

# Homework 4

## CTF

Register on the Encode CTF : <https://www.solidityctf.xyz/>

## Optimising Storage

Take [this contract](#)

Use the [sol2uml tool](#) to find out how many storage slots it is using.

By re ordering the variables, can you reduce the number of storage slots needed ?

## Foundry Introduction

### 1. Install Foundry

See [Instructions](#)

First run the command below to get `foundryup`, the Foundry toolchain installer:

```
curl -L https://foundry.paradigm.xyz | bash
```

If you do not want to use the redirect, feel free to manually download the foundryup installation script from [here](#).

Then, run `foundryup` in a new terminal session or after reloading your `PATH`.

Other ways to use `foundryup`, and other documentation, can be found [here](#).

### 2. Create a project

1. Use `forge init <project_name>` for the default template or
2. Use this [template](#)

### 3. Run the tests supplied to familiarise yourself with Foundry

## Try out the Solidity Template or the Foundry Template

1. Start a new project using the [Solidity Template](#)
2. Make a fork of mainnet from the command line (you may need to setup an Infura or Alchemy account)
3. Query the mainnet using the command line to retrieve a property such as latest block number.

Is this valid solidity ?

```
contract MyCon {  
    function a(  
        function(  
            function(  
                function(  
                    function(  
                        function(  
                            function(  
                                function() external pure  
                            ) external pure  
                        ) external pure  
                    ) external pure  
                ) external pure  
            ) external pure  
        ) external pure  
    ) external pure {}  
}
```