



# TEAM FIRST LIGHT

Design Review I

# WHO ARE WE

- Our Team:
  - Matt List
  - Carson Pociask
  - Jakob Nelson
  - William Fuertes
  - Jensen Roe
- Mentor:
  - Felicity Escarzaga
- Sponsors:
  - Dr. David Trilling
    - Professor of Astronomy and Planetary Science
  - Dr. Michael Gowanlock
    - Assistant Professor at the School of Informatics, Computing, and Cyber Systems (SICCS)

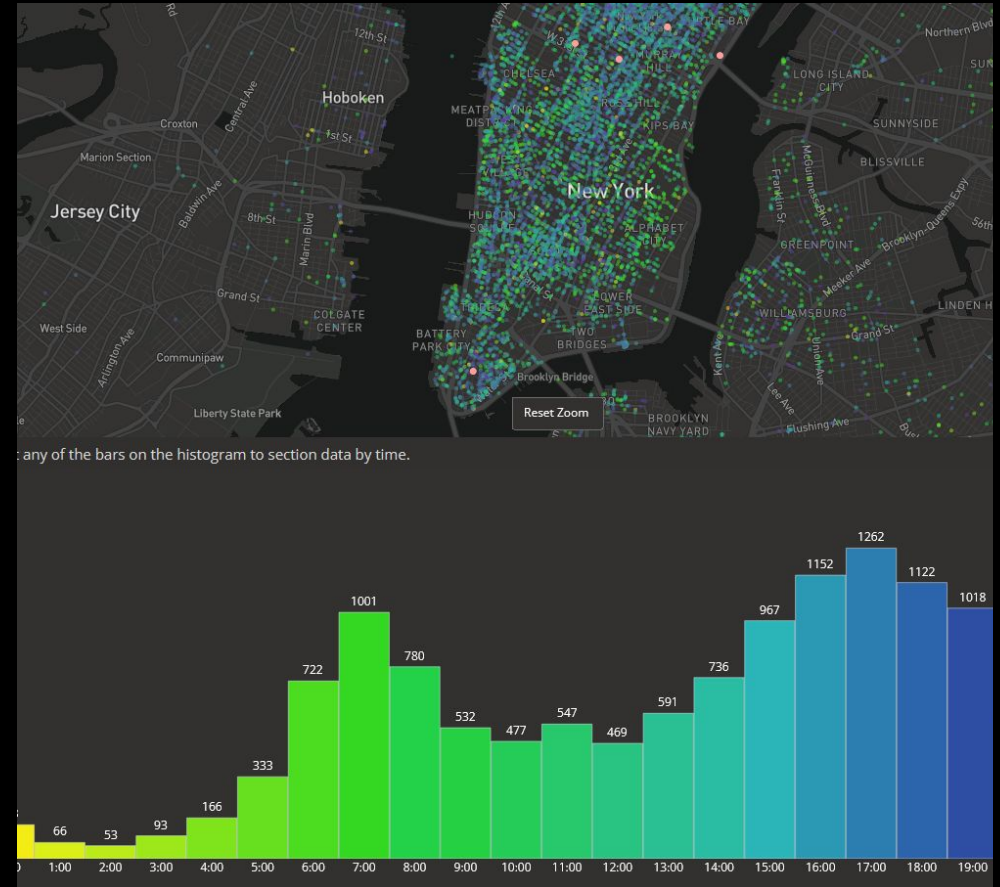
# PROBLEM

- Astronomy is not keeping up with Big Data trends
- Some websites exist, but are not easy to use
- There exists a large store of data at NAU that is not very accessible to the wider astronomy research community.

