



## Space Exploration

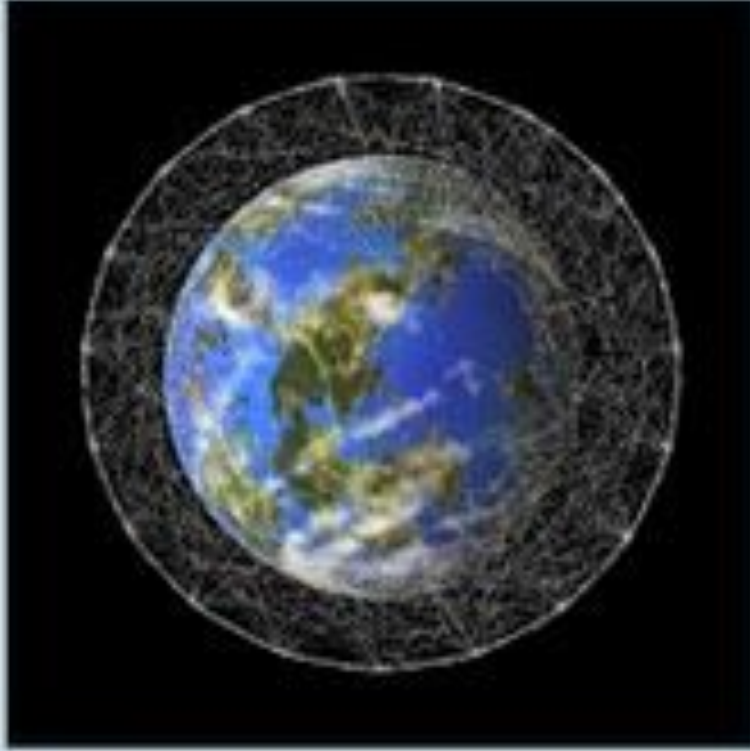
Akshen Doke  
x18191592

Omkar Doke  
x18179525

Smit Chheda  
x18186319

Sahil Bhujbal  
x18183395





**TYPE I CIVILIZATION** harnesses all the resources of a planet. Carl Sagan estimated that Earth rates about 0.7 on the scale.



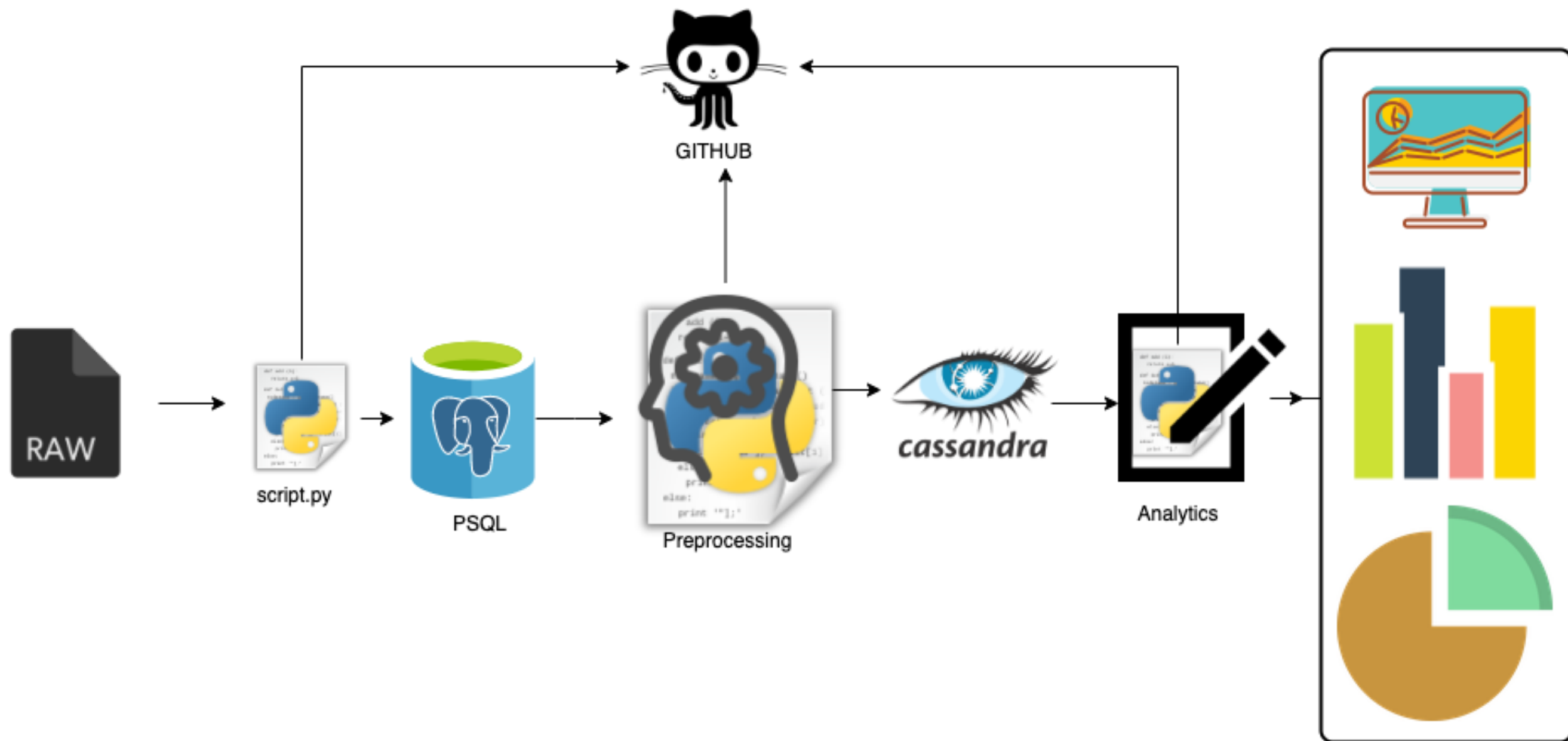
**TYPE II CIVILIZATION** harnesses all the radiation of a star. Humans might reach Type II in a few thousand years.



