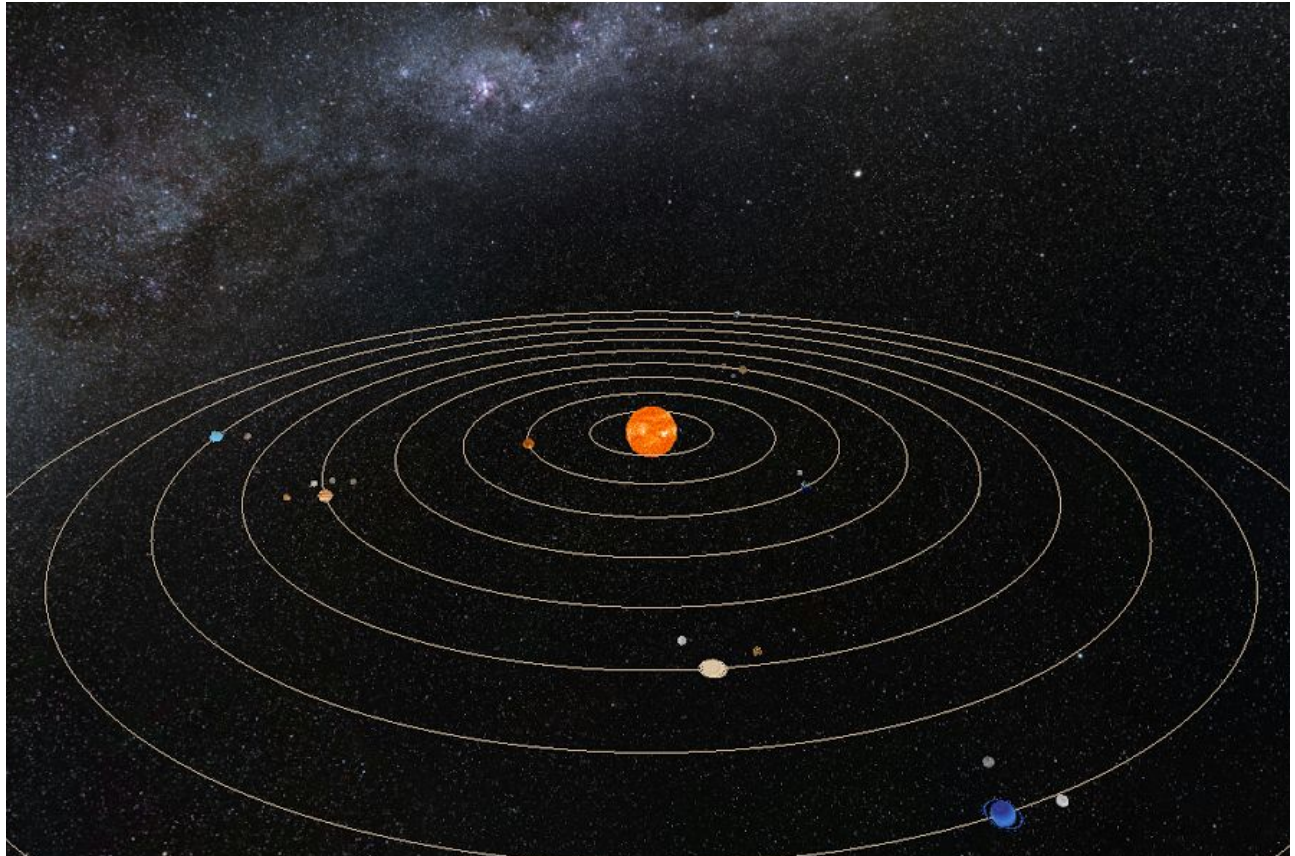


# User Manual

## PA 7 - Solar System



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## Required Libraries

In order to compile and run this program, some additional programs/libraries must be downloaded and installed. For more information on these programs/libraries, see the Technical Manual. These programs/libraries are:

Magick++

Assimp

OpenGL

## Compiling the Program

To compile the program, simply type:

```
make
```

from the build folder or from the PA7 folder type:

```
make -C ./build
```

## Executing the Program

To run the program, from the PA7 folder, type:

```
./bin/Solar
```

## User Controls

There are multiple controls to allow basic navigation around the solar system. To change what planet is being looked at, hit 0-9.

- 0** - Look at the Sun
- 1** - Look at Mercury
- 2** - Look at Venus
- 3** - Look at Earth
- 4** - Look at Mars
- 5** - Look at Jupiter
- 6** - Look at Saturn
- 7** - Look at Uranus
- 8** - Look at Neptune
- 9** - Look at Pluto

There are also a few additional keyboard controls which provide some more functionality:

- \*** - Changes the camera to look at the next object. The ordering starts from the Sun, goes through all the planets, and then the moons for the planets.
- +** - Changes the camera to a global view to see all the objects.
- Up Arrow** - Zooms in on the current object.
- Down Arrow** - Zooms out from the current object.
- Escape Key** - Ends the program

## Menu Options

While the program is running, a menu can be opened by right clicking anywhere on the screen. Once the menu is opened, there are four options:

- Start Rotation** - Makes all the objects start orbiting/rotating (unpause).
- Stop Rotation** - Makes all the objects stop orbiting/rotating (pause).
- Toggle Scale** - Toggles the scale from the default where the planets are all scaled accurately to non-scaled where each planet can easily be viewed.
- Quit** - Ends the program.