Time Frame: March 12th - March 17th

Submission: please submit your project to https://isu-esdes-gui-mini-hackathon.devpost.com/

Setup:

- Download the exoplanet dataset: https://www.kaggle.com/mrisdal/open-exoplanet-catalogue
- Matlab App Designer is recommended for this mini-hackathon, however, the participant is welcome to other app development methods if they wish

Part 1:

1. Create a subset of the open exoplanet catalogue dataset from kaggle that only contains confirmed planets that were discovered by the transit method.
    a. Hint: look at the readtable function in Matlab
2. Create a table in your app to display the PlanetIdentifier, Planetary Jupiter Mass (PlanetaryMassJpt), Planetary Jupiter Radius (RadiusJpt), Period in days, SemiMajor Axis, Eccentricity, Inclination, and Surface temperature of the first 50 entries in your data subset.
3. When a button is pressed, create a scatter plot of the planetary radius (y-axis) against the planetary mass (x-axis)

Part 2:

1. Create a calculator that determines the Period of the exoplanet based on the planetary mass, semi-major axis, and the mass of the exoplanet's star.
    a. Hint: https://en.wikipedia.org/wiki/Orbital_period
2. Adapt your mass radius plot so that the color of the points in the scatter plot represent the surface temperature of the exoplanet. If a surface temperature is not given, estimate the value based on where it is on the mass radius plot and the surface temperature of nearby points.
3. Create buttons to scroll through "pages" of 50 entries in the table created in Part 1. Display which page or what range of entries are being displayed in the table.

Part 3:

1. Implement at least 1 other data visualization feature in your app (e.g. given certain Keplarian elements, plot the orbit of the exoplanet around it's star).
2. Create at least 1 other app feature of your choice.