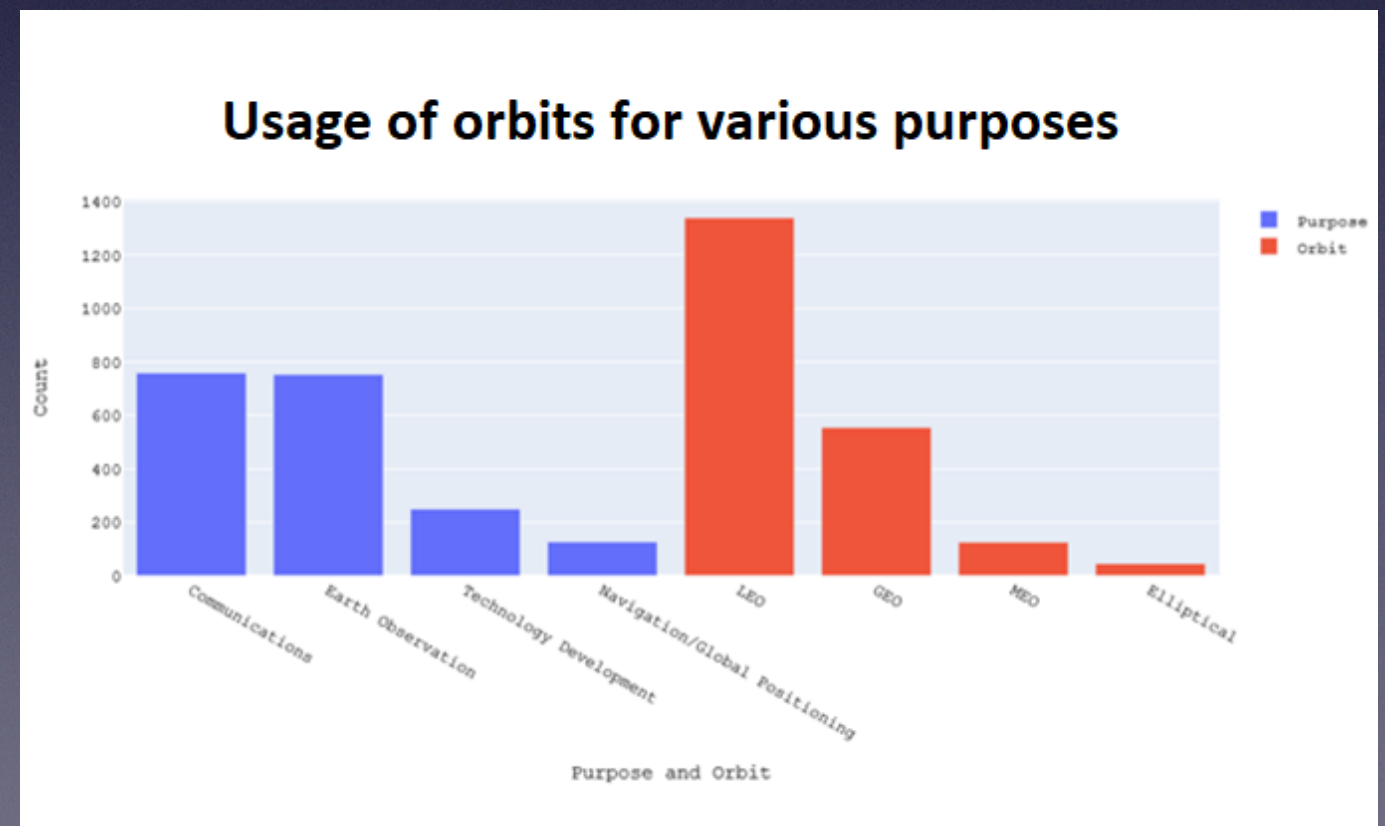
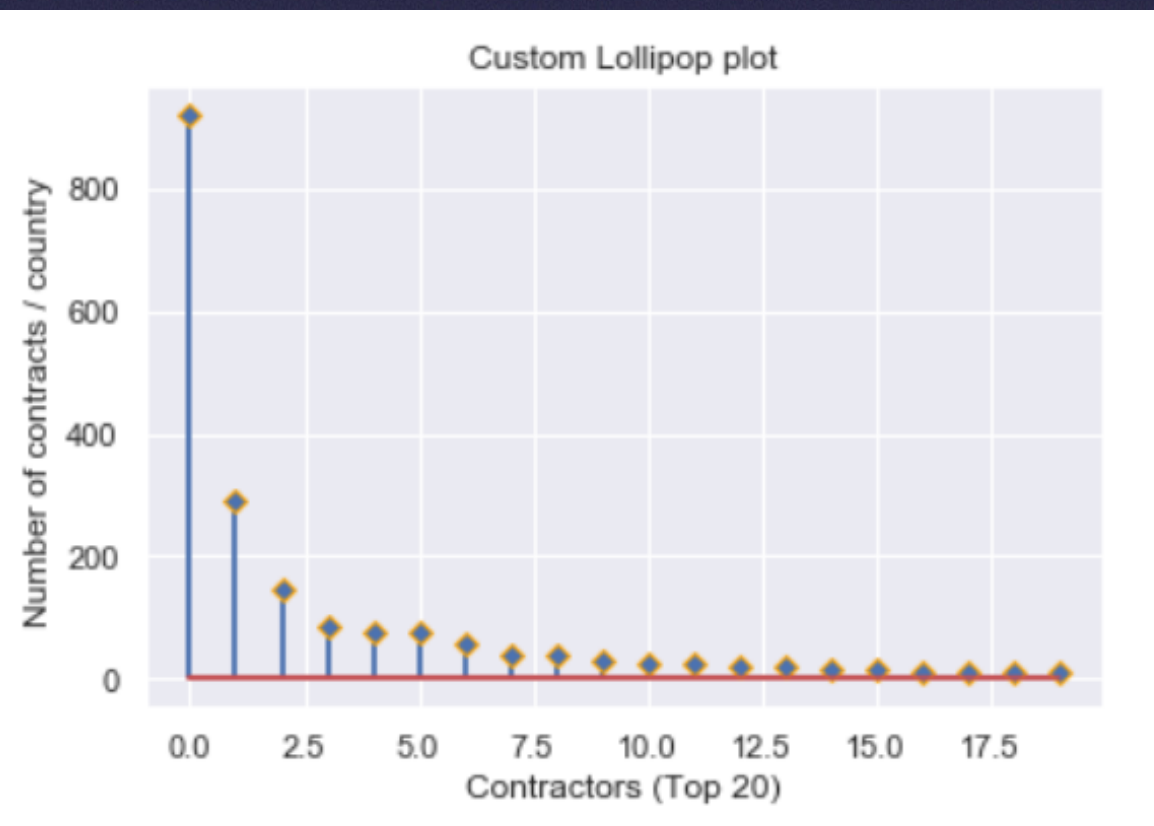
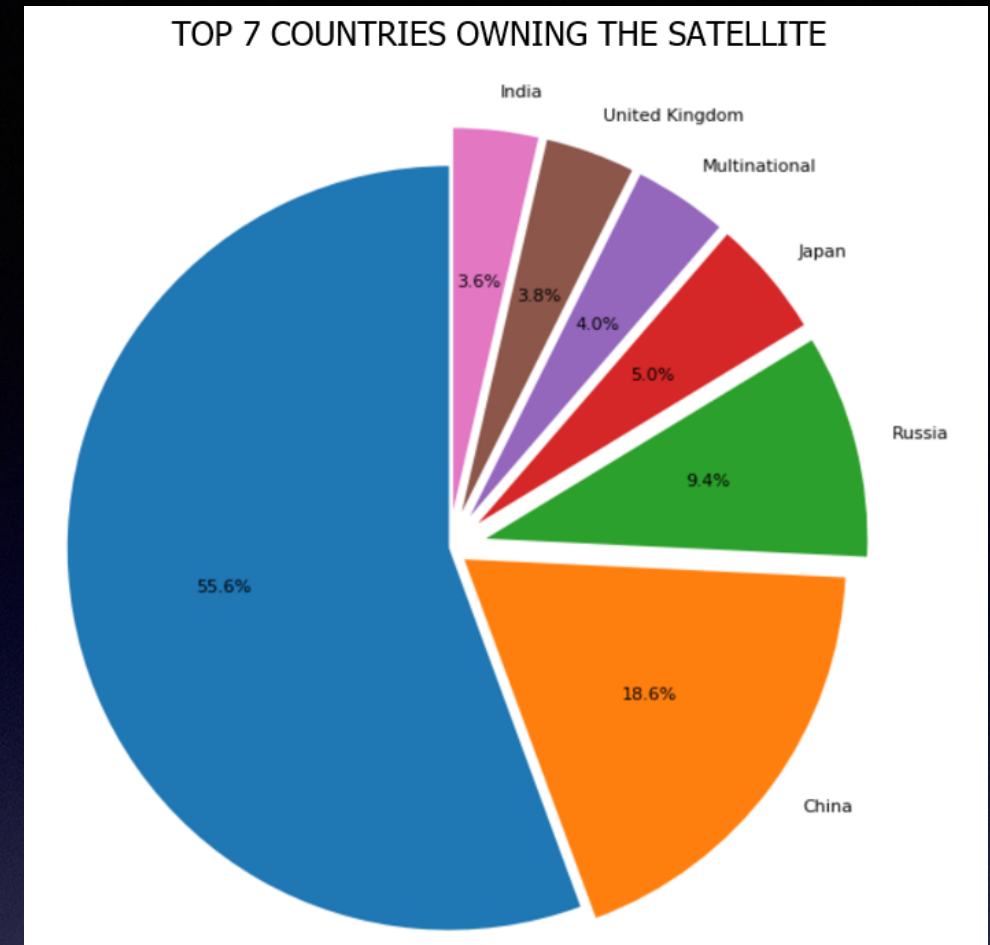
**TYPE III CIVILIZATION** harnesses all the resources of a galaxy. Humans might reach Type III in a few hundred thousand to a million years.

