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Lesson 4 : Remix Fund Me

```solidity
import "@chainlink/contracts/src/v0.8/interfaces/AggregatorV3Interface.sol";
import "./PriceConverter.sol";

error NotOwner();

contract FundMe {
    using PriceConverter for uint256;

    mapping(address => uint256) public addressToAmountFunded;
    address[] public funders;

    // Could we make this constant?  /* hint: no! We should make it immutable! */
    address public /* immutable */ i_owner;
    uint256 public constant MINIMUM_USD = 50 * 10 ** 18;

    constructor() {
        i_owner = msg.sender;
    }

    function fund() public payable {
        require(msg.value.getConversionRate() >= MINIMUM_USD, "You need to spend more ETH!");
        // require(PriceConverter.getConversionRate(msg.value) >= MINIMUM_USD, "You need to spend more ETH!");
        addressToAmountFunded[msg.sender] += msg.value;
        funders.push(msg.sender);
    }

    function getVersion() public view returns (uint256){
        AggregatorV3Interface priceFeed = AggregatorV3Interface(0x8A753747A1Fa494EC906cE90E9f37563A8AF630e);
        return priceFeed.version();
    }

    modifier onlyOwner {
        // require(msg.sender == owner);
        if (msg.sender != i_owner) revert NotOwner();
        _;
    }

    function withdraw() payable onlyOwner public {
        for (uint256 funderIndex=0; funderIndex < funders.length; funderIndex++){
```

```solidity
            address funder = funders[funderIndex];
            addressToAmountFunded[funder] = 0;
        }
        funders = new address[](0);
        // // transfer
        // payable(msg.sender).transfer(address(this).balance);
        // // send
        // bool sendSuccess = payable(msg.sender).send(address(this).balance);
        // require(sendSuccess, "Send failed");
        // call
        (bool callSuccess, ) = payable(msg.sender).call{value: address(this).balance}("");
        require(callSuccess, "Call failed");
    }
    // Explainer from: https://solidity-by-example.org/fallback/
    // Ether is sent to contract
    //      is msg.data empty?
    //          /    \
    //         yes   no
    //         /      \
    //    receive()?  fallback()
    //     /   \
    //   yes    no
    //  /        \
    //receive()  fallback()

    fallback() external payable {
        fund();
    }

    receive() external payable {
        fund();
    }

}
```

```solidity
// SPDX-License-Identifier: MIT
pragma solidity ^0.8.8;

import "@chainlink/contracts/src/v0.8/interfaces/AggregatorV3Interface.sol";

// Why is this a library and not abstract?
// Why not an interface?
library PriceConverter {
    // We could make this public, but then we'd have to deploy it
    function getPrice() internal view returns (uint256) {
        // Rinkeby ETH / USD Address
        // https://docs.chain.link/docs/ethereum-addresses/
        AggregatorV3Interface priceFeed = AggregatorV3Interface(
            0x8A753747A1Fa494EC906cE90E9f37563A8AF630e
        );
        (, int256 answer, , , ) = priceFeed.latestRoundData();
        // ETH/USD rate in 18 digit
        return uint256(answer * 10000000000);
    }


    // 1000000000
    function getConversionRate(uint256 ethAmount)
        internal
        view
        returns (uint256)
    {
        uint256 ethPrice = getPrice();
        uint256 ethAmountInUsd = (ethPrice * ethAmount) / 1000000000000000000;
        // the actual ETH/USD conversion rate, after adjusting the extra 0s.
        return ethAmountInUsd;
    }
}
```

```solidity
// SPDX-License-Identifier: MIT
pragma solidity ^0.8.7;

contract FallbackExample {
    uint256 public result;

    // Fallback function must be declared as external.
    fallback() external payable {
        result = 1;
    }

    receive() external payable {
        result = 2;
    }
}
```

```solidity
// SPDX-License-Identifier: MIT
pragma solidity ^0.6.0;

contract SafeMathTester{
    uint8 public bigNumber = 255; // unchecked

    function add() public {
        bigNumber = bigNumber + 1;
    }
}
```

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

contract SafeMathTester{
    uint8 public bigNumber = 255; // checked

    function add() public {
        unchecked {bigNumber = bigNumber + 1;}
    }
}
```