MCast and SolarSystemViewer

MCast

MCast is a graphics program designed to read those xml files you will create in your assignments and to visualize them for you. To download the software MCast go to the following website specified on the semester page. When it's downloaded you will have to unzip it and place it at a desired location. The xml files you have created are placed in the same folder as your program. These xml files will have to be moved to the `data` or `ssv_data` folder in the MCast folder for MCast to be able to read them.

The package contains two applications, MCast and SSview. Unless you are doing the project, you will mostly need SSView in the first part of the course to be able to move around in your solar system and check the orbits.

It should in most cases suffice to double-click the corresponding executable inside the MCast directory to start the applications. You can also start MCast or ssview from the terminal (often it will only work in the terminal). To do this, cd to the MCast folder and type ./mcast or ./ssview. If you're using Anaconda type "mlp ssview" or "mlp mcast". Here's an example on how to open the programs:

```
> cd MCast
> ./ssview
#to access the folder an to play Ssview

> cd MCast
> ./mcast
#to access the foler and to play MCast

> cd MCast
> mlp ssview
#same but in Anaconda

> cd MCast
> mlp mcast
#same but in Anaconda
```

A pop-up window will appear asking you to choose graphics setting. If you are unsure, simply leave the suggested settings and press Play! If you have too low resolution, it might be difficult to read the text properly, in this case, try to increase the resolution.

The program will now open (hopefully, if you're having problems contact your group teachers for help). **On Mac computers there are two common problems**:

- `mcast cannot be opened because it is from an unidentified developer`. In this case, go to System Settings, then Privacy and Security, there should be a switch to allow Apps from unidentified developers.
- You get the error `bad cpu`. In that case, you need to install the Rosetta-translator:

  ```
  softwareupdate --install-rosetta
  ```

You now have to load your xml file in the option "Load solar system" or "file" and then "load'. If you do not find your xml here, please check that you copied it into the `data` folder for MCast or the `ssv_data` folder for SSView, and restart the app. After selecting your xml, use the button " > " or the slider to play the file. In SSview you select the planet from the drop down menu to focus on that specific planet. To zoom, use the mouse wheel, to rotate your view, use the right mouse button (if you use touchpad, two fingers to the left/right to zoom, press the button combined with left/right or up/down movement to rotate view). **Note:** for the satellite landing, unclick the 'force spacecraft distance' button in the lower left corner when the space craft is landing. This option makes sure the space craft is not inside a planet, but when landing, it may be forcing it too far away.

NOTE for SSView: If you have problems finding/seeing your objects, select the planet (when using a satellite you can also select the satellite) from the drop-down menu so that the focus is on the selected object and then zoom in/rotate view. Often if you loose the object from view, just select it again from the menu and zoom. When looking at the satellite landing, if you select the satellite the camera is moving with the satellite (as you have chosen to have it in focus) and it might be difficult to se what is happening. In this case it might be better to choose to focus on the planet (select it from the drop-down menu) instead. Try to switch between focusing on the satellite and the planet to find the best way to view the orbit of the satellite.

Which xml file runs in which program?

- The xml file from methods `generate_orbit_video`, `generate_landing_video` and `generate_binary_star_orbit_video` from the `SolarSystem` class runs in the program SSview. Simply open ssview as described above and load the file.

- The xml files from the relativity exercises run in MCast. Simply open mcast as described above and load the file.