# Motivation





# Satellite Analysis





# Mars

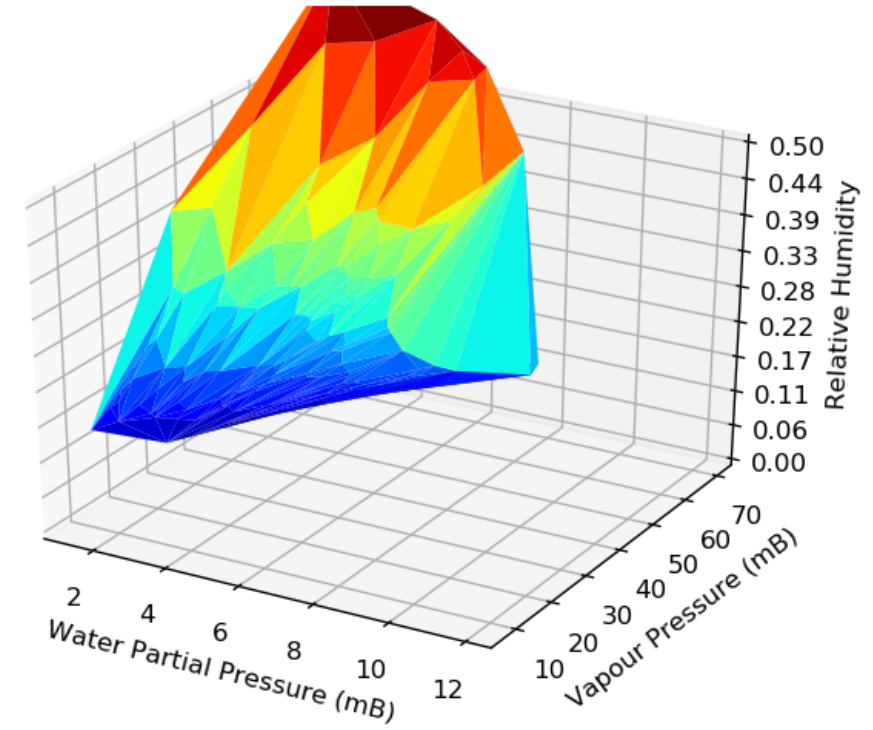
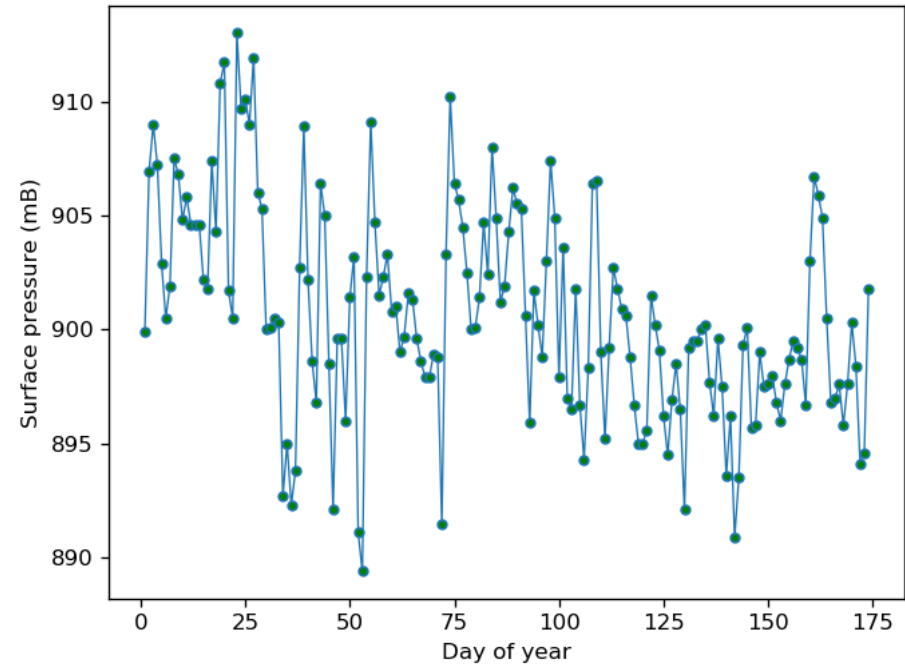
	DOY	Dew Point (°C)	Surface Air Temp (°C)	Surface pressure (mB)	Water Partial Pressure (mB)	Relative Humidity (%)	Sol	Solar_Longitude_LS	Relative Humidity	Vapour Pressure (mB)
DOY	1.000000	0.223973	0.819419	-0.440247	0.169659	-0.483552	0.858338	-0.504998	-0.483552	0.789421
Dew Point (°C)	0.223973	1.000000	0.196367	-0.382047	0.974882	0.557480	0.193404	-0.025541	0.557480	0.156537
Surface Air Temp (°C)	0.819419	0.196367	1.000000	-0.178491	0.121320	-0.644111	0.646758	-0.476943	-0.644111	0.970470
Surface pressure (mB)	-0.440247	-0.382047	-0.178491	1.000000	-0.341333	-0.145764	-0.375309	0.050719	-0.145764	-0.188643
Water Partial Pressure (mB)	0.169659	0.974882	0.121320	-0.341333	1.000000	0.621856	0.141283	-0.004795	0.621856	0.091625
Relative Humidity (%)	-0.483552	0.557480	-0.644111	-0.145764	0.621856	1.000000	-0.390333	0.356647	1.000000	-0.614210
Sol	0.858338	0.193404	0.646758	-0.375309	0.141283	-0.390333	1.000000	-0.510189	-0.390333	0.575585
Solar_Longitude_LS	-0.504998	-0.025541	-0.476943	0.050719	-0.004795	0.356647	-0.510189	1.000000	0.356647	-0.409503
Relative Humidity	-0.483552	0.557480	-0.644111	-0.145764	0.621856	1.000000	-0.390333	0.356647	1.000000	-0.614210
Vapour Pressure (mB)	0.789421	0.156537	0.970470	-0.188643	0.091625	-0.614210	0.575585	-0.409503	-0.614210	1.000000

