: StudentDatabase.addStudent(string,uint256,string) 0xd91...39138 value: 0 wei
data: 0xed3...00000 logs: 0 hash: 0xc38...a2a32
call to StudentDatabase.getStudentByID
[call] from: 0x5B38Da6a701c568545dCfcB03FcB875f56beddC4
to: StudentDatabase.getStudentByID(uint256) data: 0x40a...00001
Debug
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