### Osmosis phase 2 project plan - 2022/Q4

### Scope:

* P1: TWAP
* P2: GAMM transactions, queries…
* P3: Balancer
* P4: Stableswap

#### Artifacts:

* Osmosis <https://github.com/osmosis-labs/osmosis>, for GAMM module (balancer code) and TWAP module on commit hash: 42d73f1cc1c52e85561518be1014b730ef6b7a12
* For stableswap, there are still some pull requests - we will agree upon commit hash later.

#### Features/Module overview an expectations communicated:

Osmosis LAb team member (Dev) gave us a code balancer and TWAP code walkthrough.

Main focus during the audit should be:

* TWAP: focus on spec - clarity is a must, there is a spec written it should be understandable and 1-1 with the implementation
* Balancer: focus on issues, safety checks - spec is not on a very high level, code is slightly confusing (try to give suggestions to improve both)
* Stableswap: safety properties both in code and tests
* Test improvements: goal with osmosis lab is to add more unit and simulation tests. Suggestions for adding more test cases that will improve and fulfull ewxpectations listed above.

### Project Plan

#### Timeline:

* 7-8 weeks starting from 17.10.2022.

#### P1 Feature/functionality to focus on TWAP module

* Specification - clarity
* Discrepancies spec vs code implementation
* Code analysis

##### Tasks:

* Analyze spec and code
* Code inspection for finding issues, suggestion improvements and new test cases
* Run interesting sequences of tx by hand / add or suggest test cases

#### P2: Feature/functionality to focus on GAMM module

* Analyze base for creation and joining/existing pools

##### Tasks:

* Adapt atomkraft - test/use protobuf generator if possible
* Create TLA spec for tx msgs for GAMM module
* Generate traces, use them in Atomkraft and run sequences of transactions on live chain
* Extend TLA spec to cover TWAP functionality

#### P3: Feature/functionality to focus on Balancer code

* Specification - check the quality of existing spec
* Discrepancies spec vs code implementation - try to improve spec, open PRs
* Code analysis

##### Tasks:

* Analyze spec and code
* Improve spec - open PRs
* Code inspection for finding issues, suggestion improvements and new test cases
* Run interesting sequences of tx by hand / add or suggest test cases
* Expand TLA spec to cover critical features of balancer pools

#### P4: Feature/functionality to focus on Stableswap code

* Specification - check the quality of existing spec
* Discrepancies spec vs code implementation - try to improve spec, open PRs
* Code analysis

##### Tasks:

* Analyze spec and code
* Improve spec - open PRs
* Code inspection for finding issues, suggestion improvements and new test cases
* Run interesting sequences of tx by hand / add or suggest test cases
* Expand TLA spec to cover critical features of stableswap pools