Dew point has got very strong co-relation with partial pressure

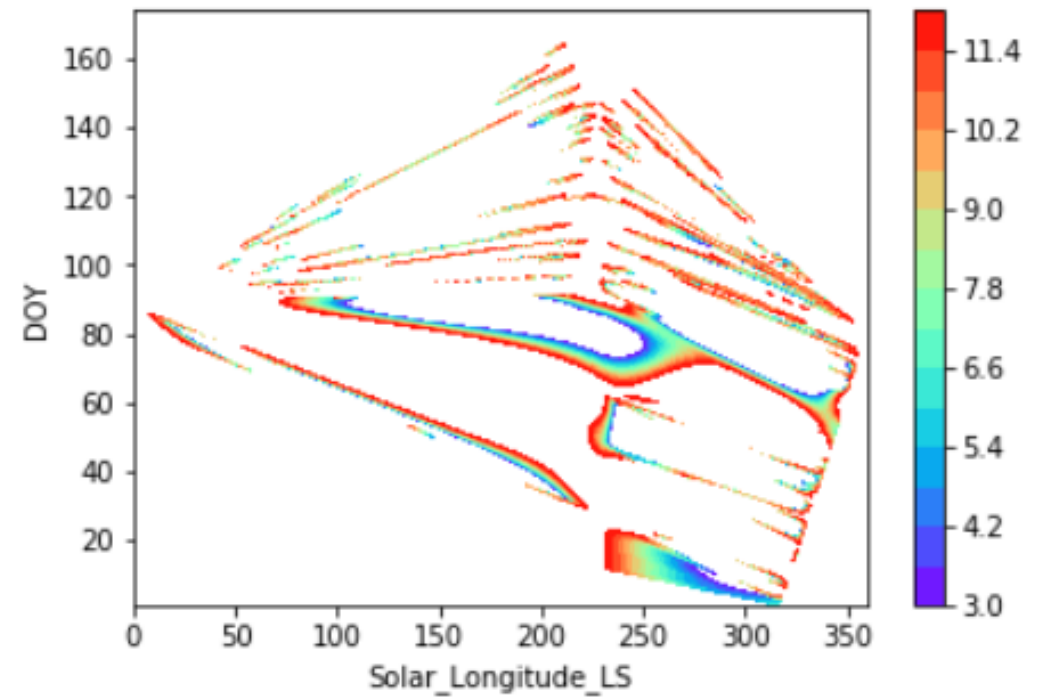
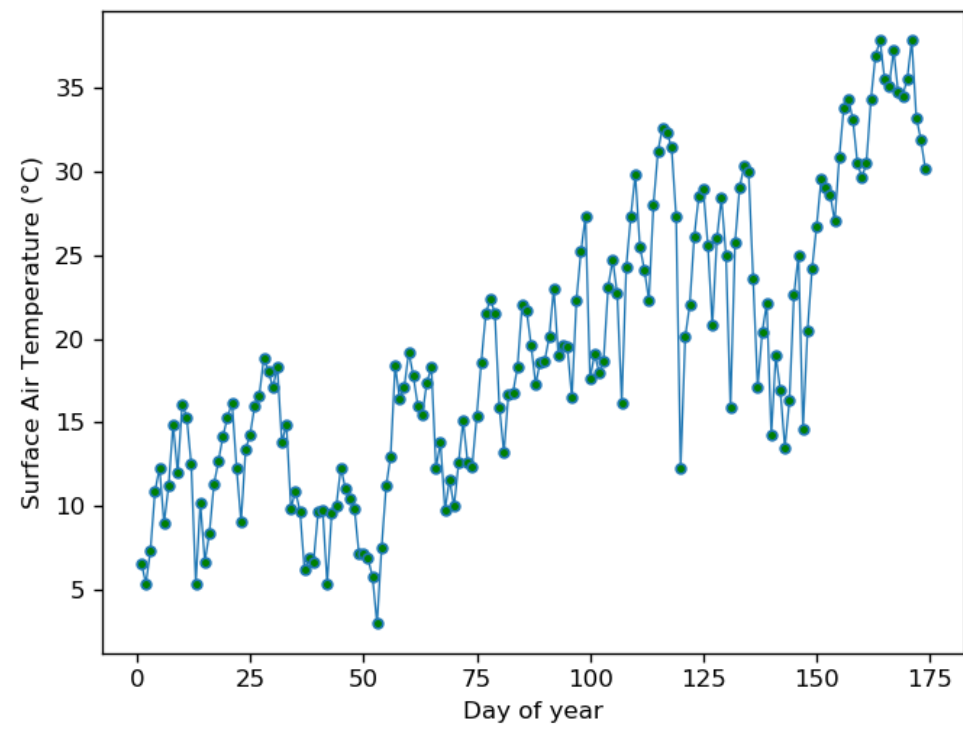
Surface air temperature and vapour pressure is highly co-related