ID	ZTF ID	RA	Dec	Latest Mag	Brightest Mag	# Alerts
<a href="#">ANT2020muwxy</a>	ZTF20aaxniag	135	63.30	18.02	16.97	
<a href="#">ANT2020aevuzy</a>	ZTF19abpvxle	11.31	59.38	19.47	19.47	
<a href="#">ANT2020btfsi</a>	ZTF18abblrwf	7.65	65.50	18.37	14.58	
<a href="#">ANT2020afijs</a>	ZTF19abfiiii	0.60	60.83	19.64	18.47	
<a href="#">ANT2020ncvcm</a>	ZTF18abakkrv	359.06	64.97	18.81	15.76	
<a href="#">ANT2020axdii</a>	ZTF18abznrqw	0.22	60.94	15.53	14.79	
<a href="#">ANT2018d5nxq</a>	ZTF18aazmpqv	0.86	63.12	16.66	13.73	
<a href="#">ANT2018bzxbc</a>	ZTF18abccxce	2.01	60.92	19.05	18.42	
<a href="#">ANT2020beajo</a>	ZTF18abccxmb	1.90	63.62	16.84	14.01	
<a href="#">ANT2020eac64</a>	ZTF18abnybtf	13.53	65.50	19.11	17.58	
<a href="#">ANT2020bh5sw</a>	ZTF18abdblsc	11.87	60.44	19.90	18.79	
<a href="#">ANT2020cwmtc</a>	ZTF18abcussj	5.47	62.69	20.19	18.66	
<a href="#">ANT2020jk4lo</a>	ZTF17aaagrqc	11.78	60.35	16.02	14.82	
<a href="#">ANT2020bbsku</a>	ZTF17aaaedik	12.80	59.09	18.11	15.78	
<a href="#">ANT2020d3rla</a>	ZTF18abcurdq	359.26	64.44	17.44	15.73	
<a href="#">ANT2018ib3ks</a>	ZTF18abvkkrz	2.00	63.30	18.78	18.45	
<a href="#">ANT2019zyine</a>	ZTF18abbuxye	359.58	61.39	16.71	15.60	
<a href="#">ANT2020aefhchi</a>	ZTF18abcpcrp	2.72	63.86	15.25	14.96	
<a href="#">ANT20214rlky</a>	ZTF21acfpxvs	13.78	65.49	19.32	19.32	
<a href="#">ANT2019eau3g</a>	ZTF18abaqijp	0.04	61.48	17.08	15.01	

# SOLUTION

- Accessible web application to support astronomical research
  - Data dashboard that will host visualizations
  - Support interactivity among astronomical datasets
  - Account creation and manipulation



# REQUIREMENTS ACQUISITION

- Initial project description
- Project sponsors
- Speaking with sponsor's grad students
- External research & sponsor recommended examples



