Design Document – Motivation Assessment Asset

TUGraz – T2.3C – Apache 2.0 – Client side

About this asset

This asset will be implemented as a client-side component. It is on the one hand concerned with supplying a motivation model for a certain player. Therefore a local stored domain model is loaded. On the other hand, it updates the motivational state of a player based on motivation model and evidences gained from the game. The asset architecture will prevent multiple asset creation; only one asset per game is needed.

Asset mechanics

To be done…

Asset interfaces

- This asset will be working with motivation indicators. These indicators will form motivation evidences when being grouped (grouping is done internally). A motivation evidence is used to update the motivational state of a player. By providing a motivation hint id as enum a motivation hint can be added to the player's history. A C# representation in the asset interface could be:

  ```
  void addMotivationHint(MotivationHintEnum hint)
  ```

- It will be possible to request the motivation state of a player. In C# the motivation state will be a string-double dictionary/map containing the motivation aspects and the current value in the interval (0,1). A C# representation in the asset interface could be:

  ```
  Dictionary<string,double> getMotivationState()
  ```

- The motivation model, a custom-type serializable data structure containing information regarding motivation aspects, interventions and instances can be. A C# representation in the asset interface could be:

  ```
  MotivationModel getMotivationModel()
  ```

Asset dependencies/requirements

- It also depends on the client-side tracker for sending the current motivaiton state to the server and performing analysis.

Milestones

Milestone 1

- 1.1: Creating the first version of the design document, defining the API and creating a dummy asset with the API implemented

Milestone 2

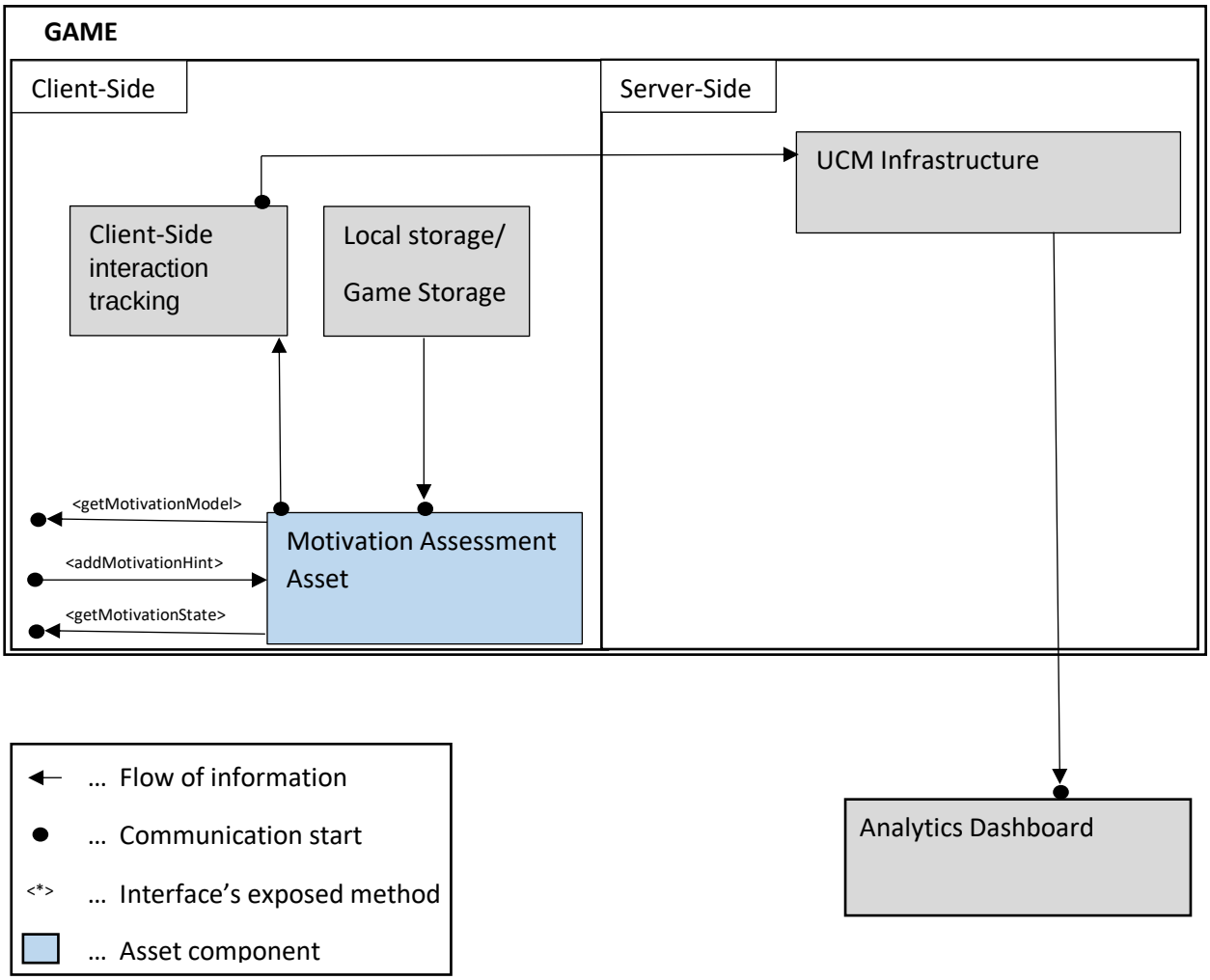
- t2.1: Elaborate XML-Structure containing motivation related data.
- t2.2: Create Software Asset in line with Asset-Manager infrastructure.
- t2.3: Elaborate Settings-structure within the Asset-Manager infrastructure.
- t2.4: Integrate Tracker functionality.
- t2.5: Elaborate example data-sets (XML-structures).