Variation in Pressure (mB)  
on Mars



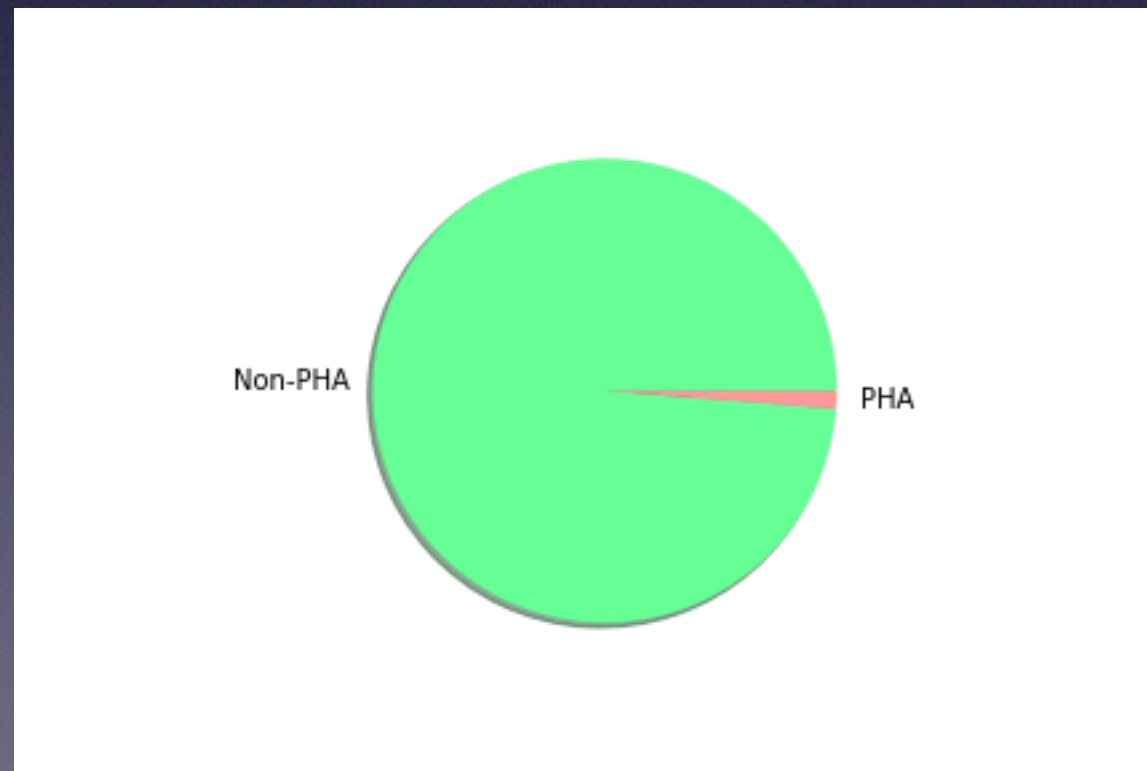
Variation in Temperature (°C)  
on Mars



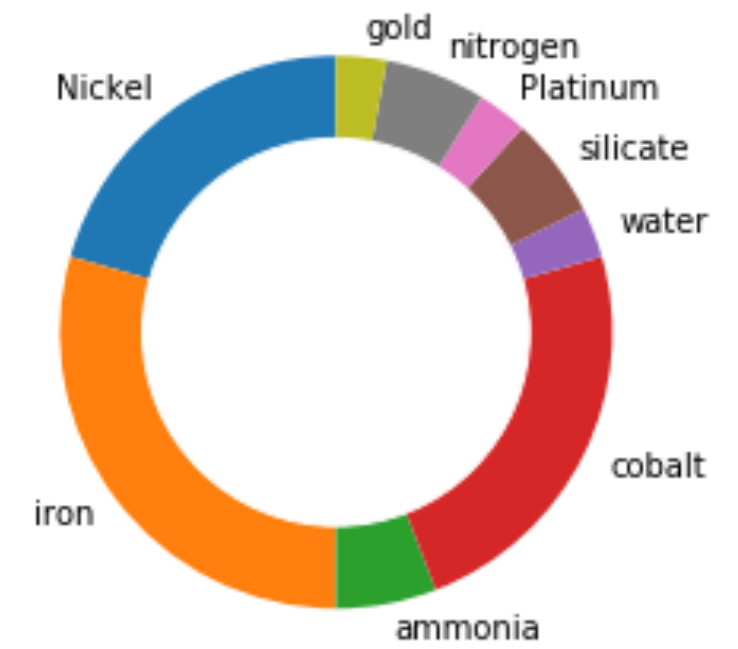
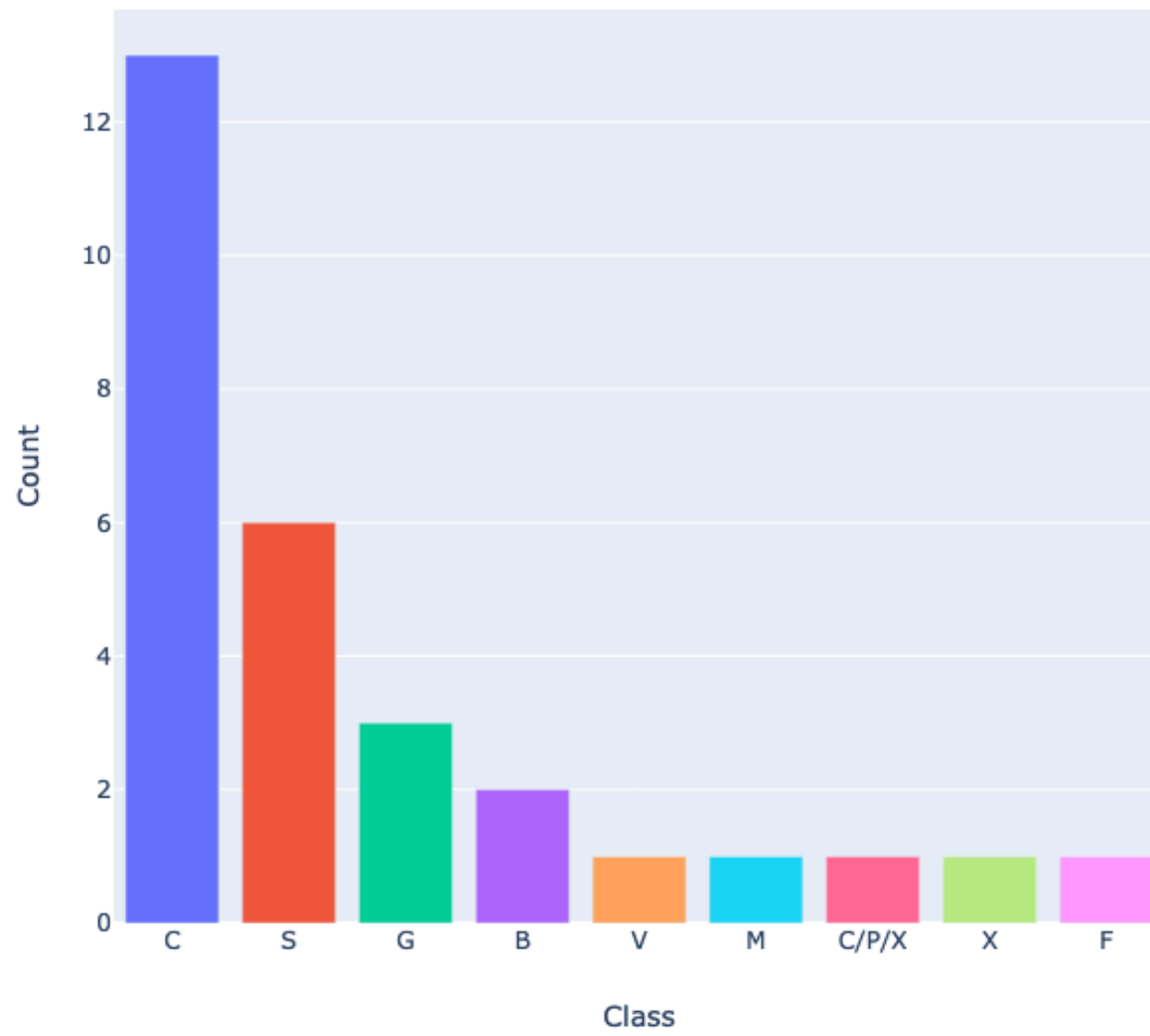