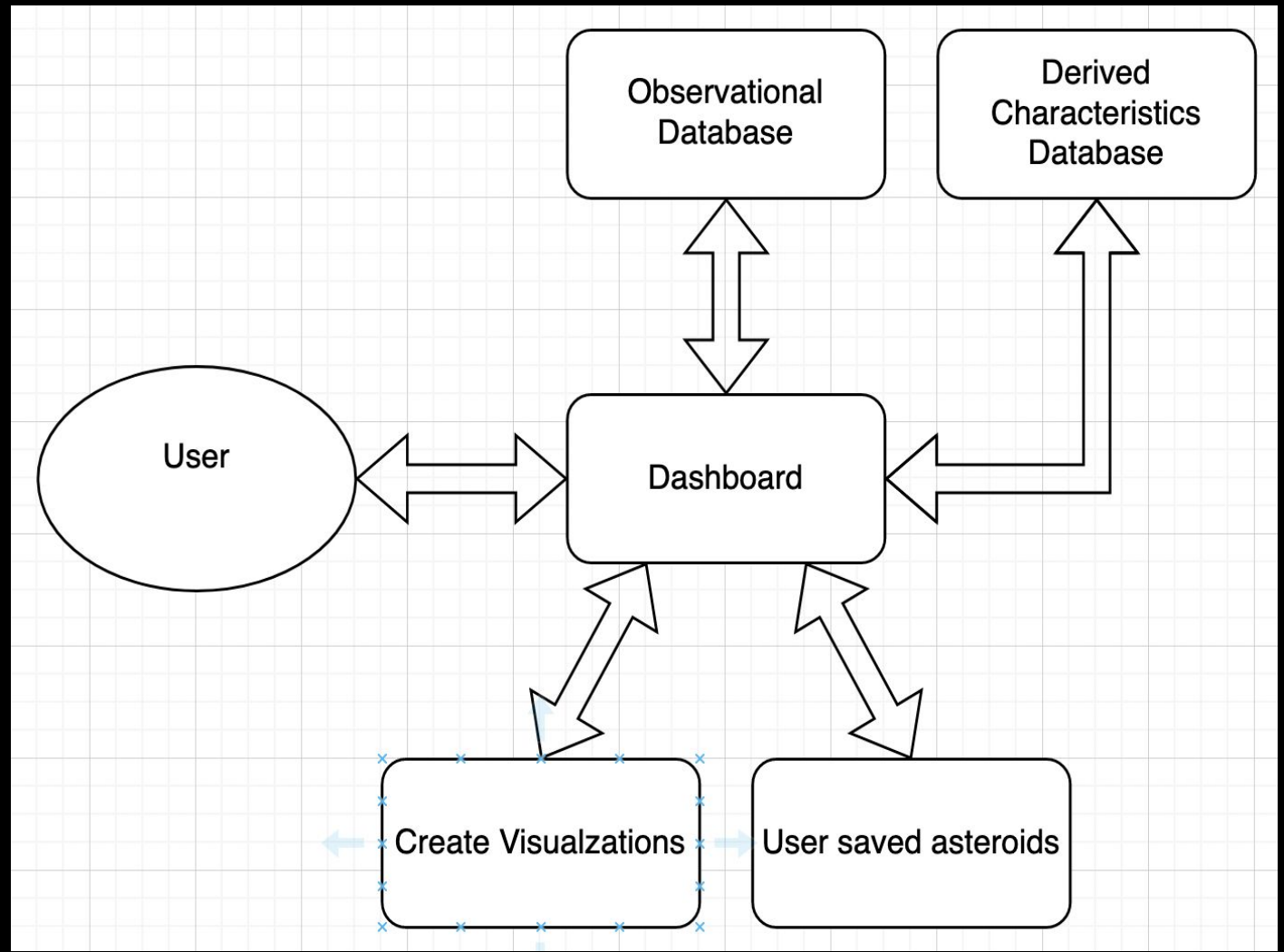
# USER REQUIREMENTS

- Ease of use
- Visualizations of large datasets
- Interactivity among datasets
- Up to date data made available to the public



