SLICE Explorer

Specifications of a Unity-based image explorer for the CAVE

Mark Utting and Jacqui Blake, August 2016

## Terminology

* The explorer program displays one ***scene*** at a time. Each scene fills the whole cave.
* Each scene is made up of one or more ***frames***, arranged horizontally.
* Each frame is a 2D image (or in the future, 3D image, or video). Typically, each frame covers one or more ***columns*** of the CAVE. (Each column contains 4 panels arranged vertically).
* Scenes are ***linked*** together in a network to create a ***presentation*.** Most presentations will contain a linear sequence of scenes, but we also want to support networks that allow a lecturer or student to take different paths through the presentation - for example, moving east/south/north/west from a given scene to another scene would be a good way of moving to different geographical locations in a sports event.

presentation

link

scene

frame

## Presentation Specification

The input *presentation file* contains a single JSON object that describes the presentation. Supported name:value pairs include ('\*' means required):

* "name" : *presentation name*
* "author" : *author name*
* "copyright" : *copyright message*
* \*"scenes" : [*list of scene objects*]

Each scene object is a JSON object with the following name:value pairs:

* "scene" : *scene name*
* \*"frames" : [*list of frame objects*]
* "north" : *scene number or name*
* "east" : *scene number or name*
* "south" : *scene number or name*
* "west" : *scene number or name*

Each frame object is a JSON object with the following name:value pairs:

* "image" : *file name or URL for image*
* "video" : *file name or URL for video*  (for version 2 of the explorer)
* "width" : *integer*. This specifies the relative width of this frame, compared to the other frames in this scene. It defaults to "width":"1". For example, if a scene contains three frames, with widths, 1, 2, 1, then the frames will fill 1/4, 1/2, and 1/4 of the CAVE wall, respectively.
* "height" : fraction. This specifies how much the image should be scaled to fit the height of the CAVE wall. Defaults to "1.0" (full height).

## Software Development Tasks

1. Model the CAVE in Unity (e.g. as a circular wall, around the viewer).
2. Read the presentation spec file (JSON format) into a set of objects or data structures.
3. Implement the display of a single scene (containing one or more frames). Start with simple file names of 2D images in PNG or JPEG format only.
4. Implement input commands (e.g. arrow keys) that allow the presenter to follow a link (north/south/east/west) to the next scene.

## Optional Extras, if time allows

1. Allow URLs for image names. Read the images from the internet.
2. See if we can support the "video" option of a frame?
3. See if we can 'animate' the following of a link from one scene to the next? Use Simon's 'tours' from one scene to the next?