# Asteroid Analysis

- Total Number of asteroids 843784
- 10363 classified as Potentially Hazardous Asteroids
  - 2011 KE15 with min MOID
- 1 Ceres with diameter of 939km biggest asteroid with class G type.

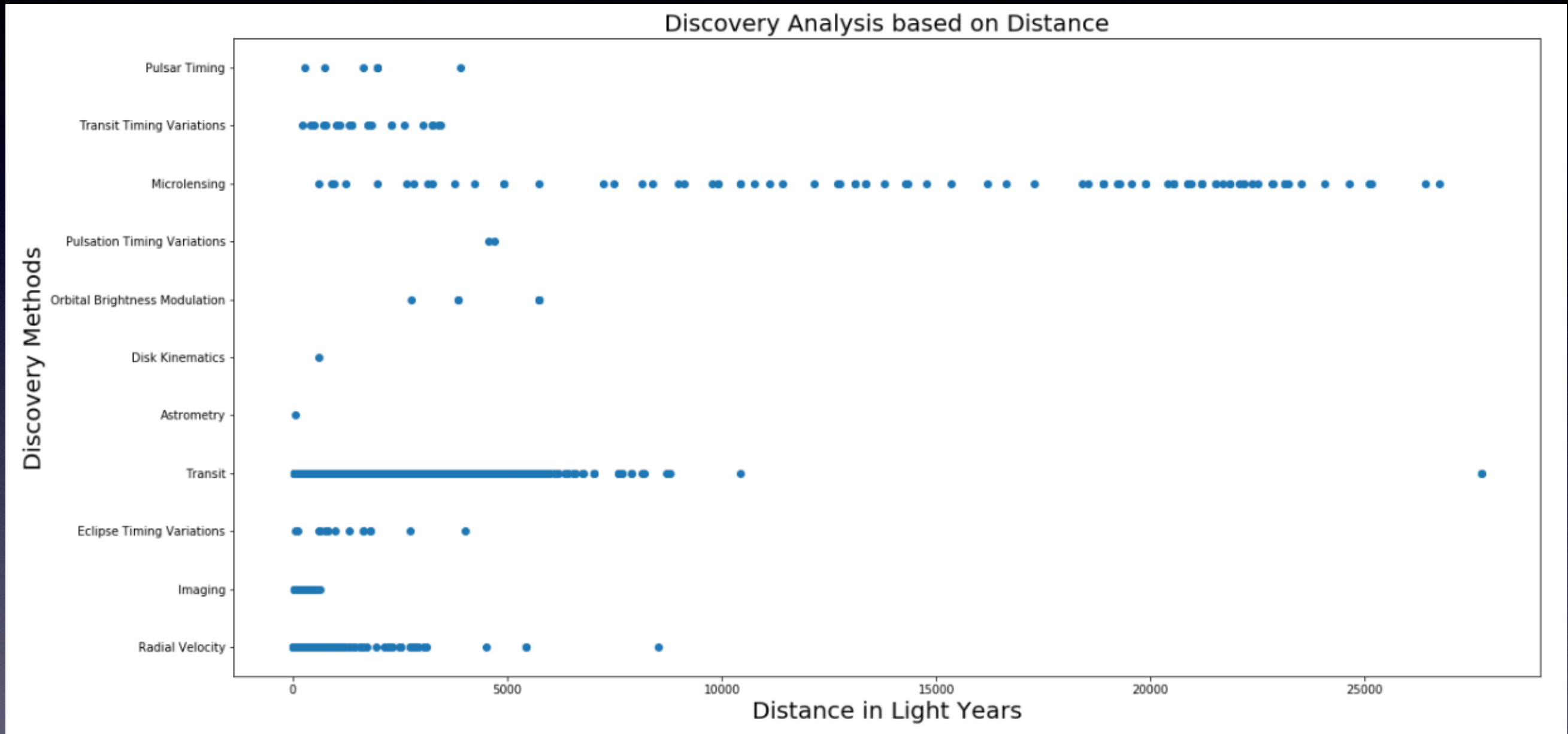