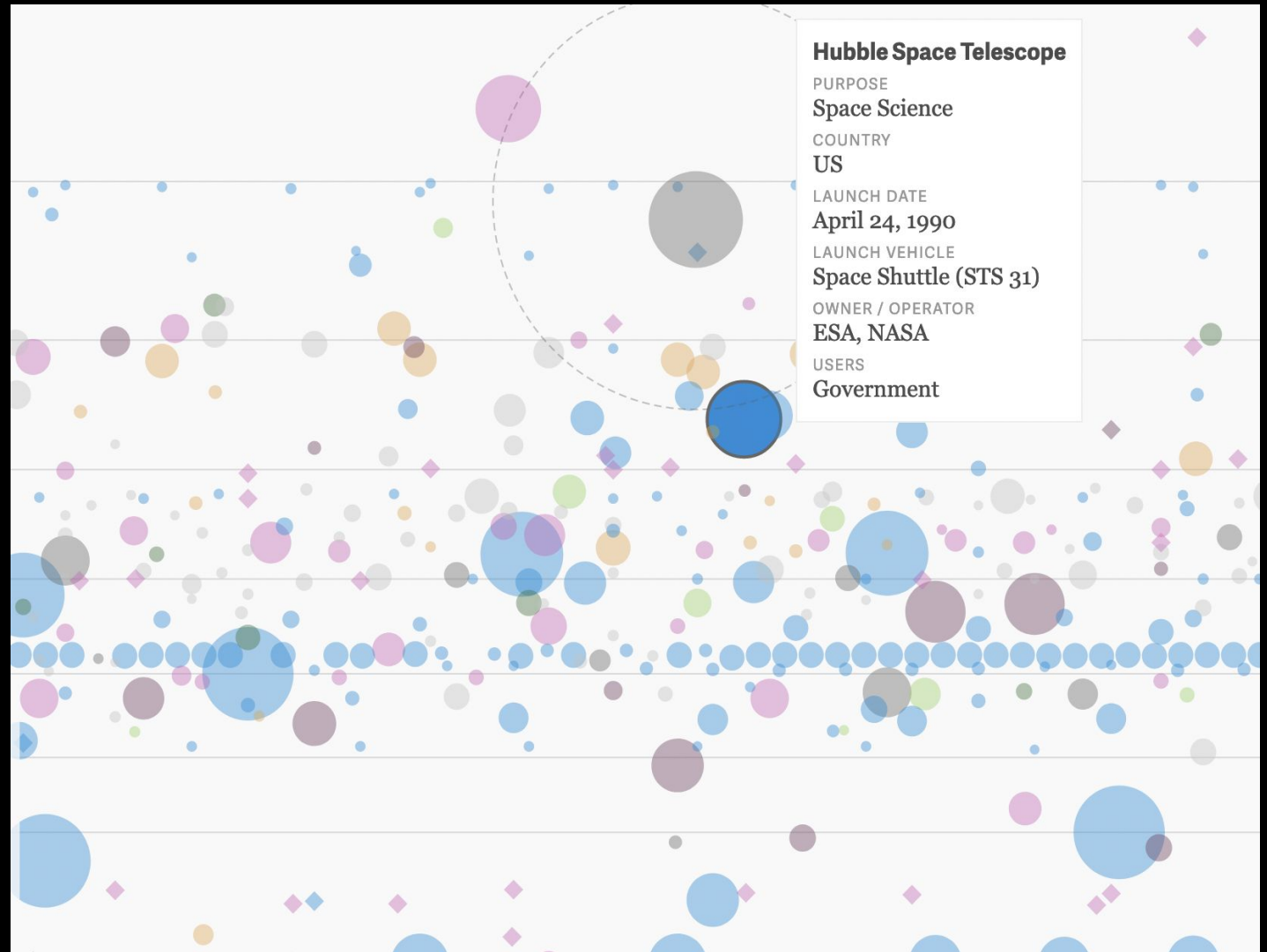
# FUNCTIONAL REQUIREMENTS

- Simple dashboard
- Data visualization
- Ability to access multiple databases
- Account creation and modification



# PERFORMANCE REQUIREMENTS

- Accessible to anyone
- Efficient dataset visualization





# ENVIRONMENTAL REQUIREMENTS

- Hosted at NAU
- Interact with NAU database
- Graphs created with data from NAU database