- t2.6: Integrate Game Storage functionality into the asset-functionality.

Milestone 3

- t3.1: testing the asset with a game
- t3.2: instructions and scripts for building and deploying

Graphical representation



Set up the Asset

The motivation assessment is used to load the motivation model on the one hand and to update and access the current motivational state of the player. In the asset settings the id of the locally stored motivation model (= data source for the motivation assessment asset) can be adopted. The C# code could look like the following, for adopting the id:

```
MotivationAssessmentAsset masa = MotivationAssessmentAsset.Instance;
MotivationAssessmentAssetSettings masas = new  MotivationAssessmentAssetSettings();
masas.XMLLoadingId = "id1";
masa.Settings = masas;
```

Use the Asset

- For loading the motivation model (which is not necessary for the regular use) the following code can be used:

```
MotivationAssessmentAsset masa = MotivationAssessmentAsset.Instance;
MotivationModel mm = masa.loadMotivationModel();
```

Note, that therefore the IDataStorage Bridge need to be implemented. The data need to be supplied in a XML-file, created via a JS-HTML page (more information where to find and how to use this tool will be supplied at a later stage).

- The motivational state of the player is updated by supplying hints to the asset. Each hint can be one out of the following table:

HINT - string	Meaning
success	A task was successfully.
new level	A new level was reached.
help	The help was called.
fail	An attempt to solve the task was unsuccessfully made.
new problem	A new problem was presented to the player.

The following code snipped shows how to send a hint to the asset:

```
MotivationAssessmentAsset masa = MotivationAssessmentAsset.Instance;
masa.addMotivationHint(MotivationHintEnum.Help);
```

- To access the current motivational state the following method can be used:

```
MotivationAssessmentAsset masa = MotivationAssessmentAsset.Instance;
Dictionary<string, double> motState = masa.getMotivationState();
```

The return value is interpreted as the pair of motivation aspect name and motivation aspect value (which ranges from zero to one).

Deployment

For the source code the following GitHub-link can be used https://github.com/RAGE-TUGraz/MotivationBasedAssets - it contains the Visual Studio solution of the motivation based asset. Furthermore, the broken links to external asset DLLs need to be fixed for each project and the Bridge code need to be adopted to the new environment, e.g. changing the IDataStorage path.

For integration into Unity, the resulting DLLs need to put into a folder in the Unity working-directory.

Unit test

For executing unit tests, the source code need to be open in visual studio and all links need to be fixed. In the test-explorer all tests can be executed.