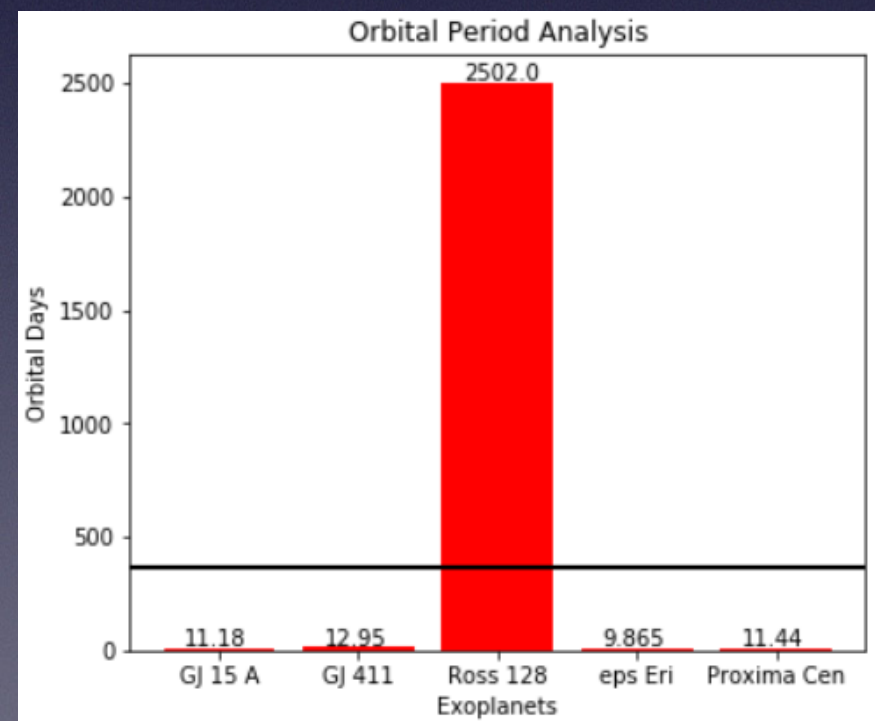
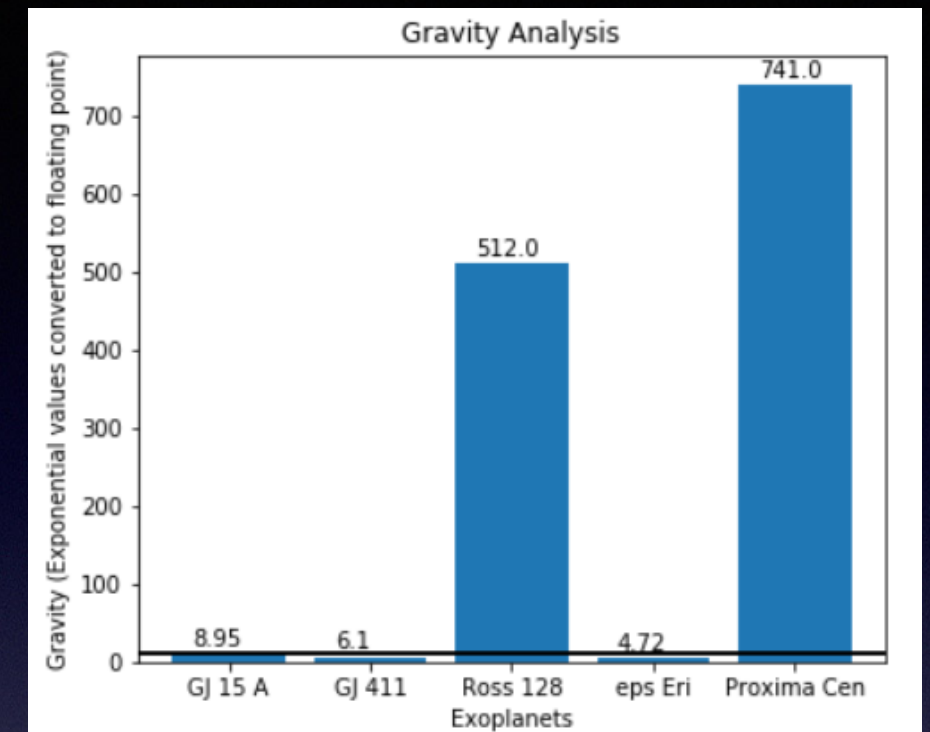
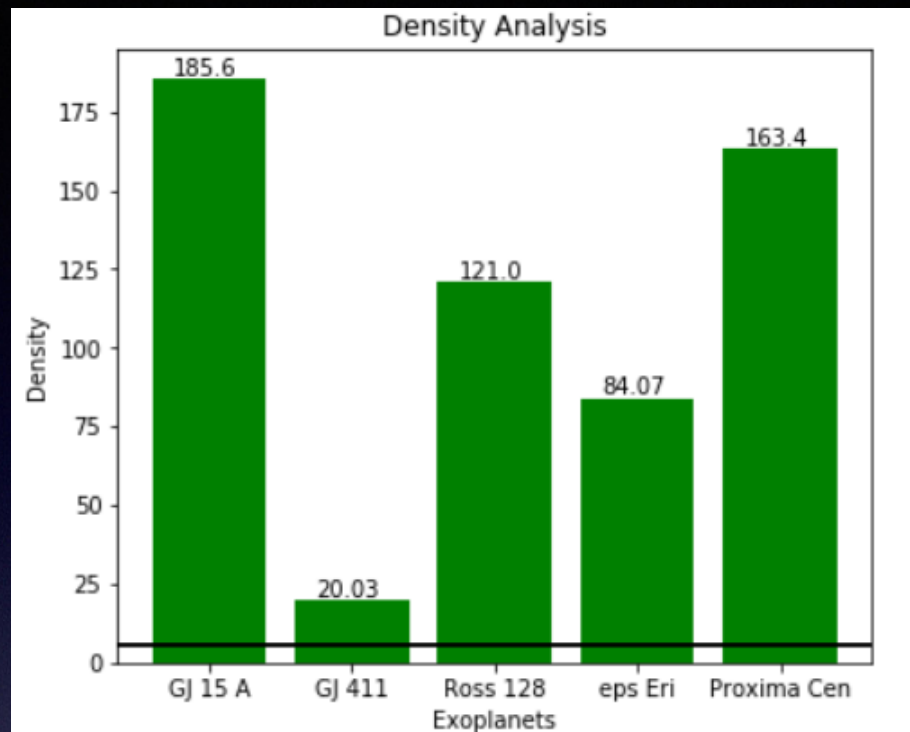


# Exoplanets





# Analysis on 5 closest Exoplanets





# Analysis on Specific Factors