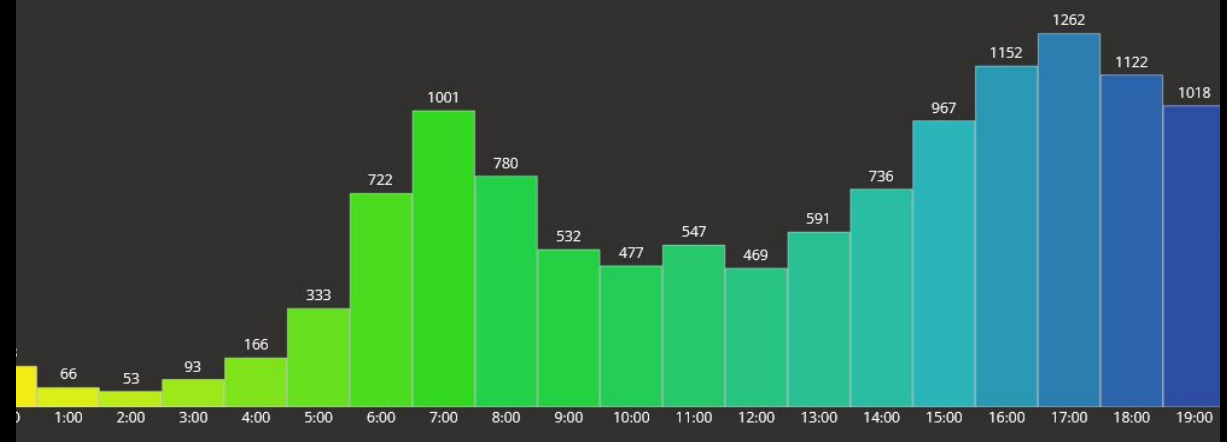


# KEY REQUIREMENTS

- Simplistic Dashboard
- Efficient Dataset Visualization
- Hosted at NAU



any of the bars on the histogram to section data by time.

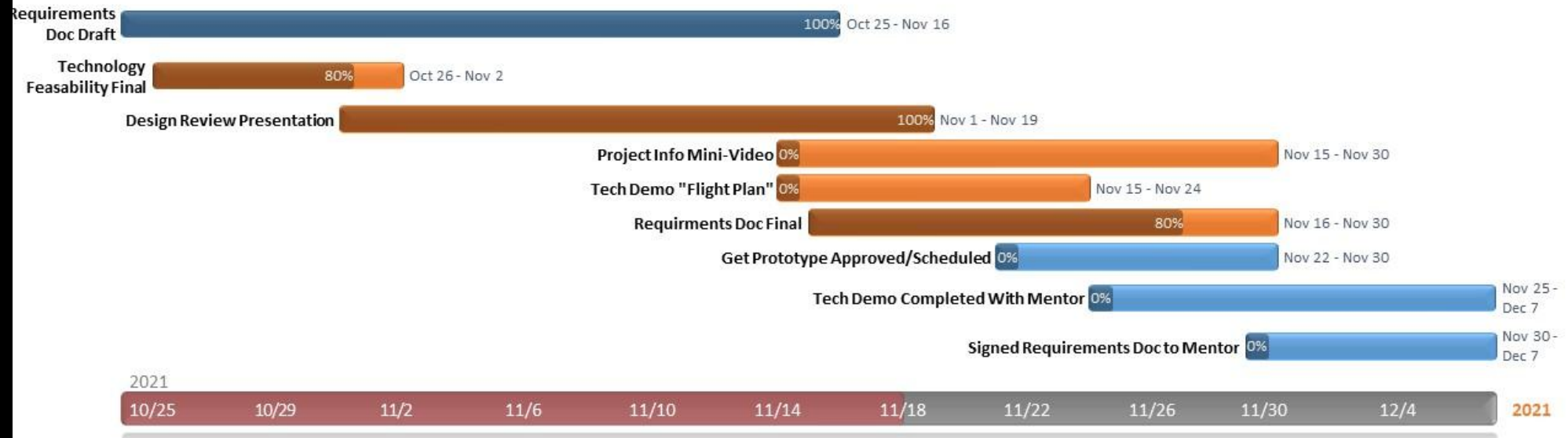


# RISKS AND FEASIBILITY

- Lower risk
  - Sponsors have access to data, and good workflow to use it
  - They wish to make this data accessible to the wider research community
- Project stops working
- Poor performance

# SCHEDULE

## Capstone Schedule



# CONCLUSION

- Big data is at the forefront of today's astronomical research
- Lack of technological support - massive data sets and infeasible tools to handle them
- Web application will support visualization, interactivity, and organization of massive astronomical datasets

Thank You